Curriculum Vitae

Alexander Wong, P.Eng.
Canada Research Chair in Artificial Intelligence and Medical Imaging
Member of the College of the Royal Society of Canada
Associate Professor
Department of Systems Design Engineering
Cross Appointment, Department of Mechanical and Mechatronics Engineering
Cross Appointment, David R. Cheriton School of Computer Science
Research Scientist, Schlegel Research Institute for Aging
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Contents

1 PERSONAL DATA

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EDUCATION AND RESEARCH POSITIONS

University of Waterloo, Waterloo, ON 2013-Present
Canada Research Chair in Artificial Intelligence and Medical Imaging (Tier II)

Amazon Alexa Program - Waterloo, Waterloo, ON 2018-Present
Academic Advisor

Schlegel Research Institute for Aging, Waterloo, ON 2015-Present
Research Scientist

Nvidia Deep Learning Institute, Waterloo, ON 2017-Present
University Ambassador and Certified Instructor

University of Waterloo, Waterloo, ON 2011-Present
Associate Professor, Dept. of Systems Design Engineering (July 2016-Present)
Assistant Professor, Dept. of Systems Design Engineering (May 2011-June 2016)
Cross Appointment, David R. Cheriton School of Computer Science (Dec 2016-)
Cross Appointment, Dept. of Mechanical and Mechatronics Engineering (June 2015-)

Sunnybrook Health Sciences Centre, Toronto, ON 2010-2011
NSERC Postdoctoral Fellow, Dept. of Medical Biophysics
Focus: Computerized cancer analysis of multivariate prostate magnetic resonance imagery

University of Waterloo, Waterloo, ON 2007-2010
Ph.D. in Systems Design Engineering
Thesis: "Probabilistic complex phase representation objective function for multimodal image registration"

University of Waterloo, Waterloo, ON 2005-2007
M.A.Sc. in Electrical and Computer Engineering
Thesis: "Low Cost Visual/Inertial Hybrid Motion Capture System for Wireless 3D Controllers"

University of Waterloo, Waterloo, ON 2000-2005
B.A.Sc. Honours in Computer Engineering

2 RESEARCH AND SCHOLARSHIP

My core research is centered around two major themes. The first major theme revolves around quantitative imaging and analysis techniques in healthcare. In the current state of the healthcare system, much of diagnosis, prognosis, and treatment assessment and planning relies on a heterogeneous mix of highly qualitative imaging systems and analysis techniques. The result is high inter-observer and intra-observer variability in interpretations and clinical decisions, resulting in inconsistent diagnosis, prognosis, and treatment assessment. The lack of interaction between different stages of the pipeline also leads to increased variability in diagnosis, prognosis, and treatment assessment and planning. As such, the goal of the first major theme of my research is on the development of integrative multi-modal medical imaging systems that combine hardware and software co-design as well as machine learning to enable more efficient, effective, and consistent diagnosis, prognosis, and treatment assessment and planning.

The second major theme revolves around operational artificial intelligence, particularly operational deep learning, where the goal is to address the key fundamental challenges that limit the widespread adoption of artificial intelligence in real-world, mission-critical scenarios where a specific set of requirements, constraints, and regulation must be met. To address these challenges, I have focused primarily on generative strategies for automatically creating deep neural networks that are tailored for operational requirements (e.g., architectural complexity, computational complexity, accuracy, etc.) as well as explainable deep learning for surfacing meaningful critical factors that reflect the decision-making process of deep neural networks (for performance and dependency validation, for improving trust and transparency, and for regulatory compliance.

2.1 RESEARCH INTERESTS

- Deep-structured, random graph models for real-time, operational artificial intelligence
  - Evolutionary deep intelligence for cross-generational deep architecture synthesis
  - Generative graphical deep learning for performance-driven, tailored deep architecture synthesis
  - Quantifiable explainable deep learning for improved decision-making transparency in deep neural networks
  - Random deep intelligence for embedded deep learning
  - Deep-structured, randomly-connected conditional random fields for highly-efficient structured inference
- Design and development of integrative medical imaging hardware technologies such as:
  - Correlated diffusion imaging (CDI) and compensated diffusion weighted imaging (CDWI) for prostate cancer imaging
  - Coded hemodynamic imaging (CHI) for cardiorespiratory assessment and monitoring
  - Spectral light-field fusion microscopy (SFLM) for four-dimensional, ultra-wide field-of-view, label-free biological specimen tomographic imaging
  - High-resolution ocular polarimetric imaging (HOPI) for glucose monitoring
  - Parallel spectropolarimetric imaging (PSPI), cross-spectral fusion imaging (CFI), and multiplexed optical high-coherence interferometry (MOHI) for skin imaging

- Development and application of quantitative deep-structured stochastic tissue physiology modeling strategies for disease characterization and analysis using multi-parametric imaging. The main area of application is the development of intelligent radiomics-driven clinical decision support platforms for tackling challenges such as:
  - Prostate cancer analysis using ultrasound, multi-parametric magnetic resonance imaging (MP-MRI), and computed tomography (CT)
  - Respiratory disease analysis using chest radiography and computed tomography (CT)
  - Dermatological cancer analysis using epi-luminescence microscopy (ELM), parallel spectropolarimetric imaging (PSPI), cross-spectral fusion imaging (CFI), multiplexed optical high-coherence interferometry (MOHI), and clinical data (e.g., family history, past medical history, blood test results, etc.)
  - Pathogen analysis using spectral light-field fusion microscopy (SFLM)
  - Hemodynamics and respiratory analysis using coded hemodynamic imaging (CHI)
- Development and application of quantitative deep-structured stochastic modeling for remote sensing data processing and analysis with applications to:
  - Sea ice and oil spill analysis using synthetic aperture radar (SAR) data
  - Underwater object analysis using synthetic aperture SONAR (SAS) data
  - Hyperspectral change analysis using LIDAR, passive optical, and LANDSAT data

2.2 PUBLICATIONS

In the fields I work in, the lead authors and last authors are important. For papers co-authored with students, the general policy is to list the students as **lead authors** unless their contributions are significantly less than my contributions to the work. For collaborations with clinicians, the general policy is to list the clinicians as **last authors**. Students under my supervision are marked by * while postdoctoral fellows and research faculty under my supervision are marked by **

Publication Summary
(h-index: 43, i10-index: 201)

	Publications	IEEE	Citations
Patents	11	-	-
Patent Applications	27	-	-
Book Chapters	6	-	-
Journal papers	223	65	-
Conference papers	310	124	-
Non-refereed contributions	24	-	-
Total	**601**	**189**	**10341**

Of the publications listed above, a total of 72 journals, 138 conference papers, 16 patent applications, 7 patents, and 4 book chapters were published since tenure as Associate Professor.

2.2.1 Refereed Journal Papers (222)

J1 B. Laschowski, W. McNally*, A. Wong, J. McPhee, "ExoNet Database: Wearable Camera Images of Human Locomotion Environments", Frontiers in Robotics and AI, 2020.

J2 H. Gunraj*, L. Wang*, and A. Wong, "COVIDNet-CT: A Tailored Deep Convolutional Neural Network Design for Detection of COVID-19 Cases from Chest CT Images", Frontiers in Medicine, 2020.

J3 J. Lee*, L. Wang*, and A. Wong, "EmotionNet Nano: An Efficient Deep Convolutional Neural Network Design for Real-time Facial Expression Recognition", Frontiers in Artificial Intelligence, 2020.

J4 N. Petrick, S. Akbar, K. Cha, et al. (A. Wong), "SPIE-AAPM-NCI BreastPathQ Challenge: An image analysis challenge for quantitative tumor cellularity assessment in breast cancer histology images following neoadjuvant treatment", Journal of Medical Imaging, 2020.

J5 J. Yu, L. Zhang, W. Zheng, L. Wang, L. Xu**, and A. Wong, "A deep learning approach for multi-depth soil water content prediction in summer maize growth period", IEEE Access, 2020.

J6 A. Hryniowski*, X. Wang, and A. Wong, "Where Does Trust Break Down? A Quantitative Trust Analysis of Deep Neural Networks via Trust Matrix and Conditional Trust Densities", Journal of Computational Vision and Imaging Systems, 2020.

J7 J. Lee*, M. Pavlova*, M. Famouri**, and A. Wong, "CancerNet-SCa: Tailored Deep Neural Network Designs for Detection of Skin Cancer from Dermoscopy Images", Journal of Computational Vision and Imaging Systems, 2020.

J8 L. Wang*, Z. Lin*, and A. Wong, "COVID-Net: A Tailored Deep Convolutional Neural Network Design for Detection of COVID-19 Cases from Chest X-Ray Images", Scientific Reports, 2020.

J9 M. Soltani-Sarvestani, Z. Azimifar, A. Wong, and A. Safavi, "An Innovative Eigenvector-Based Method for Traffic Light Scheduling", Journal of Advanced Transportation, 2020.

J10 A. Bonaldi, A. Tao, M. Bruggen, S. Burkutean, Sandra, A. Wong et al., "Square Kilometre Array Science Data Challenge 1: analysis and results", Monthly Notices of the Royal Astronomical Society, 2020.

J11 B. Yu, L. Xu**, J. Peng, Z. Hu, and A. Wong, "Global chlorophyll-a concentration estimation from moderate resolution imaging spectroradiometer using convolutional neural networks", J. Appl. Remote Sens., 2020.

J12 X. Liu, D. Wang, X. Yang, A. Wong, "Detecting Pulse Rates from Facial Videos Recorded in Unstable Lighting Conditions: an Adaptive Spatio-Temporal Homomorphic Filtering Algorithm", IEEE

Transactions on Instrumentation and Measurement, 2020.

J13 X. Liu, X. Yang, J. Jin, and A. Wong, "Detecting pulse wave from unstable facial videos recorded from consumer-level cameras: a disturbance-adaptive orthogonal matching pursuit", IEEE Transactions on Biomedical Engineering, 2020.

J14 L. Wang*, C. Dulhanty*, M. Cheng*, H. Gunraj*, F. Khalvati, M. Haider, and A. Wong, "Radiomics Driven Diffusion Weighted Imaging Sensing Strategies for Zone-level Prostate Cancer Sensing", Sensors, 2020.

J15 A. Al-Jebrni, B. Chwyl*, X. Wang, A. Wong, and B. Saab, "AI-Enabled Remote and Objective Quantification of Stress at Scale", Biomedical Signal Processing and Control, 2020.

J16 J. Callaghan, K. Fewster, M. Noguchi, C. Gooyers, and A. Wong, "Exploring the Regional Disc Bulge Response of the Intervertebral Disc Under Varying Loads and Postures", Journal of Biomechanics, 2020.

J17 P. Morita, A. Rocha, G. Shaker, D. Lee, J. Wei, B. Fong, A. Thatte, A. Karimi*, L. Xu**, A. Ma*, A. Wong, and J. Boger, "Comparative Analysis of Gait Speed Estimation Using 10GHz and 24GHz Radars, Thermal Camera, and Motion Tracking Suit Technologies", Journal of Healthcare Informatics Research, 2020.

J18 L. Yang, L. Xu**, J. Peng, Y. Song, A. Wong, and D. Clausi, "Nonlocal Band-weighted Iterative Spectral Mixture Model for Hyperspectral Imagery Denoising", IEEE Transactions on Geoscience and Remote Sensing, 2020.

J19 M. Shafiee**, A. Jeddi*, A. Nazemi, P. Fieguth, and A. Wong, "Deep Neural Networks and Robust Autonomous Driving Systems", IEEE Signal Processing Magazine, 2020.

J20 Y. Chen, L. Xu**, Y. Fang, J. Peng, W. Yang, A. Wong, and D. Clausi, "Unsupervised Bayesian Subpixel Mapping of Hyperspectral Imagery Based on Band-weighted Discrete Spectral Mixture Model and Markov Random Field", IEEE Geoscience and Remote Sensing Letters, 2020.

J21 K. Fewster, S. Haider*, C. Gooyers, J. Callaghan, and A. Wong, "A computerized system for measurement of the radial displacement of the intervertebral disc using a laser device", Computer Methods in Biomechanics and Biomedical Engineering, 2019.

J22 V. Sankar, D. Kumar*, D. Clausi, G. Taylor, and A. Wong, "SISC: End-to-end Interpretable Discovery Radiomics-Driven Lung Cancer Prediction via Stacked Interpretable Sequencing Cells", IEEE Access Journal, 2019.

J23 A. Wong, M. Shafiee**, B. Chwyl, and F. Li, "GenSynth: a new way to understand deep learning", (feature editorial article) IET Electronics Letters, 2019.

J24 A. Wong, M. Shafiee**, B. Chwyl, and F. Li, "GenSynth: A generative synthesis approach to learning generative machines to generate efficient neural networks", IET Electronics Letters, 2019.

J25 A. Nazemi, Z. Azimifar, M. Shafiee**, and A. Wong, "Real-time Vehicle Make and Model Recognition Using Unsupervised Feature Learning", IEEE Transactions on Intelligent Transportation Systems, 2019.

J26 Z. Zhong*, J. Li, D. Clausi, and A. Wong, "Generative Adversarial Networks and Conditional Random Fields for Hyperspectral Image Classification", IEEE Transactions on Cybernetics, 2019.

J27 K. Pfisterer*, J. Boger, and A. Wong, "Prototyping the Automated Food Imaging and Nutrient Intake Tracking (AFINI-T) system: A modified participatory iterative design sprint", JMIR Human Factors, 2019.

J28 M. Shafiee**, B. Chwyl*, F. Li*, R. Chen, M. Karg, C. Scharfenberger, and A. Wong, "StressedNets: Efficient Feature Representations via Stress-induced Evolutionary Synthesis of Deep Neural Networks", Neurocomputing, 2019.

J29 C. Wang**, L. Xu**, D. Clausi, and A. Wong, "A Bayesian Joint Decorrelation and Despeckling of SAR Imagery", IEEE Geoscience and Remote Sensing Letters, 2019.

J30 D. Kumar*, G. Taylor, and A. Wong, "Discovery Radiomics with CLEAR-DR: Interpretable Computer Aided Diagnosis of Diabetic Retinopathy", IEEE Access Journal, 2019.

J31 J. Deglint*, C. Jin, and A. Wong, "The Feasibility of Automated Identification of Six Algae Types using Feed-forward Neural Networks and Fluorescence-based Spectral-morphological Features", IEEE Access Journal, 2018.

J32 A. Hryniowski*, Z. Azimifar, M. Lamm, P. Fieguth, and A. Wong, "Multi-Projector Content Preservation with Linear Filters", Journal of Computational Vision and Imaging Systems, 2018.

J33 I. Ben Daya*, M. Shafiee**, M. Karg, C. Scharfenberger, and A. Wong, "On Robustness of Deep Neural Networks: A Comprehensive Study on the Effect of Architecture and Weight Initialization to Susceptibility and Transferability of Adversarial Attacks", Journal of Computational Vision and Imaging Systems, 2018.

J34 W. McNally*, A. Wong, and J. McPhee, "Action Recognition using Deep Convolutional Neural Networks and Compressed Spatio-Temporal Pose Encodings", Journal of Computational Vision and Imaging Systems, 2018.

J35 J. Deglint*, L. Tang*, Y. Wang*, C. Jin, and A. Wong, "SAMSON: Spectral Absorption-fluorescence Microscopy System for ON-site-imaging of algae", Journal of Computational Vision and Imaging Systems, 2018.

J36 R. Bidart* and A. Wong, "MonolithNet: Training monolithic deep neural networks via a partitioned training strategy", Journal of Computational Vision and Imaging Systems, 2018.

J37 A. Wong, M. Shafiee**, and M. St. Jules, "MicronNet: A Highly Compact Deep Convolutional Neural Network Architecture for Real-time Embedded Traffic Sign Classification", IEEE Access Journal, 2018.

J38 I. Khodadad, M. Shafiee**, A. Wong, F. Kazemzadeh, and J. Arlette, "Deep Tissue Sequencing using Hypodermoscopy and Augmented Intelligence to Analyze Atypical Pigmented Lesions", Journal of Cutaneous Medicine & Surgery, 2018.

J39 L. Xu**, F. Yuan, A. Wong, and D. Clausi, "Unsupervised Bayesian Classification of Hyperspectral Image based on Spectral Mixture Model and Markov Random Field", IEEE Journal on Special Topics in Remote Sensing, 2018.

J40 M. Famouri, Z. Azimifar, and A. Wong, "A Novel Motion Plane-based Approach to Vehicle Speed Estimation", IEEE Transactions on Intelligent Transportation Systems, 2018.

J41 C. Jin**, M. Mesquita, J. Deglint*, M. Emelko, and A. Wong, "Quantification of cyanobacteria cells via a novel imaging-driven technique with an integrated fluorescence signature", Scientific Reports, 2018.

J42 B. Tan, A. Wong, and K. Bizheva, "Enhancement of morphological and vascular features in OCT images using a modified Bayesian residual transform", Biomedical Optics Express, 2018.

J43 X. Wang, A. Wong, L. Peng, and P. Ho, "Cognitive-Empowered Femtocells: An Intelligent Paradigm for Femtocell Networks", Wireless Communications and Mobile Computing, 2018.

J44 F. Li*, L. Xu**, A. Wong, and D. Clausi, "ST-IRGS: A Region-Based Self-Training Algorithm applied to Hyperspectral Image Classification and Segmentation", IEEE Transactions on Geoscience and Remote Sensing, 2018.

J45 F. Khalvati**, J. Zhang, A. Chung*, M. Shafiee**, A. Wong, and M. Haider, "MPCaD: A Multi-Scale Radiomics-Driven Framework for Automated Prostate Cancer Localization and Detection", BMC Medical Imaging, 2018.

J46 R. Medeiros*, A. Wong, and J. Scharcanski, "Scalable Image Segmentation via Decoupled Sub-graph Compression Pattern Recognition", Pattern Recognition, 2018.

J47 M. Shafiee**, A. Mishra, and A. Wong, "Deep Learning with Darwin: Evolutionary Synthesis of Deep Neural Networks", Neural Processing Letters, 2018.

J48 K. Pfisterer, R. Amelard, A. Chung, and A. Wong, "A new take on measuring relative nutritional

density: The feasibility of using a deep neural network to assess commercially-prepared pureed food concentrations", Journal of Food Engineering, 2018.

J49 J. Arlette, A. Wong, I. Khodadad, and F. Kazemzadeh, "Deep Tissue Sequencing using augmented intelligence to probe melanocytic lesions", Journal of Cutaneous Medicine and Surgery, 2017.

J50 M. Fani*, M. Yazdi, D. Clausi, and A. Wong, "Soccer Video Structure Analysis by Parallel Feature Fusion Network and Hidden-to-Observable Transferring Markov Model", IEEE Access Journal, 2017.

J51 T. Clark, J. Zhang, S. Baig, A. Wong, M. Haider, and F. Khalvati**, "Fully Automated Segmentation of Prostate Whole Gland and Transition Zone in Diffusion-weighted MRI using Convolutional Networks", Journal of Medical Imaging, 2017.

J52 M. Shafiee**, A. Chung*, F. Khalvati**, M. Haider, and A. Wong, "Discovery Radiomics via Evolutionary Deep Radiomic Sequencer Discovery for Pathologically-Proven Lung Cancer Detection", Journal of Medical Imaging, 2017.

J53 I. Ben Daya*, A. Chen, J. Yeow, and A. Wong, "Compensated Row-Column Ultrasound Imaging System Using Multilayered Edge Guided Stochastically Fully Connected Random Fields", Scientific Reports, 2017.

J54 M. Shafiee*, P. Siva, P. Fieguth, and A. Wong, "Real-Time Embedded Motion Detection via Neural Response Mixture Modeling", Journal of Signal Processing Systems, 2017.

J55 L. Xu**, A. Wong, and D. Clausi, "A Novel Bayesian Spatial-Temporal Random Field Model Applied to Cloud Detection from Remotely Sensed Imagery", IEEE Transactions on Geoscience and Remote Sensing, 2017.

J56 T. Beltrame, R. Amelard*, A. Wong, and R. Hughson, "Extracting aerobic system dynamics during unsupervised activities of daily living using wearable sensor machine learning models", Journal of Applied Physiology, 2017.

J57 Y. Zhang, A. Oikonomou, M. Haider, A. Wong, and F. Khalvati**, "Radiomics-based Prognosis Analysis for Non-Small Cell Lung Cancer", Scientific Reports, 2017.

J58 T. Beltrame, R. Amelard*, A. Wong, and R. Hughson, "Prediction of oxygen uptake dynamics by machine learning analysis of wearable sensors during activities of daily living", Scientific Reports, 2017.

J59 F. Li*, H. Sekkati**, J. Deglint*, C. Scharfenberger**, M. Lamm, D. Clausi, J. Zelek, and A. Wong, "Simultaneous Projector-Camera Self-Calibration for 3D Reconstruction and Projection Mapping", IEEE Transactions on Computational Imaging, 2017.

J60 A. Chung*, P. Fieguth, and A. Wong, "Polyploidism in Deep Neural Networks: m-Parent Evolutionary Synthesis of Deep Neural Networks in Varying Population Sizes", Journal of Computational Vision and Imaging Systems, 2017.

J61 A. Karimi*, M. Javad Shafiee**, A. Ghodsi, and A. Wong, "Ensembles of Random Projections for Nonlinear Dimensionality Reduction", Journal of Computational Vision and Imaging Systems, 2017.

J62 K. Kasiri**, M. Javad Shafiee**, F. Li, A. Wong, and J. Eichel, "Efficient Deep Network Architecture for Vision-Based Vehicle Detection", Journal of Computational Vision and Imaging Systems, 2017.

J63 M. Tran*, R. Amelard**, and A. Wong, "Integrating Multispectral Hemodynamic Imaging for Bulk Tissue Oxygenation Analysis", Journal of Computational Vision and Imaging Systems, 2017.

J64 I. Ben Daya*, A. Chen*, M. Javad Shafiee**, J. Yeow, and A. Wong, "Compensated Row-Column Ultrasound Imaging System Using Edge-Guided Three Dimensional Random Fields", Journal of Computational Vision and Imaging Systems, 2017.

J65 S. Gurm*, O. Badawy, and A. Wong, "A Multi-layer Perceptron Approach to Automatically Detect Tissue via NIR Multispectral Imaging", Journal of Computational Vision and Imaging Systems, 2017.

J66 M. Javad Shafiee** and A. Wong, "Discovery Radiomics via Deep Multi-Column Radiomic Sequencers for Skin Cancer Detection", Journal of Computational Vision and Imaging Systems, 2017.

J67 D. Kumar*, G. Taylor, and A. Wong, "Opening the Black Box of Financial AI with CLEAR-Trade: A CLass-Enhanced Attentive Response Approach for Explaining and Visualizing Deep Learning-Driven Stock Market Prediction", Journal of Computational Vision and Imaging Systems, 2017.

J68 A. Ma*, A. Wong, and D. Clausi, "Depth from Defocus via Active Multispectral Quasi-random Point Projections using Deep Learning", Journal of Computational Vision and Imaging Systems, 2017.

J69 M. Javad Shafiee**, B. Chwyl*, F. Li*, and A. Wong, "Fast YOLO: A Fast You Only Look Once System for Real-time Embedded Object Detection in Video", Journal of Computational Vision and Imaging Systems, 2017.

J70 A. MacLean*, K. Pfisterer*, D. Kumar*, R. Amelard*, and A. Wong, "Goldilocks and the Three Parameters: Empirically Finding the Just Right for Segmenting Food Images", Journal of Computational Vision and Imaging Systems, 2017.

J71 J. Deglint*, C. Jin*, and A. Wong, "Automatic Identification of Cyanobacteria Genera Using Multi-band Epifluorescence Microscopy and Machine Learning ", Journal of Computational Vision and Imaging Systems, 2017.

J72 R. Amelard*, R. Hughson, D. Greaves, K. Pfisterer, J. Leung, D. Clausi, and A. Wong, "Non-contact hemodynamic imaging reveals the jugular venous pulse waveform", Scientific Reports, 2016.

J73 L. Xu**, A. Wong, and D. Clausi, "An Enhanced Probabilistic Posterior Sampling Approach for Synthesizing SAR Imagery with Sea Ice and Oil Spills", IEEE Geoscience and Remote Sensing Letters, 2016.

J74 F. Kazemzadeh* and A. Wong, "Laser Light-field Fusion for Wide-field Lensfree On-chip Phase Contrast Microscopy of Nanoparticles", Scientific Reports, 2016.

J75 R. Amelard*, D. Clausi, and A. Wong, "Spatial probabilistic pulsatility model for enhancing photoplethysmographic imaging systems", Journal of Biomedical Optics, 2016.

J76 T. Beltrame, R. Amelard*, R. Villar, M. Shafiee*, A. Wong, and R. Hughson, "Estimating oxygen uptake and energy expenditure during treadmill walking by neural network analysis of easy-to-obtain inputs", Journal of Applied Physiology, 2016.

J77 R. Amelard*, D. Clausi, and A. Wong, "A spectral-spatial fusion model for robust blood pulse waveform extraction in photoplethysmographic imaging", Biomedical Optics Express, 2016.

J78 F. Kazemzadeh* and A. Wong, " Resolution- and throughput-enhanced spectroscopy using high-throughput computational slit", Optics Letters, 2016.

J79 M. Shafiee*, P. Fieguth, and A. Wong, "Deep Randomly-connected Conditional Random Fields For Image Segmentation", IEEE Access Journal, 2016.

J80 M. Shafiee*, P. Siva**, C. Scharfenberger, P. Fieguth, and A. Wong, "NeRD: a Neural Response Divergence Approach to Visual saliency detection", IEEE Signal Processing Letters, 2016.

J81 E. Li*, F. Khalvati**, M. Shafiee*, M. Haider, and A. Wong, "Sparse Reconstruction of Compressive Sensing MRI using Cross-Domain Stochastically Fully Connected Conditional Random Fields", BMC Medical Imaging, 2016.

J82 A. Boroomand*, M. Shafiee*, F. Khalvati**, M. Haider, and A. Wong, "Noise-Compensated, Bias-Corrected Diffusion Weighted Endorectal Magnetic Resonance Imaging via a Stochastically Fully-Connected Joint Conditional Random Field Model", IEEE Transactions on Medical Imaging, 2016.

J83 E. Li*, M. Shafiee*, F. Kazemzadeh*, and A. Wong, "Sparse Reconstruction of Compressive Sensing Multi-spectral Data using an Inter-Spectral Multi-layered Conditional Random Field Model", IEEE Access Journal, 2016.

J84 J. Deglint*, F. Kazemzadeh*, D. Cho*, D. Clausi, and A. Wong, "Numerical Demultiplexing of Color Image Sensor Measurements via Non-linear Random Forest Modeling", Scientific Reports, 2016.

J85 M. Shafiee*, P. Siva**, and A. Wong, "StochasticNet: Forming Deep Neural Networks via Stochastic Connectivity", IEEE Access Journal, 2016.

J86 L. Xu**, M. Shafiee*, A. Wong, and D. Clausi, "Fully-Connected Continuous Conditional Random Field With Stochastic Cliques for Dark Spot Detection In SAR Imagery", IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing, 2016.

J87 S. Haider*, A. Cameron*, P. Siva**, N. Haider, A. Boroomand*, D. Lui*, M. Shafiee*, and A. Wong, "Noise-compensated fluoroscopy imaging using a stochastically-connected random field model", Scientific Reports, 2016.

J88 M. Shafiee*, P. Fieguth, and A. Wong, "StochasticNet in StochasticNet", Journal of Computational Vision and Imaging Systems, 2016.

J89 C. Jin**, M. Mesqutia, M. Emelko, and A. Wong, "Automated enumeration and size distribution analysis of Microcystis aeruginosa via fluorescence imaging", Journal of Computational Vision and Imaging Systems, 2016.

J90 J. Zhang, S. Baig, A. Wong M. Haider, and F. Khalvati**, "A Local ROI-specific Atlas-based Segmentation of Prostate Gland and Transitional Zone in Diffusion MRI", Journal of Computational Vision and Imaging Systems, 2016.

J91 C. Jin**, M. Mesqutia, M. Emelko, A. Wong, "Computerized Enumeration and Bio-volume Estimation of the Cyanobacteria Anabaena flos-aquae", Journal of Computational Vision and Imaging Systems, 2016.

J92 J. Deglint*, K. Schoneveld*, F. Kazemzadeh*, and A. Wong, "A Compact Field-portable Computational Multispectral Microscope using Integrated Raspberry Pi", Journal of Computational Vision and Imaging Systems, 2016.

J93 A. Ma*, F. Li*, and A. Wong, "Depth from Defocus via Active Quasi-random Point Projections", Journal of Computational Vision and Imaging Systems, 2016.

J94 E. Kuang*, F. Kazemzadeh*, and A. Wong, "Enhanced Smartphone Spectroscopy via High-throughput Computational Slit", Journal of Computational Vision and Imaging Systems, 2016.

J95 A. Boroomand*, J. Deglint*, and A. Wong, "Bayesian Compensated Microscopy", Journal of Computational Vision and Imaging Systems, 2016.

J96 S. Haider*, F. Kazemzadeh*, and A. Wong, "Compact, Field-Portable Smartphone Chiral Molecule Concentration Estimation System via Multi-sensor Computational Polarimetry", Journal of Computational Vision and Imaging Systems, 2016.

J97 S. Greenberg* and A. Wong, "Art from Algorithms: Saliency-Guided Digital Projections", Journal of Computational Vision and Imaging Systems, 2016.

J98 P. Dash, A. Mishra, and A. Wong, "Deep Quality: A Deep No-reference Quality Assessment System", Journal of Computational Vision and Imaging Systems, 2016.

J99 I. Ben Daya*, M. Noguchi, J. Callaghan, and A. Wong, "Automated Histological Analysis System for Quantifying Microstructural Damage Accumulation to the Annulus Fibrosus", Journal of Computational Vision and Imaging Systems, 2016.

J100 A. Chung* and A. Wong, "Noise Suppression and Contrast Enhancement via Bayesian Residual Transform (BRT) in Low-Light Conditions", Journal of Computational Vision and Imaging Systems, 2016.

J101 S. Greenberg*, A. Wong, and J. McPhee, "Quasi-Monte and Data-Driven Monte Carlo Methods for Efficient Human Joint Model Fitting", Journal of Computational Vision and Imaging Systems, 2016.

J102 A. Gawish, L. Haines, S. Marschall, A. Wong, L. Sorbara, K. Bizheva, P. Fieguth, "Improved OCT Human Corneal segmentation Using Bayesian Residual Transform", Journal of Computational Vision and Imaging Systems, 2016.

J103 B. Chwyl*, R. Amelard*, D. Clausi, and A. Wong, "A Bayesian Multi-Scale Framework for Photoplethysmogram Imaging Waveform Processing", Journal of Computational Vision and Imaging Systems, 2016.

J104 M. Wilson*, R. Amelard*, D. Clausi, A. Wong, "Co-integrating thermal and hemodynamic imaging for physiological monitoring", Journal of Computational Vision and Imaging Systems, 2016.

J105 F. Khalvati**, J. Zhang, S. Baig, M. Haider, and A. Wong, "Sparse Correlated Diffusion Imaging: A New Computational Diffusion MRI Modality for Prostate Cancer Detection", Journal of Computational Vision and Imaging Systems, 2016.

J106 F. Kazemzadeh*, E. Kuang*, and A. Wong, "Compact, Field-Portable Lens-free Microscope using Superresolution Spatio-Spectral Light-field Fusion", Journal of Computational Vision and Imaging Systems, 2016.

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C137 F. Khalvati**, J. Zhang, M. Haider, and A. Wong, "Enhanced Dual-Stage Correlated Diffusion Imaging", the proceedings of Annual International Conference of the IEEE Engineering in Medicine and Biology Society (IEEE EMBC), 2016.

C138 A. Karimi*, M. Shafiee*, C. Scharfenberger**, I. Ben Daya*, S. Haider*, N. Talkudar*, D. Clausi, and A. Wong, "Spatio-temporal saliency detection using abstracted fully-connected graphical models", the proceedings of IEEE Conference on Image Processing (IEEE ICIP), 2016.

C139 A. Chung*, M. Shafiee*, and A. Wong, "Random feature maps via a layered random projection (LaRP) framework for object classification", the proceedings of IEEE Conference on Image Processing (IEEE ICIP), 2016.

C140 B. Chwyl*, A. Chung*, R. Amelard*, J. Deglint*, D. Clausi, and A. Wong, "SAPPHIRE: Stochastically Acquired Photoplethysogram for Heart Rate Inference in Realistic Environments", the proceedings of IEEE Conference on Image Processing (IEEE ICIP), 2016.

C141 A. Boroomand*, H. Sekkati**, M. Lamm, D. Clausi, and A. Wong, "Saliency-guided projection geometric correction using a projector-camera system", the proceedings of IEEE Conference on Image Processing (IEEE ICIP), 2016.

C142 M. Shafiee*, P. Siva**, P. Fieguth, and A. Wong, "Embedded Motion Detection via Neural Response Mixture Background Modeling", the proceedings of IEEE Computer Vision and Pattern Recognition Workshops (IEEE CVPRW), 2016.

C143 P. Siva**, M. Shafiee*, M. Jamieson, and A. Wong, "Scene Invariant Crowd Segmentation and Counting Using Scale-Normalized Histogram of Moving Gradients (HoMG)", the proceedings of IEEE Computer Vision and Pattern Recognition Workshops (IEEE CVPRW), 2016. (Participated in the design for algorithm).

C144 M. Shafiee*, P. Siva**, P. Fieguth, and A. Wong, "Efficient Feature Learning and Extraction via StochasticNets", the proceedings of IEEE Computer Vision and Pattern Recognition Workshops (IEEE CVPRW), 2016.

C145 A. Chung*, M. Shafiee*, and A. Wong, "Image Restoration via Deep-Structured Stochastically Fully-Connected Conditional Random Fields (DSFCRFs) for Very Low-Light Conditions", in the proceedings of the Conference on Computer and Robot Vision (CRV), 2016.

C146 B. Chywl*, A. Chung*, R. Amelard*, J. Deglint*, D. Clausi, and A. Wong, "Time-Frequency Domain Analysis via Pulselets for Non-Contact Heart Rate Estimation from Remotely Acquired Photoplethysmograms", in the proceedings of the Conference on Computer and Robot Vision (CRV), 2016.

C147 S. Greenberg*, A. Chung*, B. Chywl*, and A. Wong, "TIGGER: A Texture-Illumination Guided Global Energy Response Model for Illumination Robust Object Saliency", in the proceedings of the Conference on Computer and Robot Vision (CRV), 2016.

C148 F. Li*, J. Zelek, and A. Wong, "Hierarchical Grouping Approach for Fast Approximate RGB-D Scene Flow", in the proceedings of the Conference on Computer and Robot Vision (CRV), 2016.

C149 A. Gawish, C. Scharfenberger, H. Bi, A. Wong, P. Fieguth, and D. Clausi, "Robust non-saliency guided watermarking", in the proceedings of the Conference on Computer and Robot Vision (CRV), 2016.

C150 A. Chung*, M. Shafiee*, D. Kumar*, F. Khalvati**, M.A. Haider, and A. Wong "Discovery Radiomics via Layered Random Projection (LaRP) Sequencers for Prostate Cancer Classification", Proc. Annual Meeting of the Imaging Network of Ontario, 2016. **Won Magna Cum Laude Paper Award.**

C151 D. Kumar*, M. Shafiee*, A. Chung*, F. Khalvati**, M.A. Haider, and A. Wong "Discovery Radiomics for Lung Cancer Classification", Proc. Annual Meeting of the Imaging Network of Ontario, 2016.

C152 A. Eilaghi, S. Baig, J. Zhang**, A. Wong, P. Karanicolas, S. Gallinger, F. Khalvati**, and M.A. Haider, "Radiomics Features Analysis for Tumor Characterization in Pancreatic Ductal Adenocarcinoma", Proc. Annual Meeting of the Imaging Network of Ontario, 2016. **Won Magna Cum Laude Paper Award.**

C153 J. Zhang**, A. Eilaghi, M.A. Haider, A. Wong, and F. Khalvati** "Optimized Correlated Diffusion Imaging for Prostate Cancer Detection", Proc. Annual Meeting of the Imaging Network of Ontario, 2016.

C154 J. Zhang**, A. Eilaghi, A. Wong, M.A. Haider, and F. Khalvati** "Radiomics Feature Clusters and Prognostic Signatures Specific for Lung Cancer", Proc. Annual Meeting of the Imaging Network of Ontario, 2016.

C155 F. Kazemzadeh* and A. Wong "Whole-Slide Digital Pathology via Lens-free Spectral Light-field Fusion Microscopy", Proc. Annual Meeting of the Imaging Network of Ontario, 2016.

C156 A. Boroomand*, E. Li*, M. Shafiee*, F. Khalvati**, M.A. Haider, and A. Wong "A Unified Reconstruction Framework for Compensated Magnetic Resonance Imaging", Proc. Annual Meeting of the Imaging Network of Ontario, 2016. (Co-design of system)

C157 D. Cho*, D. Clausi, and A. Wong "Accuracy of Melanoma Classification using Dermal Radiomic Sequences", Proc. Annual Meeting of the Imaging Network of Ontario, 2016.

C158 S. Haider*, A. Chung*, M. Shafiee*, H. Grewal*, F. Khalvati**, A. Oikonomou, M.A. Haider, and A. Wong "Single-Click Lung Nodule Contouring Method Using a Hierarchical Conditional Random Field (HCRF)", Proc. Annual Meeting of the Imaging Network of Ontario, 2016. **Won Cum Laude Paper Award.**

C159 K. Bizheva, B. Tan, E. Mason, B. MacLellan, L. Haines, A. Boroomand*, A. Wong, and L. Sorbara, "Structure and vasculature of the human corneo-scleral limbus as imaged in-vivo with sub-micrometer axial resolution OCT", Proc. ARVO Imaging in the Eye Conference, 2016.

C160 M. Shafiee*, A. Chung*, D. Kumar, F. Khalvati, M. Haider, and A. Wong, "Discovery Radiomics via StochasticNet Sequencers for Cancer Detection", the proceedings of Annual Conference on Neural Information Processing Systems (NIPS) Workshop on Machine Learning for Healthcare, 2015.

C161 R. Amelard*, D.A. Clausi, and A. Wong, "Spectral photoplethysmographic imaging sensor fusion for enhanced heart rate detection", the proceedings of SPIE Photonics West, 2015.

C162 J. Deglint*, A. Chung*, B. Chwyl*, R. Amelard*, F. Kazemzadeh*, X. Wang, D.A. Clausi, and A. Wong, "Photoplethysmographic imaging via spectrally demultiplexed erythema fluctuation analysis for remote heart

rate monitoring", the proceedings of SPIE Photonics West, 2015.

C163 R. Amelard*, K. Pfisterer, D.A. Clausi, and A. Wong, "Non-contact hematoma damage and healing assessment using reflectance photoplethysmographic imaging", the proceedings of SPIE Photonics West, 2015.

C164 F. Khalvati**, A. Wong, and M.A. Haider, "A Radiomics-based Approach for Prostate Cancer Detection via Incorporating Interpatient Variation in ADC Map", Proc. Canadian Cancer Research Conference, 2015.

C165 E. Barshan, A. Wong, and P. Fieguth, "Scalable Multi-Neighborhood Learning for Convolutional Networks ", the proceedings of IEEE International Workshop on Machine Learning for Signal Processing, 2015.

C166 K. Fewster, M. Noguchi, C. Gooyers, A. Wong, and J. Callaghan, "Exploring the regional response of the intervertebral disc under postural varying loads", the proceedings of Annual Meeting of the American Society of Biomechanics, 2015.

C167 M. Noguchi, A. Wong, I. Ben Daya*, T. Campbell, J. Quadrilatero, and J. Callaghan, "Quantifying microstructural damage accumulation in the annulus fibrosus during induced intervertebral disc herniation", the proceedings of Annual Meeting of the American Society of Biomechanics, 2015.

C168 F. Li*, M. Shafiee*, A. Chung*, B. Chywl*, F. Kazemzedah*, A. Wong, and J. Zelek, "High dynamic range map estimation via fully connected random fields with stochastic cliques", the proceedings of IEEE Conference on Image Processing, 2015.

C169 A. Mishra, C. Scharfenberger**, P. Siva, F. Li*, A. Wong, and D. Clausi, "DESIRe: discontinuous energy seam carving for image retargeting via structural and textural energy functionals", the proceedings of IEEE Conference on Image Processing, 2015.

C170 M. Shafiee*, A. Chung*, A. Wong, and P. Fieguth, "Improved fine structure modeling via guided stochastic clique formation in fully connected conditional random fields", the proceedings of IEEE Conference on Image Processing, 2015.

C171 P. Siva, C. Scharfenberger**, I. Ben Daya*, A. Mishra, and A. Wong, "Return of Grid Seams: A Superpixel Algorithm Using Discontinuous Multi-functional Energy Seam Carving", the proceedings of IEEE Conference on Image Processing, 2015.

C172 P. Siva, M. Shafiee*, F. Li*, and A. Wong, "PIRM: fast background subtraction under sudden, local illumination changes via probabilistic illumination range modeling", the proceedings of IEEE Conference on Image Processing, 2015.

C173 B. Chywl*, A. Chung*, F. Li*, A. Wong, and D. Clausi, "TIGER: A Texture-Illumination Guided Energy Response Model for Illumination Robust Local Saliency", the proceedings of IEEE Conference on Image Processing, 2015.

C174 L. Xu**, M. Shafiee*, A. Wong, F. Li*, L. Wang, and D.A. Clausi, "Oil Spill Candidate Detection from SAR Imagery Using a Thresholding-Guided Stochastic Fully-Connected Conditional Random Field Model", the proceedings of IEEE Computer Vision and Pattern Recognition Workshops (IEEE CVPRW), 2015.

C175 B. Chywl*, A. Wong, and D.A. Clausi, "Illumination Robust Facial Feature Detection via Bayesian Minimization", the proceedings of International Conference on Image Analysis and Recognition (ICIAR), 2015.

C176 B. Chywl*, A. Chung*, A. Wong, and D.A. Clausi, "Specular Reflectance Suppression in Endoscopic Imagery via Stochastic Bayesian Estimation", the proceedings of International Conference on Image Analysis and Recognition (ICIAR), 2015.

C177 A. Chung*, C. Scharfenberger**, F. Khalvati**, A. Wong, M. Haider, "Multiparametric texture distinctiveness approach to identifying tumor candidates using prostate MP-MRI", the proceedings of International Conference on Image Analysis and Recognition (ICIAR), 2015.

C178 M. Zhu*, C. Scharfenberger, A. Wong, and D.A. Clausi, "Simultaneous Scene Reconstruction and Auto-calibration using Constrained Iterative Closest Point for 3D Depth Sensor Array", in the proceedings of the Conference on Computer and Robot Vision (CRV), 2015.

C179 D. Kumar, A. Wong, and D.A. Clausi, "Lung Nodule Classification Using Deep Features in CT Images", in the proceedings of the Conference on Computer and Robot Vision (CRV), 2015.

C180 F. Li*, E. Li*, M. Shafiee*, A. Wong, and J. Zelek, "Dense depth map reconstruction from sparse measurements using a multilayer conditional random field model", in the proceedings of the Conference on Computer and Robot Vision (CRV), 2015.

C181 F. Kazemzadeh*, I. Khodadadzadeh, C. Jin, S. Haider*, A. Wong, S. Saini, D. Clausi, and M. Emelko, "Multispectral Digital Holographic Microscopy with Applications in Water Quality Assessment", in the proceedings of SPIE Photonics and Optics, 2015.

C182 F. Kazemzadeh*, M. Shafiee*, J. Deglint*, E. Li*, A. Wong, I. Khodadadzadeh, and S. Saini, "In-Situ Virtual Spectral Multiplexing Imaging Microscopy of Transient Phenomena", in the proceedings of SPIE Photonics and Optics, 2015.

C183 E. Li*, M. Shafiee*, F. Kazemzadeh*, and A. Wong, "Sparse Reconstruction of Compressed Sensing Multispectral Data Using A Cross-spectral Multilayered Conditional Random Field Model", in the proceedings of SPIE Optics and Photonics, 2015.

C184 S. Haider*, F. Kazemzadeh*, A. Wong, and D.A. Clausi, "Integrated Computational Imaging System for Enhanced Polarimetric Measurements", in the proceedings of SPIE Optics and Photonics, 2015.

C185 J. Deglint*, F. Kazemzadeh*, A. Wong, and D.A. Clausi, "Inference of Dense Spectral Reflectance Images from Sparse Reflectance Measurement Using Non-Linear Regression Modeling", in the proceedings of SPIE Optics and Photonics, 2015.

C186 F. Kazemzadeh*, C. Jin, and A. Wong, "A wide field-of-view 3D holographic microscope for in-situ microbial detection and analysis", in the proceedings of Annual Meeting of the Biophysical Society of Canada, 2015.

C187 K. Bizheva, M. Hajialamdari, L. Haines, A. Boroomand*, A. Wong, and L. Sorbara, "Sub-micrometer axial resolution, fiber-optic SD-OCT for in-vivo corneal imaging ", Proc. ARVO Imaging in the Eye Conference, 2015.

C188 C. Scharfenberger**, D. Lui*, F. Khalvati**, A. Wong, and M.A. Haider, "Semi-Automatic Prostate Segmentation via a Hidden Markov Model with Anatomical and Textural Priors", Proc. Annual Meeting and Exhibition of the International Society for Magnetic Resonance in Medicine (ISMRM), 2015.

C189 D. Cho*, F. Khalvati**, A. Wong, D.A. Clausi, and M.A. Haider, "Prostate DWI co-registration via maximization of hybrid statistical likelihood and cross-correlation for improved ADC and computed ultra-high b-value DWI calculation", Proc. Annual Meeting and Exhibition of the International Society for Magnetic Resonance in Medicine (ISMRM), 2015.

C190 A. Boroomand*, M. Shafiee*, F. Khalvati**, A. Wong, and M.A. Haider, "Noise-compensated bias correction of MRI via a stochastically fully-connected conditional random field model", Proc. Annual Meeting and Exhibition of the International Society for Magnetic Resonance in Medicine (ISMRM), 2015.

C191 E. Li*, M. Shafiee*, A. Chung*, F. Khalvati**, A. Wong, and M.A. Haider, "Enhanced reconstruction of compressive sensing MRI via cross-domain stochastically fully-connected random field model", Proc. Annual Meeting and Exhibition of the International Society for Magnetic Resonance in Medicine (ISMRM), 2015.

C192 J. Deglint*, A. Cameron*, C. Scharfenberger**, M. Lamm, A. Wong, and D.A. Clausi, "Auto-Calibration for Screen Correction and Point Cloud Generation", the proceedings of Conference of Society of Information Display, 2015. **Won Distinguished Paper Award.**

C193 D. Cho*, S. Haider*, R. Amelard*, A. Wong, and D.A. Clausi, "Quantitative features for computer-aided melanoma classification using spatial heterogeneity of eumelanin and pheomelanin concentrations", the proceedings of IEEE International Symposium on Biomedical Imaging, 2015.

C194 S. Haider*, M. Shafiee*, A. Chung*, F. Khalvati**, A. Oikonomou, A. Wong, and M.A. Haider, "Single-click, semi-automatic lung nodule contouring using hierarchical conditional random fields", the proceedings of IEEE International Symposium on Biomedical Imaging, 2015.

C195 F. Khalvati**, A. Wong, and M.A. Haider, "Dual-stage correlated diffusion imaging", the proceedings of IEEE International Symposium on Biomedical Imaging, 2015.

C196 D. Vasquez, J. Scharcanski, A. Wong, "Color Image Segmentation Using Spatial Constraints", the proceedings of the IEEE International Instrumentation and Measurement Technology Conference, 2015.

C197 T. Hesham and A. Wong, "A Probabilistic Covariate Shift Assumption for Domain Adaptation", the proceedings of AAAI Conference on Artificial Intelligence, 2015.

C198 A. Boroomand*, M. Shafiee*, A. Wong, and K. Bizheva, "Lateral Resolution Enhancement via Imbricated Optical Coherence Tomography in a Maximum-A-Posterior Reconstruction Framework", the proceedings of SPIE Photonics West, 2015.

C199 A. Boroomand*, B. Tan, A. Wong, and K. Bizheva, "Axial resolution improvement in spectral domain optical coherence tomography using a depth-adaptive Maximum-A-Posterior Framework", the proceedings of SPIE Photonics West, 2015.

C200 R. Amelard*, C. Scharfenberger**, A. Wong, D.A. Clausi, "Non-contact transillumination melanin imaging via multispectral temporal illumination coding", the proceedings of SPIE Photonics West, 2015.

C201 R. Amelard*, C. Scharfenberger*, A. Wong, D.A. Clausi, "Illumination-compensated, non-contact photoplethysmographic imaging via temporally-coded illumination", the proceedings of SPIE Photonics West, 2015.

C202 A. Chung*, X. Wang, R. Amelard*, C. Scharfenberger**, J. Leong*, J. Kulinski*, A. Wong, D.A. Clausi, "High-resolution motion-compensated photoplethysmographic imaging for remote heart rate monitoring", the proceedings of SPIE Photonics West, 2015.

C203 J. Glaister*, S. Haider*, A. Wong, and D.A. Clausi, "Restoration of block-transform compressed images via homotopic, regularized sparse reconstruction", the proceedings of SPIE Electronic Imaging, 2014.

C204 S. Haider*, C. Scharfenberger**, F. Kazemzadeh*, A. Wong, D.A. Clausi, "Multipolarimetric textural distinctiveness for outdoor robotic saliency detection", the proceedings of SPIE Electronic Imaging, 2014.

C205 F. Khalvati, A. Modhafar, A. Cameron, A. Wong, and M.A. Haider "A Multi-Parametric Diffusion Magnetic Resonance Imaging Texture Feature Model for Prostate Cancer Analysis", the proceedings of MICCAI Workshop on Computational Diffusion MRI, 2014.

C206 F. Khalvati, A. Wong, G. Bjarnason, and M.A. Haider, "Semi-automatic Normalized Entropy Characterization of Metastatic Renal Cell Cancer via Spatio-Textural Tumour Classification", the proceedings of Annual International Conference of the IEEE Engineering in Medicine and Biology Society (IEEE EMBC), 2014.

C207 D. Lui*, C. Scharfenberger**, D. Carvalho, J. Callaghan, and A. Wong, "Semi-automatic Fisher-Tippett Guided Active Contour for Lumbar Multifidus Muscle Segmentation", the proceedings of Annual International Conference of the IEEE Engineering in Medicine and Biology Society (IEEE EMBC), 2014.

C208 D. Cho*, R. Amelard*, S. Haider*, A. Wong, and D.A. Clausi, "Random Forest Nonlinear Regression Model for Diagnostic Biomarker inference from Dermatological Photographs", the proceedings of Annual International Conference of the IEEE Engineering in Medicine and Biology Society (IEEE EMBC), 2014.

C209 A. Cameron*, A. Modhafar*, F. Khalvati, D. Lui*, M. Shafiee*, A. Wong, and M.A. Haider, "Multiparametric MRI Prostate Cancer Analysis via a Hybrid Morphological-Textural Model", the proceedings of Annual International Conference of the IEEE Engineering in Medicine and Biology Society (IEEE EMBC), 2014.

C210 S. Haider*, D. Cho*, R. Amelard*, A. Wong, and D.A. Clausi, "Enhanced classification of malignant melanocytic lesions via the integration of physiological features from dermatological photographs", the proceedings of Annual International Conference of the IEEE Engineering in Medicine and Biology Society (IEEE EMBC), 2014.

C211 C. Scharfenberger**, A. Jain*, A. Wong, and P. Fieguth, "Image saliency detection via multi-scale statistical non-redundancy modeling", in the proceedings of the IEEE International Conference on Image Processing, 2014.

C212 M. Shafiee*, A. Wong, P. Siva**, and P. Fieguth, "Efficient Bayesian inference using fully connected conditional random fields with stochastic cliques", in the proceedings of the IEEE International Conference on Image Processing, 2014.

C213 F. Kazemzadeh*, M. Shafiee*, A. Wong, and D.A. Clausi, "Reconstruction of compressive multispectral sensing data using a multilayered conditional random field approach", in the proceedings of SPIE Photonics and Optics, 2014.

C214 F. Kazemzadeh*, S. Haider*, C. Scharfenberger**, A. Wong, and D.A. Clausi, "Concurrent multi-view discrete spectral imaging device from the VIS to the NIR", in the proceedings of SPIE Photonics and Optics, 2014.

C215 F. Li*, A. Wong, and D.A. Clausi, "A modified rotation forest algorithm for hyperspectral imagery classification with limited training samples", the proceedings of IEEE Geosciences and Remote Sensing Symposium, 2014.

C216 F. Li*, A. Wong, and D.A. Clausi, "Comparison of unsupervised surficial materials mapping in Nunavut, Canada using RADARSAT-2 Polarimetric, LANDSAT-7, and DEM data", the proceedings of IEEE Geosciences and Remote Sensing Symposium, 2014.

C217 F. Li*, A. Wong, D.A. Clausi, "Comparative Study of Feature Space Projection Methods for Hyperspectral Image Classification", the proceedings of IEEE Geosciences and Remote Sensing Symposium, 2014.

C218 P. Siva** and A. Wong, "URC: Unsupervised clustering of remote sensing imagery", the proceedings of IEEE Geosciences and Remote Sensing Symposium, 2014.

C219 P. Siva** and A. Wong, "Grid Seams: A fast superpixel algorithm for real-time applications", the proceedings of Conference on Computer and Robot Vision, 2014. **Won CIPPRS Conference Best Paper Award.**

C220 A. Boroomand*, D. Cho*, B. Ni*, E. Li*, A. Wong, and K. Bizheva, "Super-resolved reconstruction of optical coherence tomography images by use of multi-penalty conditional random field algorithm", the proceedings of SPIE Photonics West (BiOS), 2014.

C221 B. Tan, M. Tam, K. Carter, A. Boroomand*, A. Wong, and K. Bizheva, "In vivo recording of intrinsic optical signals in light-stimulated rat retina with a combined functional OCT and ERG system", the proceedings of SPIE Photonics West (BiOS), 2014.

C222 C. Scharfenberger**, A. Wong, K. Fergani*, J. Zelek, and D.A. Clausi, "Statistical textural distinctiveness for salient region detection in natural images", the proceedings of IEEE Conference on Computer Vision and Pattern Recognition (IEEE CVPR), 2013.

C223 R. Sachett Medeiros, J. Scharcanski, A. Wong, "Skin Detection for Hand Gesture Segmentation using Multi-scale Stochastic Color Texture Models", the proceedings of the IEEE International Conference on Multimedia & Expo (IEEE ICME), 2013.

C224 F. Tung and A. Wong, "Polynomial self-similarity for object classification", the proceedings of the IEEE International Conference on Multimedia & Expo (IEEE ICME), 2013.

C225 A. Wong, A. Scott, E. Li*, and R. Amelard*, "Continuous sea ice thickness estimation using a joint MODIS and AMSR-E guided variational model", in the proceedings of IEEE International Geoscience and Remote Sensing Symposium (IEEE IGARSS), 2013.

C226 R. Amelard*, A. Wong, and D.A. Clausi, "Unsupervised classification of agricultural land cover using polarimetric synthetic aperture radar via a dictionary-based, multi-dimensional global texture model", in the proceedings of IEEE International Geoscience and Remote Sensing Symposium (IEEE IGARSS), 2013.

C227 R. Amelard*, A. Wong, F. Li*, and D.A. Clausi, "Unsupervised classification of sea-ice and water using synthetic aperture radar via an adaptive texture sparsification transform", in the proceedings of IEEE International Geoscience and Remote Sensing Symposium (IEEE IGARSS), 2013.

C228 R. Sachett Medeiros, J. Scharcanski, A. Wong, "Outdoor scene segmentation based on a stochastic texture region merging approach", the proceedings of IEEE ICASSP 2013, 2013.

C229 D. Vasquez, J. Scharcanski, A. Wong, and S. Crestana, "A novel 3D approach for extraction of the wetting front in CT images of soil profiles", the proceedings of IEEE International Instrumentation and Measurement Technology Conference (I2MTC 2013), 2013.

C230 F. Li*, A. Wong, D.A. Clausi, "Separability measure and classification of surficial materials in the Umiujalik Lake area using RADARSAT-2 polarimetric and LANDSAT-7 images, and DEM data", the proceedings of Canadian Remote Sensing Symposium, 2013.

C231 C. Liu*, A. Wong, and K. Bizheva, "Automatic algorithm for measuring visually evoked pupil size changes from OCT images", the proceedings of SPIE Photonics West (BiOS), 2013.

C232 S. Schwartz*, A. Wong, and D.A. Clausi, "Saliency-guided compressive fluorescence microscopy", the

proceedings of Annual International Conference of the IEEE Engineering in Medicine and Biology Society (IEEE EMBC), 2012.

C233 R. Amelard*, A. Wong, and D.A. Clausi, "Extracting Morphological High-Level Intuitive Features (HLIF) for Enhancing Skin Lesion Classification", the proceedings of Annual International Conference of the IEEE Engineering in Medicine and Biology Society (IEEE EMBC), 2012.

C234 J. Glaister*, A. Wong, and D.A. Clausi, "Illumination correction in dermatological photographs using multi-stage illumination modeling for skin lesion analysis", the proceedings of Annual International Conference of the IEEE Engineering in Medicine and Biology Society (IEEE EMBC), 2012.

C235 J. Glaister*, A. Cameron*, A. Wong, and M.A. Haider, "Quantitative Investigative Analysis of Tumour Separability in the Prostate Gland using Ultra-high b-value Computed Diffusion Imaging", the proceedings of Annual International Conference of the IEEE Engineering in Medicine and Biology Society (IEEE EMBC), 2012.

C236 A. Cameron*, J. Glaister*, A. Wong, and M.A. Haider, "Non-parametric Bayesian Estimation of Apparent Diffusion Coefficient from Diffusion-Weighted Magnetic Resonance Imaging Data", the proceedings of Annual International Conference of the IEEE Engineering in Medicine and Biology Society (IEEE EMBC), 2012.

C237 A. Jain*, A. Wong, and P. Fieguth, "Saliency Detection via Statistical Non-redundancy", the proceedings of IEEE International Conference on Image Processing (IEEE ICIP), 2012.

C238 A. Kumar, A. Wong, P. Fieguth, and D.A. Clausi, "Multi-scale Tensor Vector Field Based Active Contours", the proceedings of IEEE International Conference on Image Processing (IEEE ICIP), 2012.

C239 K. Bizheva, C. Hyun, A. Zam, C. Liu*, A. Kumar, A. Wong, N. Hutchings, and T. Simpson, "In vivo Volumetric Imaging of the Vogt Palisades with Ultrahigh Resolution Optical Coherence Tomography", the proceedings of the Meeting of the Association for Research in Vision and Ophthalmology, 2012.

C240 A. Moayed, S. Hariri, C. Liu*, A. Wong, P. Fieguth, V. Choh, and K. Bizheva, "Stimulus Specific, Visually-evoked Pupillary Responses In Chicken Measured With Functional Optical Coherence Tomography", the proceedings of the ARVO/ISIE Imaging Conference, 2012.

C241 A. Wong, "Perceptual Structure Distortion Ratio: An image quality metric based on complex phase order", in the proceedings of the Conference on Computer and Robot Vision (CRV), 2012.

C242 A. Hojaij, A. Fakih, A. Wong, and J. Zelek, "Difference of Circles Feature Detector", in the proceedings of the Conference on Computer and Robot Vision (CRV), 2012.

C243 R. Amelard*, A. Wong, and D.A. Clausi, "Extracting High-Level Intuitive Features (HLIF) For Classifying Skin Lesions Using Standard Camera Images", in the proceedings of the Conference on Computer and Robot Vision (CRV), 2012.

C244 S. Schwartz*, A. Wong, and D.A. Clausi, "Multi-scale saliency-guided compressive sensing approach to efficient robotic laser range measurements", in the proceedings of the Conference on Computer and Robot Vision (CRV), 2012.

C245 K. Gallagher, A. Wong, and J. Callaghan, "Lumbopelvic kinematics and trunk muscle thickness during prolong standing on a sloped surface", the proceedings of 2012 meeting of the Canadian Society for Biomechanics, 2012.

C246 A. Karimi*, A. Wong, and K. Bizheva, "Automated detection and counting of keratocytes in human corneal stroma from ultrahigh-resolution optical coherence tomograms", the proceedings of SPIE Photonics West (BiOS), 2012.

C247 C. Liu*, A. Wong, K. Bizheva, P. Fieguth, and H. Bie, "Non-local sparse reconstruction of OCT images", the proceedings of SPIE Photonics West (BiOS), 2012.

C248 J. Glaister*, C. Chan*, M. Frankovich*, A. Tang*, and A. Wong, "Hybrid Video Compression Using Selective Keyframe Identification and Patch-Based Super-Resolution", in the proceedings of IEEE International Symposium on Multimedia (IEEE ISM), 2011.

C249 C. Chan* and A. Wong, "Shot Boundary Detection using Genetic Algorithm Optimization", the proceedings of IEEE International Symposium on Multimedia (IEEE ISM), 2011.

C250 M. Shafiee, A. Wong, and Z. Azimifar, "A Novel Hierarchical Model-Based Frame Rate Up-Conversion via Spatio-temporal Conditional Random Fields", the proceedings of IEEE International Symposium on Multimedia (IEEE ISM), 2011.

C251 A. Leigh*, A. Wong, D.A. Clausi, and P. Fieguth, "Comprehensive Analysis on the Effects of Noise Estimation Strategies on Image Noise Artifact Suppression Performance", the proceedings of IEEE International Symposium on Multimedia (IEEE ISM), 2011.

C252 A. Wong, "Constrained Bayesian Streak Artifact Reduction Approach for Contrast Enhanced Computed Tomography Imaging of the Intervertebral Disc", the proceedings of Annual International Conference of the IEEE Engineering in Medicine and Biology Society (IEEE EMBC), 2011.

C253 N. Bandekar, A. Wong, and D.A. Clausi, "A Novel Approach to Automated Cell Counting for Studying Human Corneal Epithelial Cells", the proceedings of Annual International Conference of the IEEE Engineering in Medicine and Biology Society (IEEE EMBC), 2011.

C254 Y. Liu, A. Wong, and P. Fieguth, "A Structure-guided Conditional Sampling Model for Video Resolution Enhancement", the proceedings of IEEE International Conference on Image Processing (IEEE ICIP), 2011.

C255 A. Mishra, A. Wong, P. Fieguth, and D.A. Clausi, "Multi-Scale 3D Representation via Volumetric Quasi-Random Scale Space", the proceedings of IEEE International Conference on Image Processing (IEEE ICIP), 2011.

C256 A. Kumar, A. Wong, A. Mishra, P. Fieguth, and D.A. Clausi, "Tensor Vector Field Based Active Contours", the proceedings of IEEE International Conference on Image Processing (IEEE ICIP), 2011.

C257 A. Wong, "Robust Control Point Detection for Aerial Synthetic Aperture Radar via a Logarithmic Quasi-random Scale Space Framework", the proceedings of IEEE Computer Vision and Pattern Recognition Workshops (IEEE CVPRW), 2011.

C258 J. Eichel, D. Lee, A. Wong, P. Fieguth, D.A. Clausi, and K. Bizheva, "Despeckling vs Averaging of retinal UHROCT tomograms: advantages and limitations", the proceedings of the SPIE, vol. 7889, pp. 78893C-78893C-9, 2011.

C259 J. Eichel, D. Lee, A. Wong, P. Fieguth, D.A. Clausi, and K. Bizheva, "Quantitative Comparison of Despeckling and Frame Averaging Approaches to Processing Retinal OCT Tomograms", the proceedings of SPIE Photonics West (BiOS), 2011.

C260 X. Wang, A. Wong, and S. Lien, "Spectral Variation Constrained Power Spectral Density Estimation for Wideband Spectrum Sensing", the proceedings of International Workshop on Cognitive Radio & Advanced Spectrum Management (CogART), 2010. **Invited Paper**.

C261 A. Wong and P. Fieguth, "A New Bayesian Source Separation Approach to Blind Decorrelation of SAR Data", the proceedings of IEEE International Geoscience and Remote Sensing Symposium (IEEE IGARSS), 2010.

C262 Y. Liu, A. Wong, and P. Fieguth, "Remote Sensing Image Synthesis", the proceedings of IEEE International Geoscience and Remote Sensing Syposium (IEEE IGARSS), 2010.

C263 A. Wong, A. Mishra, D.A. Clausi, and P. Fieguth, "Quasi-Random Scale Space Approach to Robust Keypoint Extraction in High-Noise Environments", the proceedings of the Conference on Computer and Robot Vision (CRV), 2010.

C264 A. Wong, A. Mishra, D.A. Clausi, and P. Fieguth, "Mammogram Image Superresolution Based on Statistical Moment Analysis", in the proceedings of the Conference on Computer and Robot Vision (CRV), 2010.

C265 A. Mishra, A. Wong, D.A. Clausi, and P. Fieguth, "A Bayesian Information Flow Approach to Image Segmentation", in the proceedings of the Conference on Computer and Robot Vision (CRV), 2010.

C266 X. Wang, A. Wong, and P. Ho, "Dynamic Markov-Chain Monte Carlo Channel Negotiation for Cognitive Radio", the proceedings of IEEE International Conference on Computer Communications (IEEE INFOCOM), 2010.

C267 A. Wong, D.A. Clausi, and P. Fieguth, "Adaptive Monte Carlo Retinex Method for Illumination and Reflectance Separation and Color Image Enhancement", the proceedings of the Conference on Computer and Robot Vision (CRV), 2009. **Won CIPPRS Conference Best Paper Award.**

C268 A. Wong, D.A. Clausi, and P. Fieguth, "SEC: Stochastic Ensemble Consensus Approach to Unsupervised SAR Sea-ice Segmentation", the proceedings of the Conference on Computer and Robot Vision (CRV), 2009.

C269 A. Wong, W. Zhang, and D.A. Clausi, "IceSynth: An Image Synthesis System for Sea-ice Segmentation Evaluation", the proceedings of the Conference on Computer and Robot Vision (CRV), 2009.

C270 W. Zhang, A. Wong, and D.A. Clausi, "JEDI: Joint Enhancement and Despeckling of Images", the proceedings of the Conference on Computer and Robot Vision (CRV), 2009.

C271 X. Wang, A. Wong, and P. Ho, "Prioritized Spectrum Sensing in Cognitive Radio Based on Spatiotemporal Statistical Fusion", the proceedings of IEEE Wireless Communications and Networking Conference (IEEE WCNC), 2009.

C272 X. Wang, A. Wong, and P. Ho, "Stochastic Channel Prioritization for Spectrum Sensing in Cooperative Cognitive Radio", the proceedings of IEEE Consumer Communications and Networking Conference (IEEE CCNC), 2009.

C273 A. Wong, D.A. Clausi, and P. Fieguth, "Phase-Adaptive Image Signal Fusion using Complex-valued Wavelets", the proceedings of International Conference on Pattern Recognition (ICPR), 2008.

C274 A. Wong, A. Mishra, P. Fieguth, and D.A. Clausi, "An Adaptive Monte Carlo Approach to Nonlinear Image Denoising", the proceedings of International Conference on Pattern Recognition (ICPR), 2008.

C275 A. Wong, "Simultaneous Multi-modal Registration of Multiple Images based on Multi-Dimensional Joint Phase Moment Distributions", the proceedings of International Conference on Pattern Recognition (ICPR), 2008.

C276 A. Wong, P. Fieguth, and D.A. Clausi, "A Perceptually-adaptive Approach to Image Denoising using Anisotropic Non-Local Means", the proceedings of IEEE International Conference on Image Processing (IEEE ICIP), 2008.

C277 A. Wong and J. Orchard, "An Adaptive Non-local Means Approach to Exemplar-based Inpainting", the proceedings of IEEE International Conference on Image Processing (IEEE ICIP), 2008.

C278 A. Wong, "Illumination Invariant Active Contour-based Segmentation using Complex-valued Wavelets", the proceedings of IEEE International Conference on Image Processing (IEEE ICIP), 2008.

C279 J. Orchard, M. Ebrahimi, and A. Wong, "Efficient Nonlocal-Means Denoising using the SVD", the proceedings of IEEE International Conference on Image Processing (IEEE ICIP), 2008.

C280 A. Wong, A. Mishra, P. Fieguth, D.A. Clausi, N. Dunk, J. Callaghan, "Shape-Guided Active Contour Based Segmentation and Tracking of Lumbar Vertebrae in Video Fluoroscopy Using Complex Wavelets", the proceedings of Annual International Conference of the IEEE Engineering in Medicine and Biology Society (IEEE EMBC), 2008.

C281 A. Mishra, A. Wong, W. Zhang, P. Fieguth, and D.A. Clausi, "Improved Interactive Medical Image Segmentation using Enhanced Intelligent Scissors (EIS)", the proceedings of Annual International Conference of the IEEE Engineering in Medicine and Biology Society (IEEE EMBC), 2008.

C282 A. Wong and D.A. Clausi, "Automatic Registration of Inter-band and Inter-sensor Images using Robust Complex Wavelet Feature Representations", the proceedings of IAPR Workshop on Pattern Recognition in Remote Sensing (PRRS), 2008.

C283 A. Wong and W. Bishop, "Robust Edge Detection Based on Non-Local Contribution of Local Frequency Characteristics", the proceedings of IEEE International Symposium on Multimedia (IEEE ISM), 2008.

C284 A. Wong and W. Bishop, "Deblocking of Block-Transform Compressed Images Using Phase-adaptive Shifted Thresholding", the proceedings of IEEE International Symposium on Multimedia (IEEE ISM), 2008.

C285 A. Wong, A. Mishra, D.A. Clausi, and P. Fieguth, "Adaptive nonlinear image denoising and restoration using a cooperative Bayesian estimation approach", the proceedings of The IEEE Indian Conference on Computer Vision, Graphics and Image Processing (IEEE ICVGIP), 2008.

C286 X. Wang, P. Ho, and A. Wong, "Towards Efficient Spectrum Sensing for Cognitive Radio Through Knowledge-Based Reasoning", the proceedings of IEEE International Symposium on Dynamic Spectrum Access Networks (IEEE DySPAN), 2008.

C287 A. Wong and W. Bishop, "Robust Hough-Based Symbol Recognition using Knowledge-based Hierarchical Neural Networks", the proceedings of International Conference on Image Processing, Computer Vision, and Pattern Recognition, 2008.

C288 A. Wong and W. Bishop, "Efficient and Robust Approach to Simultaneous Non-rigid Image Registration and Gamma Estimation in the Frequency Domain", the proceedings of International Conference on Image Processing, Computer Vision, and Pattern Recognition, 2008.

C289 A. Wong, "An Iterative Approach to Improved Local Phase Coherence Estimation", the proceedings of Sixth Conference on Computer and Robot Vision (CRV), 2008.

C290 A. Wong and W. Bishop, "Perceptually-Adaptive Color Enhancement of Still Images for Dichromacy Deficiencies", the proceedings of IEEE CCECE: Symposium on Signal and Multimedia Processing, 2008.

C291 M. Hansen, W. Bishop, A. Bellemaire, and A. Wong, "Decompressing Perceptually Adaptive Normal Map Compression (PANMC) Images in Hardware", the proceedings of IEEE CCECE: Symposium on Signal and Multimedia Processing, 2008.

C292 A. Wong and A. Kennings, "Adaptive Multiple Texture Approach to Texture Packing for 3D Video Games", the proceedings of ACM FuturePlay, Toronto, Ontario, 2007.

C293 A. Wong and W. Bishop, "Robust Invariant Descriptor for Symbol-Based Image Recognition and Retrieval", the proceedings of the IEEE International Conference on Semantic Computing (IEEE ICSC), Irvine, California, 2007.

C294 A. Wong and W. Bishop, "Adaptive Large Scale Artifact Reduction in Edge-Based Image Super-Resolution", the proceedings of the IASTED International Conference on Signal and Image Processing, Honolulu, Hawaii, 2007.

C295 A. Wong and W. Bishop, "Backwards Compatible, Multi-Level Regions-of-Interest (ROI) Image Encryption Architecture with Biometric Authentication", the proceedings of SIGMAP: The International Conference on Signal Processing and Multimedia Applications, Barcelona, Spain, 2007.

C296 A. Wong and W. Bishop, "Simultaneous Registration and Gamma Correction in the Frequency Domain", the proceedings of the 2007 International Conference on Image Processing, Computer Vision, and Pattern Recognition, Las Vegas, Nevada, 2007.

C297 A. Wong and W. Bishop, "Indirect Knowledge Based Approach to Non-Rigid Multi-Modal Registration of Medical Images", the proceedings of IEEE Canadian Conference on Electrical and Computer Engineering, Vancouver, 2007.

C298 A. Wong and W. Bishop, "Practical Perceptually Adaptive Approach to Video Logo Placement in TV Broadcasts", the proceedings of IEEE Canadian Conference on Electrical and Computer Engineering, Vancouver, 2007.

C299 M. Hansen, A. Wong and W. Bishop, "A Hardware Implementation of Real-Time Video Deblocking Using Shifted Thresholding", the proceedings of IEEE Canadian Conference on Electrical and Computer Engineering, Vancouver, 2007.

C300 A. Wong and W. Bishop, "Intelligent Multi-Level Regions-of-Interest (ROI) Document Image Encryption using an Online Learning Model", the proceedings of IASTED International Conference on Signal Processing, Pattern Recognition and Applications, Austria, 2007.

C301 A. Wong and W. Bishop, "Adaptive Perceptual Degradation Based on Video Usage", the proceedings of IEEE International Symposium on Multimedia (IEEE ISM), San Diego, 2006.

C302 A. Wong and W. Bishop, "Practical Content-Adaptive Subsampling for Image and Video Compression", the proceedings of IEEE International Symposium on Multimedia (IEEE ISM), San Diego, 2006.

C303 A. Wong and W. Bishop, "Adaptive Normal Map Compression for 3D Video Games", the proceedings of FuturePlay, London, Ontario, Canada, 2006.

C304 A. Wong and W. Bishop, "Efficient Deblocking of Block-Transform Compressed Images and Video Using Shifted Thresholding", the proceedings of the IASTED International Conference on Signal and Image Processing, Honolulu, Hawaii, 2006.

C305 A. Wong and W. Bishop, "An Efficient, Parallel Multi-Key Encryption of Compressed Video Streams", the proceedings of the IASTED International Conference on Signal and Image Processing, Honolulu, Hawaii, 2006.

C306 A. Wong and W. Bishop, "A Flexible Content-Based Approach to Adaptive Image Compression", the proceedings of the IEEE International Conference on Multimedia & Expo (IEEE ICME), Toronto, Ontario, Canada, 2006.

C307 A. Wong and W. Bishop, "Expert Knowledge Based Automatic Regions-of-Interest (ROI) Selection in Scanned Documents for Digital Image Encryption", the proceedings of the 3rd Conference on Computer and Robot Vision, Quebec City, Quebec, Canada, 2006.

C308 A. Wong, W. Bishop and Jeff Orchard, "Efficient Multi-Modal Least-Squares Alignment of Medical Images Using Quasi-Orientation Maps", the proceedings of the International Conference on Image Processing, Computer Vision, and Pattern Recognition, Las Vegas, Nevada, 2006.

C309 A. Wong and Jeff Orchard, "Efficient and Robust Non-Rigid Least-Squares Rectification of Medical Images", the proceedings of the International Conference on Image Processing, Computer Vision, and Pattern Recognition, Las Vegas, Nevada, 2006.

C310 A. Munshi, A. Wong, A. Clinton, S. Braganza, W. Bishop, and M. McCool, "A Parameterizable SIMD Stream Processor", the proceedings of the IEEE Canadian Conference on Electrical and Computer Engineering, Saskatoon, Saskatchewan, Canada, 2005.

2.2.3 Patents and Patent Applications (38)

P1 A. Hryniowski, M. Shafiee, A. Wong, "System and Method for Selecting Unlabeled Data for Building Learning Machines," US Patent Application 63/075,811, 2020.

P2 M. Famouri, M. Shafiee, B. Chwyl, A. Wong, "System and Method for Selecting Components in Designing Machine Learning Models," US Patent Application 63/064,914, 2020.

P3 E. Bidaki, P. Murphy, and A. Wong, "System and method for imaging, segmentation, temporal and spatial tracking, and analysis of visible and infrared images of ocular surface and eye adnexa," US Patent Application 63/012,965, 2019.

P4 X. Wang, A. Wong, "System and Method for Building and Using Learning Machines to Analyze and Understand Learning Machines, " US Patent Application 62/724,566, 2018.

P5 A. Wong, "System and Method for Decentralized Digital Structured Data Storage, Management, and Authentication using Blockchain", US Patent Application 62/682,162, 2018.

P6 I. Khodadad, A. Wong, and F. Kazemzadeh*, "Apparatus and Method for Subcutaneous Physiological Measurements", US Patent Application 62/630,946, 2018.

P7 F. Li*, M. Shafiee**, A. Wong, "System and Method for Automatic Building of Learning Machines using Learning Machines, " US Patent Application 62/623,615, 2018.

P8 I. Khodadad, A. Wong, and F. Kazemzadeh*, "Devices and Methods for Chemical Analysis of Substances, Analytes, and Assays", US Patent Application 62/617,468, 2018.

P9 S. Haider*, F. Kazemzadeh**, and A. Wong, "System, Method, and Apparatus for measuring polarization using spatially-varying polarization beams", US Patent 10,837,897, 2020.

P10 Y. Fu, I. Soreefan, A. Wong, M. Shafiee**, B. Chwyl*, and A. Chung*, "Bed exit monitoring system", US Patent Application, 15/866,972, 2018.

P11 A. Wong, Y. Fu, B. Chwyl*, A. Chung*, and M. Shafiee**, "Method and Apparatus for Automatic Event Prediction", US Patent Application, 15/883,754, 2018.

P12 A. Wong, Y. Fu, B. Chwyl*, A. Chung*, and M. Shafiee**, "Method and Apparatus for Automatic Event Prediction", European Patent Application, 18154272.1, 2018.

P13 A. Wong, Y. Fu, B. Chwyl*, A. Chung*, and M. Shafiee**, "Method and Apparatus for Automatic Event Prediction", Japanese Patent Application, 2018-015348, 2018.

P14 A. Wong, P. Fieguth, A. Ma*, A. Gawish, and M. Lamm, "Real-time Spatial-based Resolution Enhancement Using Shifted Superposition", US Patent Application, 10/009,587, 2017. **currently being integrated into Christie Digital products)**

P15 I. Khodadad, F. Kazemzadeh*, and A. Wong, "System and Method for Sequencing Biological Tissue and Determining the Physical State of a Subject", US Patent Application 62/561,272, 2017.

P16 E. Li*, H. Sekkati**, M. Lamm, and A. Wong, " Device, System, and Method for Content-Adaptive Resolution-Enhancement", European Patent Application 17178178.4 - 1902, 2017. **currently being integrated into Christie Digital products)**

P17 E. Li*, H. Sekkati**, M. Lamm, and A. Wong, " Device, System, and Method for Content-Adaptive Resolution-Enhancement", US Patent 9,736,442, 2016. **currently being integrated into Christie Digital products)**

P18 A. Wong and M. Shafiee*, " System and Method for Building Artificial Neural Networks Using Data", US Patent Application 62/529,474, 2017.

P19 A. Wong and M. Shafiee*, " System and Method for Building Artificial Neural Network Architectures", US Patent Application 62/362,834, 2016.

P20 A. Wong and M. Shafiee*, " System and Method for Building Artificial Neural Network Architectures", Canada Patent Application, 2016.

P21 R. Amelard* and A. Wong, " System and Method for Spatial Cardiovascular Monitoring", US Patent 10,709,342, 2020.

P22 R. Amelard* and A. Wong, " System and Method for Spatial Cardiovascular Monitoring", Canada Patent Application 2,952,485, 2016.

P23 A. Wong and F. Kazemzadeh*, " A System, Method, and Apparatus for Improving the Spectral Resolution and Signal-to-Noise Ratio of Optical Spectrometer Using Digital Beam Refocusing, Reforming, Slicing, and Multiplexing", Canada Patent Application 2,937,230, 2016.

P24 A. Wong and F. Kazemzadeh*, " A System, Method, and Apparatus for Improving the Spectral Resolution and Signal-to-Noise Ratio of Optical Spectrometer Using Digital Beam Refocusing, Reforming, Slicing, and Multiplexing", US Patent 9,880,390, 2018.

P25 F. Kazemzadeh* and A. Wong, " A System, Method, and Apparatus for Ultra-resolved Ultra-wide Field-of-view Multispectral and Hyperspectral Holographic Microscopy", US Patent 10,088,662, 2018.

P26 F. Kazemzadeh* and A. Wong, " A System, Method, and Apparatus for Ultra-resolved Ultra-wide Field-of-view Multispectral and Hyperspectral Holographic Microscopy", Canada Patent Application, 2015.

P27 F. Kazemzadeh*, A. Wong, S. Haider*, "Imaging system and method for concurrent multiview multispectral polarimetric light-field high dynamic range imaging", US Patent Application 14/840,013, 2015.

P28 F. Kazemzadeh*, A. Wong, S. Haider*, "Imaging system and method for concurrent multiview multispectral polarimetric light-field high dynamic range imaging", Canada Patent Application, 2015.

P29 A. Wong, "A compensated magnetic resonance imaging system and method for improved magnetic resonance imaging and diffusion imaging quality", US Patent 9,709,651, 2017. **currently used by clinical scientists at Sunnybrook Health Sciences Centre)**

P30 A. Wong, "Correlated Diffusion Imaging System and Method for Identification of Biological Tissue of Interest", United States Patent 9,619,882, 2017. **(currently used by clinical scientists at Sunnybrook Health Sciences Centre)**

P31 A. Wong, "Correlated Diffusion Imaging System and Method for Identification of Biological Tissue of Interest", Canada Patent 2,854,844, 2018. **(currently used by clinical scientists at Sunnybrook Health Sciences Centre)**

P32 A. Wong and H. Zhou, "Method and Apparatus for Generating a Panorama from a Sequence of Video Frames", filed through Seiko Epson Corp., United States Patent Application 20070030396, Feb 8, 2007. **(currently deployed worldwide in Epson products)**

P33 A. Wong and H. Zhou, "Method and Apparatus for Automatic Image Categorization", filed through Seiko Epson Corp., United States Patent Application 20080089591, Apr 16, 2008. **(currently deployed worldwide in Epson products)**

P34 A. Wong and H. Zhou, "Method and Apparatus for Automatic Image Categorization", filed through Seiko Epson Corp., European Patent Application EP1912161, Apr 16, 2008. **(currently deployed worldwide in Epson products)**

P35 A. Wong and H. Zhou, "Method to Automatically Classify Input Image", filed through Seiko Epson Corp., Japanese Patent Application JP2008097607, Apr 16, 2008. **(currently deployed worldwide in Epson products)**

P36 A. Wong and H. Zhou, "Method and Apparatus for Automatically Estimating the Layout of a Sequentially Ordered Series of Frames to Be Used to Form a Panorama", filed through Seiko Epson Corp., United States Patent 7474802, Jan 6, 2009. **(currently deployed worldwide in Epson products)**

P37 A. Wong and H. Zhou, "Method and Apparatus for Estimating Shot Boundaries In A Digital Video Sequence", filed through Seiko Epson Corp., United States Patent 7551234, June 23, 2009. **(currently deployed worldwide in Epson products)**

P38 A. Wong and H. Zhou, "Method and Apparatus for Generating a Panorama Background from a Set of Images", filed through Seiko Epson Corp., United States Patent 7577314, August 18, 2009. **(currently deployed worldwide in Epson products)**

2.2.4 Books and Book Chapters (7)

B1 F. Khalvati, Y. Zhang, A. Wong, and M. Haider, "Radiomics", Encyclopedia of Biomedical Engineering, Elsevier, 2018.

B2 R. Amelard* and A. Wong, "Hemodynamic Imaging", Encyclopedia of Biomedical Engineering, Elsevier, 2018.

B3 F. Kazemzadeh* and A. Wong, "Holographic Microscopy", Encyclopedia of Biomedical Engineering, Elsevier, 2018.

B4 A. Wong and T. Nahm, "Intelligent Blockchain: The Intersection between Blockchain and AI", Proof of Stake: Blockchain Matters for Small and Medium Size Businesses, Miller Thomson, 2018.

B5 A. Wong, J. Wallace, A. Lee, A. Kumar, V. Cheung, and X. Wang, Data Structures and Algorithms in a Nutshell: 5th Edition, University of Waterloo Publishing, 2016.

B6 J. Glaister*, R. Amelard*, A. Wong, and D.A. Clausi, "Melanoma decision support using lighting-corrected intuitive feature models", Computer Vision Techniques for the Diagnosis of Skin Cancer, Springer, 2013.

B7 A. Wong, A. Mishra, P. Fieguth, and D.A. Clausi, "Nonparametric Sample-based Methods for Image Understanding", Emerging Topics in Computer Vision (C.H. Chen (ed.)), World Scientific Publishing, 2011.

2.3 SELECTED INVITED PRESENTATIONS

T1 Invited Talk, Road to Operational AI: Advances and Challenges, UW Student Venture Fund event, 2020.

T2 Invited Expert, OSFI Tech Risk Consultation - Advanced Analytics Roundtable, Office of the Superintendent of Financial Institutions, 2020.

T3 Invited Talk, A Hitchhikers Guide to Tools, Datasets, and Best Practices for Building AI for Health Applications, IEEE SIGHT Week: Hands-on AI for Humanitarian Technology: Health Applications, 2020.

T4 Invited Talk, Fibrosis-Net: A Tailored Deep Convolutional Neural Network Design for Prediction of Pulmonary Fibrosis Progression from Chest CT Images, Boehringer Ingelheim Pharmaceutical, 2020.

T5 Invited Talk, Canadian Artificial Intelligence Ecosystem (Closing Remarks), European Big Data Value Forum Conference, 2020.

T6 Invited Talk, In-depth exploration for Lung HRCT Imaging Analysis, Boehringer Ingelheim Pharmaceutical, 2020.

T7 Invited Talk, AI in the Fight against COVID-19, Boehringer Ingelheim Pharmaceutical, 2020.

T8 Invited Panelist, Artificial Intelligence as enabler of competitiveness, Digital Around the World Conference, 2020.

T9 Invited Talk, Combating COVID-19 With AI, ARM DevSummit, 2020.

T10 Invited Talk, Road to Operational AI: Advances and Challenges, Honeywell Connected, 2020.

T11 Invited Talk, Innovations and Challenges at a time of Pandemic, Centre for Bioengineering and Biotechnology, 2020.

T12 Invited Talk, Pandemics Dont Wait: How We Built COVID-Net in Under 7 Days, USGIF GEOINTegration Summit, 2020.

T13 Keynote Talk, COVID-Net: Open Source Deep Learning Initiative for COVID-19 Detection and Risk Stratification From Chest Radiography, Hong Kong Baptist University Research Symposium, 2020.

T14 Invited Talk, How a Human-Machine Collaboration Approach to Deep Learning Development Streamlines MLOps, MLOps World 2020, 2020.

T15 Invited Talk, Detecting COVID Cases with Deep Learning, SigOpt Webinar Series, 2020.

T16 Invited Talk, Building COVID-Net in Under 7 Days, Ericsson, 2020.

T17 Invited Talk, Human Machine Collaborative Design and Understanding for Scalable and Trustworthy Autonomy, Lyft, 2020.

T18 Invited Talk, Generative Synthesis for Edge Deep Learning, Honeywell Tech Forum, 2020.

T19 Invited Talk, Taking a Stance on Fake News: Towards Automatic Disinformation Assessment through AI and Explainability, Twitter, 2019.

T20 Keynote Talk, A Hitchhiker's Guide to Practical AI in Medicine, University of Waterloo School of Pharmacy Reunion, 2019.

T21 Invited Talk, A Hitchhiker's Guide to Usable, Scalable, Explainable, and Responsible AI, Communitech Corporate Innovation Summit, 2019.

T22 Invited Talk, Operationalizing AI: Usable, Scalable, Explainable, Dependable, and Responsible, Waterloo Engineering Alumni Reunion, 2019.

T23 Invited Talk, Towards Usable, Scalable, Explainable, Dependable, and Responsible AI, Waymo, 2019.

T24 Invited Talk, Operational AI: Usable, Scalable, Explainable, and Responsible, Honeywell, 2019.

T25 Invited Talk, Towards AI-powered Medical Imaging and AI, University of Bordeaux Delegation Colloquim, 2019.

T26 Invited Talk, Scalable and Explainable Deep Learning in Practice, Airbus, 2019.

T27 Invited Talk, A Hitchhiker's Guide to Practical Artificial Intelligence For Medicine, Waterloo MedTech 2018 Conference, Waterloo, 2018.

T28 Invited Panelist, Champions of Industry, Waterloos Schulich Leaders Networking Event, 2018.

T29 Invited Panelist, Driver Health Monitoring, 2018 AutoTech Symposium, 2018.

T30 Invited Talk, Promises and Challenges of Operational AI, Alumni Lecture, Waterloo, 2018.

T31 Invited Talk, Slaying the Scalability and Explainability Beasts in Deep Learning, LG, San Francisco, 2018.

T32 Invited Talk, Slaying the Scalability and Explainability Beasts in Deep Learning, O'Reilly Artificial Intelligence Conference, San Francisco, 2018.

T33 Invited Talk, Practical Deep Learning: Promises and Challenges, Inovia Capital / Obvious Venture Public Lecture, San Francisco, 2018.

T34 Invited Talk, Enabling Scalable and Explainable Deep Learning in Medicine, National University of Singapore Workshop on Medical Imaging and Robotics, 2018.

T35 Invited Talk, Evolutionary Synthesis of Deep Neural Networks, Continental Automotive, Lindau (broadcasted

to Frankfurt/Budapest), 2018.

T36 Invited Keynote Talk, A Hitchhiker's Guide to Machine Learning for Practical Applications, Toyota Innovation Awards, Waterloo, 2018.

T37 Invited Talk, Slaying the Scalability and Explainability Beasts in Deep Learning, Google Developer Group Waterloo AI Meetup, Waterloo, 2018.

T38 Invited Talk, Scalability and Explainability in Deep Learning, Google Developer Group Waterloo AI Meetup, Waterloo, 2018.

T39 Invited Panelist, Collaborative Innovation: Bridging the Gap Between Healthcare and Tech, Waterloo-Wellington Clinical Research and Quality Improvement Symposium, 2018.

T40 Invited Panelist, Beyond Impact: UWaterloos role in the innovation ecosystem, True North Conference, 2018.

T41 Invited Talk, Tackling Scalability and Explainability Challenges for Deep Learning, Conference on Computer and Robotic Vision, 2018.

T42 Invited Keynote Talk, Innovation at Waterloo Artificial Intelligence Institute, Microsoft AI Day, Toronto, 2018.

T43 Invited Panelist, Artificial Intelligence and its Future, Golden Triangle Angel Network / AngelOne / SWO Angels meeting, April 2018.

T44 Invited Talk, Artificial Intelligence at University of Wateloo, Innovate UK - Enterprise Europe Network: Canadian Embassy in London, UK, 2018.

T45 Invited Talk, Artificial Intelligence and its impact, Waterloo Central Advancement Meeting, 2018.

T46 Invited Panelist, Artificial Intelligence and the Road Ahead, Velocity, April 2018.

T47 Invited Panelist, Turn Your Research Into a Startup, Beyond Impact: Waterloo Innovation Summit (Toronto), March 2018.

T48 Invited Talk, Operational Artificial Intelligence for Precision Agriculture, SynBio cluster meeting, February 2018.

T49 Invited Talk, Operational Artificial Intelligence for Anywhere, Anyone, Anytime, General Motors, January 2018.

T50 Invited Talk, Operational Artificial Intelligence for Anywhere, Anyone, Anytime, Global CENTRA Talk (participants from 11 countries), December 2017.

T51 Invited Talk, Toward Operational Artificial Intelligence: Anywhere, Anyone, Anytime, Canadian Special Operation Forces Command, December 2017.

T52 Invited Talk, Enabling Operational Artificial Intelligence for Anyone, Anywhere, Anytime, Canadian Air Transport Security Authority, November 2017.

T53 Invited Talk, Operational Artificial Intelligence in Supply Chain, Loblaws, November 2017.

T54 Invited Talk, AnAcademicEntrepreneur'sJourneyBreakingintoHealthcareandtheChallengesAhead, 2017 Waterloo Region MedTech Conference, November 2017.

T55 Invited Talk, Artificial Intelligence in Engineering, OIO Japan A.I. workshop, November 2017.

T56 Invited Talk, Operational AI and the Potential for AVs, AutoTech Symposium 2017, October 2017.

T57 Invited Keynote Talk, Operational Artificial Intelligence, The 19th CSI International Symposium on Artificial Intelligence and Signal Processing (AISP), October 2017.

T58 Invited Talk, Toward Operational Artificial Intelligence: Anywhere, Anyplace, Anytime, Waterloo Reunion 2017, October 2017.

T59 Invited Talk, Toward Operational Artificial Intelligence: Anywhere, Anyplace, Anytime, Volkswagen, August 2017.

T60 Invited Talk, Artificial Intelligence-driven Data Analytics in Agriculture, Agrium, June 2017.

T61 Invited Talk, Operational Artificial Intelligence in Finance, CIBC, June 2017.

T62 Invited Talk, Toward Operational Deep Learning, Microsoft, June 2017.

T63 Invited Talk, Toward Operational Artificial Intelligence: Anywhere, Anyplace, Anytime, Dayalbagh

Educational Institute (DEI) Indo-Canadian Research Colloquium, June 2017.

T64 Invited Talk, Vision-driven AI for Advanced Manufacturing, Siemens, May 2017.

T65 Invited Talk, Research Entrepreneurship: From Vision to Reality, Alibaba, April 2017.

T66 Invited Talk, Operational Artificial Intelligence in Automotive Sector, Continental, March 2017.

T67 Invited Talk, Toward Operational Artificial Intelligence: Anywhere, Anyplace, Anytime, Up Close & Personal with SYDE, University of Waterloo, March 2017.

T68 Invited Panelist, Big Ideas Panel Discussion on Tech North: Building Canadas First Technology Supercluster - Canadas Opportunity To Build Toronto-Waterloo In To One of the Worlds Top Technology Superclusters, Rotman School of Management, Toronto, January 2017.

T69 Invited Talk, Operational Artificial Intelligence for Platform Intelligence, Umajin, January 2017.

T70 Invited Talk, Evolutionary Synthesis of Operational Deep Intelligence, Nvidia, November 2016.

T71 Invited Talk, Deep Learning with Darwin: Evolutionary Synthesis of Operational Deep Intelligence, Waterloo Institute for Complexity and Innovation, Waterloo, February 2017.

T72 Invited Talk, AI for Factory of the Future, NRC, October 2016.

T73 Invited Talk, Evolutionary Deep Intelligence, Miovision Technologies, October, 2016.

T74 Invited Talk, Integrative Medical Imaging Systems, Waterloo Senate Meeting, February 2016.

T75 Invited Talk, Grand Challenges in Computer Vision and Imaging, Department of Statistics and Actuarial Science, University of Waterloo, October 2015.

T76 Invited Talk, Integrative systems for biomedical imaging and analysis, National Biotechnology Week, Waterloo, October, 2014.

Non-refereed Contributions (24)

N1 T. Ravichandran, K. Gavahi, K. Ponnambalam, D. Kumar, A. Wong, J. Mousavi, V. Burtea, and K. Levin, Machine Learning Approach for Improved Water Pipe Leak Detection and Isolation for Sustainable Water Management. American Geophysical Union Fall Meeting, Washington, DC, December 10-14, 2018.

N2 K. Fewster, M. Noguchi, C. Gooyers, A. Wong, and J. Callaghan, "Do structural changes in the anterior region of the intervertebral disc reflect those in the posterior-lateral region?", CRE-MSE Research Day, 2015. (Designed and implemented algorithm for data extraction used for the study)

N3 S. Haider, A. Chung, E. Li, M. Shafiee, and A. Wong, Computational diffusion imaging modalities for prostate cancer, Abstract and Poster presentation. CIHR Team Grant and OICR Smarter Imaging Program (SIP) Prostate Workshop: Imaging Applications in Prostate Cancer, London, ON, November 21, 2014.

N4 F. Li, M. Zhu, A. Wong, and D.A. Clausi, Depth sensing and reconstruction, Poster presentation. WeInnovate Symposium, Waterloo, ON, November 19, 2014.

N5 B. Chywl, J. Deglint, A. Wong, and D.A. Clausi, Detecting Biomarkers Through Multispectral Data, Poster presentation. WeInnovate Symposium, Waterloo, ON, November 19, 2014.

N6 A. Chung, E. Li, M. Shafiee, and A. Wong, Computer-Aided MRI Reconstruction and Analysis, Poster presentation. WeInnovate Symposium, Waterloo, ON, November 19, 2014.

N7 S. Haider, F. Kazemzadeh, R. Amelard, and A. Wong, Integrative systems for biomedical imaging and analysis, Poster presentation. WeInnovate Symposium, Waterloo, ON, November 19, 2014.

N8 A. Wong, Integrative systems for biomedical imaging and analysis, Oral presentation. National Biotechnology Week, Waterloo, ON, October 1, 2014.

N9 A. Wong, D.A. Clausi, and P. Fieguth, Vision and image processing (VIP) research group, Poster presentation. WeInnovate, Waterloo, ON, November 14, 2014.

N10 R. Amelard, A. Wong, and D.A. Clausi, Highly intuitive features for melanoma detection, Oral presentation. Graduate Student Research Conference, Waterloo, ON, April, 2013. **Won Best Oral Presentation Award.**

N11 J. Glaister, A. Wong, and D.A. Clausi, Automatic illumination correction for dermatological photos, Oral presentation. Graduate Student Research Conference, Waterloo, ON, April, 2013.

N12 A. Wong and D.A. Clausi, Intelligent clinical decision support system for melanoma cancer, Oral presentation. UW/OCE/Agfa Joint Workshop on Intelligent Clinical Decision Support System for Melanoma Cancer (Oral presentation), Waterloo, ON, June 7, 2012.

N13 A. Wong, D.A. Clausi, and P. Fieguth, Vision and image processing (VIP) research group, Poster presentation. WeInnovate, Waterloo, ON, June 7, 2011.

N14 N. Bandekar, A. Wong, D.A. Clausi, and M. Gorbet, A novel approach to automated cell counting for studying human corneal epithelial cells, Oral presentation. Graduate Student Research Conference, Waterloo, ON, April, 2011.

N15 A. Wong, Stochastic multi-scale strategies for biomedical image analysis, Oral presentation. Graduate Student Research Conference, Waterloo, Ontario, Canada, Apr 2010. **Won Best Oral Presentation Award.**

N16 A. Wong and D.A. Clausi, Image processing and computer vision algorithms for public surveillance, Oral presentation. Research Group Meeting, Geomatics for Informed Decisions (GEOIDE) an NSERC Network of Centres of Excellence (NCE), Vancouver, B.C., May 28-30, 2009.

N17 A. Wong, W. Zhang, and D.A. Clausi, IceSynth: An image synthesis system for sea-ice segmentation evaluation, Oral presentation. Annual General Meeting of Geomatics for Informed Decisions (GEOIDE) an NSERC Network of Centres of Excellence (NCE), Vancouver, B.C., May 28-30, 2009.

N18 A. Wong, Pre-processing/Filtering for Computer Vision, Oral presentation. CRV Tutorial Day 2009, Kelowna, BC, Canada, May 2009.

N19 A. Wong, W. Zhang, and D.A. Clausi, IceSynth: An image synthesis system for sea-ice segmentation evaluation, Oral presentation. Vision and Image Processing (VIP) Workshop, University of Waterloo, Waterloo, ON, May 15, 2009.

N20 A. Wong, D.A. Clausi, and P. Fieguth, Adaptive Monte Carlo Retinex method for illumination and reflectance separation and color image enhancement, Oral presentation. Vision and Image Processing (VIP) Workshop, University of Waterloo, Waterloo, ON, May 15, 2009.

N21 W. Zhang, A. Wong, and D.A. Clausi, IceSynth: JEDI: Adaptive stochastic estimation for joint enhancement and despeckling of SAR images, Oral presentation. Vision and Image Processing (VIP) Workshop, University of Waterloo, Waterloo, ON, May 15, 2009.

N22 A. Mishra, A. Wong, W. Zhang, P. Fieguth, and D.A. Clausi, Improved Interactive Medical Image Segmentation using Enhanced Intelligent Scissors (EIS), Poster presentation. Imagine Imaging Workshop on Biomedical Imaging Technologies, Waterloo, ON, 2008.

N23 A. Wong, An Adaptive Non-local Means Approach to Exemplar-based Inpainting, Oral presentation. Graduate Student Research Conference, Waterloo, ON, Canada, April 2008.

N24 A. Wong, Indirect Knowledge Based Approach to Non-Rigid Multi-Modal Registration of Medical Images, Oral presentation. Graduate Student Research Conference, Waterloo, ON, Canada, April 2007.

N25 A. Wong, Efficient Multi-key Encryption of Compressed Video Streams, Poster presentation. Graduate Student Research Conference, Waterloo, ON, Canada, April 2006.

2.4 MEDIA COVERAGE

M1 "Edge NLP Is About Doing More With Less," IoT World Today, January 2021.

M2 "AI on AI on AI," The Rational View Podcast with Dr. Al Scott, January 2021.

M3 "A new screening solution: COVID-Net," Imprint, December 2020.

M4 "2020 in Review: 10 AI-Powered Tools Tackling COVID-19," Synced, December 2020.

M5 "Responsible AI Programs To Follow And Implement Breakout Year 2021," Forbes, December 2020.

M6 "Honeywell lays down $1.3 billion to drive AI and IoT into life sciences," VentureBeat, December 2020.

M7 "Partners collaborate with Boston Childrens Hospital on explainable AI-driven technology," Bioworld, December 2020.

M8 "XAI: Are We Looking Before We Leap?" SOSA Special Report, December 2020.

M9 "These new metrics help grade AI models trustworthiness," The Next Web, December 2020.

M10 "Top Milestones On Explainable AI In 2020," Analytics India Magazine, November 2020.

M11 "TinyML Could Democratize AI Programming for IoT," IoT World Today, November 2020.

M12 "Artificial Intelligence in Health Care: COVID-Net Aids Triage," ITProToday, November 2020.

M13 "DarwinAI Accelerates COVID-19 Diagnosis with Lockheed Martin Support," Financial Post, November 2020.

M14 "Red Hat, DarwinAI Partner for COVID-19 Artificial Intelligence," HIT Infrastructure, November 2020.

M15 "Boston Children's partners with cloud provider on AI-powered COVID-19 imaging detection tool," Becker's Hospital Review, November 2020.

M16 "How do you measure trust in deep learning?," TechTalks, November 2020.

M17 "Case Study: Using imaging and AI to help diagnose and manage covid-19 patients," The Economist Intelligence Unit, November 2020 (expert on the report, which also cover my research contribution of COVID-Net)

M18 "Special Report: Staying ahead of the curve The business case for responsible AI," The Economist Intelligence Unit, October 2020 (expert on the report)

M19 "DarwinAI Partners with Red Hat to Accelerate Deployment of COVID-19 Solution," BetaKit, November 2020.

M20 "Red Hat, Darwin AI work to bring COVID AI to hospitals," AuntMinnie, November 2020.

M21 "Finding purpose in a pandemic with talent and technology," University of Waterloo Magazine, October 2020.

M22 "Embedded Tech Continues COVID-19 Battle," DesignNews, October 2020.

M23 "It's Close Enough," Hackster.io, October 2020 (covering my research contribution of AttendNets)

M24 "Alexander Wong - University of Waterloo and Rogers 5G Collaboration," 570 News, September 2020.

M25 "Local AI tech may help detect severity of COVID," The Record, September 2020.

M26 "Waterloo becomes one of Canadas first 5G smart campuses," Exchange Magazine, September 2020.

M27 "Alexander Wong - University of Waterloo and Rogers 5G Collaboration," Rogers TV, September 2020.

M28 "TinySpeech: Novel Attention Condensers Enable Deep Recognition Networks on Edge Devices," Synced, September 2020.

M29 "Key advancement announced in COVID x-ray project," Waterloo Engineering, September 2020.

M30 "Algorithms Can Help Fight COVID-19. But at What Cost?," Haaretz, August 2020.

M31 "TinySpeech Delivers Vastly Reduced Complexity, Improves Performance for TinyML Speech Recognition," Hackster.io, August 2020.

M32 "Research Highlights: Attention Condensers," insideBIGDATA, August 2020.

M33 "Embedded AI for Healthcare: How We Built COVID-Net for Embedded Devices," ARM Machine Learning IP Blog, July 2020.

M34 "Detecting infections from X-Rays - Alexander Wong of COVID-Net," The Weekly Squeak with Chris Chinchilla, June 2020.

M35 "An AI Assist for Spotting COVID-19 in X Rays", Physics Magazine, May, 2020.

M36 "Many eyes on x-ray AI for COVID-19 detection", AI in Healthcare, May, 2020.

M37 "DarwinAI to collaborate with Lockheed Martin", Wings Magazine, May, 2020.

M38 "The Role Of Augmented Intelligence In Fighting Against A Pandemic", Forbes Magazine, May, 2020.

M39 "CIFAR Launches 14 AI Research Projects to Help in Fight Against COVID-19", BetaKit, May, 2020.

M40 "Convolutional neural network detects COVID-19 from chest radiography images", Vision Systems Design, May, 2020.

M41 "New AI Could Detect COVID-19 on Chest X-Ray", PaperBlog, May, 2020.

M42 "Startup DarwinAI says interest in its open-source project that helps identify coronavirus in x-rays growing", IT World Canada, April, 2020.

M43 "DarwinAI Makes AI Applications More Efficient and Less of a Black Box with Its Own AI", Edge AI and Vision Alliance, April, 2020.

M44 "How Artificial Intelligence is Enabling Fight Against COVID-19", Geo Awesomeness, April, 2020.

M45 "Answering the call: Dozens of Waterloo Region companies responding to COVID-19 needs", The Record, April, 2020.

M46 "Waterloo Region tech roundup: From face shields and masks to exposing hackers", The Record, April, 2020.

M47 "More free, discounted tech for governments responding to COVID-19", GCN, April, 2020.

M48 "Koronavirs teshisinde yeni umut: COVID-Net", Mynet, April, 2020.

M49 "AI Startup proposes to use X-ray images to detect Wuhan pneumonia", TechNews Taiwan, April, 2020.

M50 "Canadian startup's open source AI tool helps identify coronavirus infections", cnBeta, April, 2020.

M51 "A DarwinAI quer ajudar a identificar o coronavrus em raios-x, mas os radiologistas no esto convencidos", Diario Carioca, April, 2020.

M52 "Une startup met au point COVID-Net, un rseau de neurones convolutifs, open source, pour dpister les patients souponns d'infections au COVID-19", Developpez, April, 2020.

M53 "AI and the coronavirus fight: How artificial intelligence is taking on COVID-19", ZDNet, April, 2020.

M54 "AI Physician, AI Music Composer and More Hot Releases This Week", Analytics India Magazine, April, 2020.

M55 "Koronavirste yeni umut! Bu yeterli oluyor", Puntual, April, 2020.

M56 "COVID-Net: IA para detectar el COVID-19 con radiografas de torax", InnovaSpain, April, 2020.

M57 "Ferramenta de IA identifica casos de Covid-19 por radiografias", OLHAR Digital, April, 2020.

M58 "Fighting the Covid-19: All the datasets and data efforts in one place", Towards Data Science, March, 2020.

M59 "COVium-Gatherum", AI with AI: with Andy Ilachinski and David Broyles (Episode 3.23), March, 2020.

M60 "Open-source AI tool aims to help identify coronavirus infections", ZDNet, March, 2020.

M61 "AI runs smack up against a big data problem in COVID-19 diagnosis", ZDNet, March, 2020.

M62 "RIDE of the COV-all-cures", AI with AI: with Andy Ilachinski and David Broyles (Episode 3.22), March, 2020.

M63 "DarwinAI Open-Sources COVID-Net as Medical Imaging in COVID-19 Diagnosis Debate Continues," Synced Review, March 2020.

M64 "Hospitals Deploy AI Tools to Detect COVID-19 on Chest Scans," IEEE Spectrum, March 2020.

M65 "AI can help with the COVID-19 crisis - but the right human input is key," World Economic Forum, March 2020.

M66 "COVID-Net Interview with Alexander Wong," 760 News, March 2020.

M67 "COVID-19 Interview with Alexander Wong," ACM Interviews by Stephen Ibaraki, March 2020.

M68 "Open-source AI COVID-Net targets COVID-19 on chest x-ray," AuntMinnie, March 2020.

M69 "Claims that AI detects coronavirus in X-rays arent convincing medical experts," The Next Web, March 2020.

M70 "Help pours in from around the world to develop new COVID-19 test," Waterloo Stories, March 2020.

M71 "DarwinAI Unleashes COVID-Net," Datanami, March 2020.

M72 "AI (Artificial Intelligence) Companies That Are Combating The COVID-19 Pandemic," Forbes, March 2020.

M73 "Developers take on COVID-19 with open-source projects, hackathons," SD Times, March 2020.

M74 "Can Artificial Intelligence Help In Identifying COVID-19?," Scoop Whoop, March 2020.

M75 "COVID-19: This AI network could help detect cases using chest X-ray images," The Indian Express, March 2020.

M76 "A.I. could help spot telltale signs of coronavirus in lung X-rays," Digital Trends, March 2020.

M77 "Tech companies are deploying AI to spot COVID-19, unburden overworked healthcare staff," Health Imaging Magazine, March 2020.

M78 "COVID-Net AI Tool Can Help in Identifying COVID-19 in Chest X-Rays," Gadgets 360, March 2020.

M79 "Darwin AI: Improve AI with AI to make AI applications more efficient and transparent," Sina News, March 2020.

M80 "Bildanalyse-KI erkennt Covid-19 in Rntgenaufnahmen," Mixed Magazine, March 2020.

M81 "Open-access AI invites refinement of COVID-19 diagnosis," AI in Healthcare, March 2020.

M82 "A neural network can help spot Covid-19 in chest x-rays," MIT Technology Review, March 2020.

M83 "DarwinAI wants to help identify coronavirus in x-rays, but radiologists arent convinced," VentureBeat, March 2020.

M84 "DarwinAI, University of Waterloo develop neural network for COVID-19 detection," BetaKit, March 2020.

M85 "An artificial intelligence capable of coronavirus detection with a lung x-ray has been developed," Somag News, March 2020.

M86 "How Waterloo Region companies are helping during COVID-19," Waterloo EDC, March 2020.

M87 "Tackling the coronavirus pandemic," Waterloo Stories, March 2020.

M88 "UW Researchers use open-source software to improve COVID-19 screening with AI," Cambridge Times, March 2020.

M89 "This stance-detecting AI will help us fact-check fake news," The Next Web, March 2020.

M90 "Deep learning wont detect fake news, but it will give fact-checkers a boost," TechTalks, February 2020.

M91 "Edge AI is the next step to ambient computing," Futurithmic Magazine, February 2020.

M92 "Fake news detecting technology developed by DarwinAI," Kitchener Today, February 2020.

M93 "DarwinAI Joins Fight Against Fake News," The Record, February 2020.

M94 "Video Interview with Alexander Wong," ACM Interviews by Stephen Ibaraki, January 2020.

M95 "Healthcare Algorithms Are Biased, and the Results Can Be Deadly," PC Magazine, January 2020.

M96 "New AI Tool Helps Flag Fake News," The University Network News, December 2019.

M97 "How the IoMT Will Evolve to Better Fit Healthcare Needs in 2020," HealthTech Magazine, December 2019.

M98 "Deep-learning tool detects whoppers with 90 per cent accuracy," EIT Engineering and Technology, December 2019.

M99 "New tool uses AI to flag fake news for media fact-checkers," ScienceDaily, December 2019.

M100 "This artificial intelligence tool wont make you a fool," Free Press Journal, December 2019.

M101 "DarwinAI is bringing artificial intelligence to new industries," Waterloo EDC, December 2019.

M102 "What Does the Rise of AI Hold for Engineering Education?," EE Times, November 2019.

M103 "Advances in technology and innovation are driving much-needed disruption in health care," Canadas Innovation Leaders 2019 Report, November 2019.

M104 "University of Waterloo researchers use AI to help make advances in preventive health care," The Record, November 2019.

M105 "Can AI Help Patients Take Control of Their Care?," HealthTech Magazine, October 2019.

M106 "Researchers find ways to harness the power of AI," EduNews, October 2019.

M107 "Researchers find way to harness AI creativity - dramatic performance boost to deep learning," SciTechNews, October 2019.

M108 "New deep learning system design technique could boost edge image analysis," Biometric Update, October 2019.

M109 "Collaborative robots' safety stalls enterprise implementation," TechTarget, September 2019.

M110 "Audi partners with Waterloo company to deploy innovative AI," Waterloo EDC, September 2019.

M111 "Audi, Waterloo firm work on driverless tech," Toronto Star, September 2019.

M112 "Waterloo AI company works with Audi on driverless technology," The Record, September 2019.

M113 "Waterloo researchers unearth gender and age biases in popular visual dataset," Waterloo News, August 2019.

M114 "Is AI in your shops future?," Auto Service World, June 2019.

M115 "Microsoft announces AI for Good funding for University of Waterloo," IT World Canada, June 2019.

M116 "Robots + AI: Boring Is Beautiful," Forbes Magazine, May 2019.

M117 "Q&A: University of Waterloo expert talks corporate opportunities in applied AI," Waterloo EDC, June 2019.

M118 "Bedtime stories led to helping companies program for Alexa," Globe and Mail, April 2019.

M119 "AttoNets: Compact and Efficient DNNs Realized via Human-Machine Collaborative Design," Synced Magazine, March 2019.

M120 "Is AI Headed For Another Winter?," Forbes Magazine, March 2019.

M121 "Artificial intelligence meets the real world," Manufacturing Automation Magazine, March 2019.

M122 "Tools for generating deep neural networks with efficient network architectures," The O'Reilly Data Show, December 2018 (interview).

M123 "Learning How AI Makes Decisions," PC Magazine, November 2018.

M124 "Voice assistants only getting smarter as privacy concerns grow," The National, March 2018.

M125 "DarwinAI Announces Explainability Platform for Neural Network Performance," insideBigData, November 2018.

M126 "Engineering lab joins growing ethical AI partnership," Waterloo Engineering News, November 2018.

M127 "Iranian student wins prestigious Alumni Gold Medal," Mehr News Agency, November 2018.

M128 "Can a Canadian AI Startup Challenge Google in AutoML?," Synced News, October, 2018.

M129 "Researchers develop offline speech recognition that's 97% accurate," VentureBeat, October, 2018.

M130 "Automatic generation of efficient DNN, synthetic tool for edge devices, FermiNets," Synced / Baidu News, October, 2018.

M131 "AI May be Monitoring Water Supplies Someday Soon," Environmental Monitor, 2018.

M132 "DarwinAI Emerges from Stealth with Powerful Design, Optimization and Explainability Platform for Deep Learning", insideBigData, 2018.

M133 "Canadian startup applies AI to deep neural networks to improve efficiency and transparency", Biometric Update, 2018.

M134 "Waterloo startup DarwinAI aims to make AI smarter", Waterloo Record, 2018.

M135 "DarwinAI raises $3.9 million CAD to help devs design neural networks", BetaKit, 2018.

M136 "DarwinAI out of stealth with $3M seed funding led by Obvious Ventures and iNovia Capital", Private Capital Journal, 2018.

M137 "DarwinAI emerges from stealth with $3 mln in seed financing", PE Hub, 2018.

M138 "DarwinAI raises $3 million for AI that optimizes neural networks", VentureBeat, 2018.

M139 "DarwinAI launches from stealth to automate artificial intelligence development", SiliconAngle, 2018.

M140 "AI technology rapidly analyzes water samples", Engineer of the Future, August, 2018.

M141 "Waterloo continues its involvement in Alexa Fellowship", Waterloo Engineering Stories, August, 2018.

M142 "AquaHacking Alums Publish Algae Identifying AI Research", Water Canada, July, 2018.

M143 "Better way found to determine the integrity of metals", Science Codex, July, 2018.

M144 "AI seeks out imperfections in metals", Construction Canada, July, 2018.

M145 "University of Waterloo researchers develop AI software to protect water supplies from toxins", BetaKit, July, 2018.

M146 "Researchers develop AI tool better to determine the integrity of metals", Green Car Congress, July, 2018.

M147 "How AI Could Protect Your Next Cup Of Water", The University Network, July, 2018.

M148 "New AI technology will protect water supplies : Research", The Indian Wire, July, 2018.

M149 "AI could protect public health by monitoring water treatment systems", Clinical Innovation and Technology, July, 2018.

M150 "AI Software Developed to Detect Dangerous Algae, Protect Health", Asharq Al-Awsat News, July, 2018.

M151 "AI Technology Could Improve Water Treatment Monitoring, Safeguard Public Health", Water and Waste Digest, July, 2018.

M152 "New AI system could help protect water supplies", Devdiscourse, July, 2018.

M153 "AI software to help protect water supplies", Software Testing News, July, 2018.

M154 "Using AI Tech to Protect Water Supplies", IEEE Engineering 360, July, 2018.

M155 "AI technology could help protect water supplies", Phys.org, July, 2018.

M156 "How the Creative Destruction Lab helped transform DarwinAI from a fancy science project into a viable start-up", Creative Destruction Lab Blog, July, 2018.

M157 "Non-invasive technology promises to reduce biopsies", Waterloo Engineering Alumni ELetter, June, 2018.

M158 "New Institute for Applied AI Opens in Waterloo", Synced Magazine, June, 2018.

M159 "Wearable Technology and AI Combine to Predict the Onset of Health Problems", Healthcare Analytics News, May, 2018.

M160 "Waterloo Researchers Combine AI and "Smart Shirts" to Track Aerobic Health", Lab Manager Magazine, May, 2018.

M161 "Smart clothing aims to predict failing health", Waterloo Stories, May, 2018.

M162 "Nothing is impossible! University of Waterloo makes medical breakthrough. Alex Wong!", Golden Horseshoe Chinese Press, April, 2018.

M163 "Echologics: A Sound Solution to Leak Detection", SOWC Stories, April, 2018.

M164 "UW unveils artificial intelligence lab", CTV News, April, 2018.

M165 "UW launches Waterloo Artificial Intelligence Institute", The Record / Hamilton Spectator, April, 2018.

M166 "Artificial intelligence research hub launched at University of Waterloo", CBC News, April, 2018.

M167 "When will AI be a threat to human jobs?", Man vs. Machine Series, CTV News, April, 2018.

M168 "What kind of tech-inspired future do you want?", Waterloo Stories, March, 2018.

M169 "How artificial intelligence is helping doctors diagnose cancer," Beyond Limitations: 2017-2018 State of the University Report, University of Waterloo, 2018.

M170 "Unleashing the power of AI in the world of finance", Engineering the Future, February, 2018.

M171 "Breaking free of the internet with stand-alone AI", Engineering the Future, January, 2018.

M172 "Engineering student and professor win best paper honours", Waterloo Media Release, January, 2018.

M173 "DoD AI Spending, Lifelong Learning Machines, and Accountability", AI with AI: with Andy Ilachinski and David Broyles (Episode 7), December, 2017.

M174 "How Diversity Will Help Toronto Win the AI Race", MaRS Magazine, December, 2017.

M175 "The AI That Aims to Break Free From Wi-Fi Dependence", Healthcare Analytics News, December, 2017.

M176 "Artificial intelligence may not need networks at all", Network World, December, 2017.

M177 "Lifesavers: Diagnosis driven by artificial intelligence (AI)", CIHR Celebrating Health Research Storybook, November, 2017.

M178 "Making artificial intelligence more private and portable", Digital Journal, November, 2017.

M179 "New AI system can work without internet", The Economic Times, November, 2017.

M180 "New AI system can break away from internet and cloud computing, provide privacy", The Indian Express, November, 2017.

M181 "Tecnologia criada na Universidade de Waterloo promete liberar a IA da internet e da nuvem", iMasters, November, 2017.

M182 "New Technology Makes Artificial Intelligence More Private and Portable", ACM TechNews, November, 2017.

M183 "Making Artificial Intelligence compact", Live Mint News, November, 2017.

M184 "University of Waterloo: Artificial Intelligence Without Internet Now Possible", The University Network News, November, 2017.

M185 "New AI system can work without internet", The Hindu, November, 2017.

M186 "New research in AI and cloud computing to make commuting smarter", Smart Computing for Innovation (SOSCIP) News, November, 2017.

M187 "Novel Technology Enables AI to Function without Internet", Tech You n Me, November, 2017.

M188 "New technology makes artificial intelligence more private and portable", ScienceDaily, November, 2017.

M189 "Making artificial intelligence more private and portable", AAAI AITopics, November, 2017.

M190 "Internetloze AI Op Zakformaat", De Ingenieur Magazine, November, 2017.

M191 "New technology makes artificial intelligence more private and portable", R & D Magazine, November, 2017.

M192 "New technology could make AI work without internet, cloud", Sify Finance, November, 2017.

M193 "New technology makes artificial intelligence more private and portable", Tech Xplore, November, 2017.

M194 "New AI system can work without internet", Money Control, November, 2017.

M195 "New Technology Could Make AI Work Without Internet, Cloud", News18, November, 2017.

M196 "Erzwungene Evolution macht KI portabler", Wallstreet Online, November, 2017.

M197 "Why its no longer strange to talk to your home appliances", Globe and Mail, October, 2017.

M198 "Elucid Labs continues to garner attention as it brings its game-changing AI device to market", Waterloo Chronicle, October, 2017.

M199 "New software could make it easier to adopt and trust AI systems that set insurance premiums", Canadian Underwriter, October, 2017.

M200 "Waterloo research paves the way for use of complex AI in the financial sector", Exchange Magazine, October, 2017.

M201 "Building trust in AI", Investment Executive, October, 2017.

M202 "Biotechnology and new biomarkers help diagnose multiple diseases", Sina, September, 2017.

M203 "Inteligencia artificial ayuda a identificar cancer de piel precoz," LabMedica, September, 2017.

M204 "Cutting-edge technology combining medical imaging and AI, AIDA aims to detect skin cancer in its infancy", HiTech Magazine, September, 2017.

M205 "Novel AI imaging approach yields improved skin cancer diagnosis," Healio Dermatology, September, 2017.

M206 " University of Waterloo medical technology startup named to Canadian innovation list," Waterloo News, September, 2017.

M207 "Medical technology startup named to innovation list," Waterloo Engineering News, September, 2017.

M208 "New Artificial Intelligent Used for Early Melanoma Detection," TrendinTech Magazine, September, 2017.

M209 "Employing Artificial Intelligence to Detect Skin Cancer Earlier," Specialty Pharmacy Times, September, 2017.

M210 "AI Is Now Helping Doctors Diagnose Skin Cancer Faster," Huffington Post, August, 2017.

M211 "Artificial intelligence helps with skin cancer detection," Digital Journal, August, 2017.

M212 "New tech detects cancer early," Innovators Magazine, August, 2017.

M213 "Artificial Intelligence May Help With Earlier Detection of Skin Cancer," The American Society of Clinical Oncology Post, August, 2017.

M214 "Device can detect cancer," Waterloo Record, August, 2017.

M215 "AI detects melanoma in earliest stages," Clinical Innovation and Technology Magazine, August, 2017.

M216 "Canadians invent AI for early skin cancer screening," Digitimes Magazine Taiwan, August, 2017.

M217 "AI can help skin cancer early diagnosis," BIOON, August, 2017.

M218 "Une nouvelle technologie IA developpee pour detecter plus tot les cancers de la peau," ActuIA, August, 2017.

M219 "From dementia to skin cancer, artificial intelligence poised to change health care," DOTMed News, August, 2017.

M220 "Skin Cancer News: Artificial intelligence helps with earlier detection of skin cancer," Youth Health Magazine, August, 2017.

M221 "Doctors could soon use AI-based systems to detect skin cancers early," International Business Times UK, August, 2017.

M222 "AI system to help detect skin cancer in early stages," The Tribune, August, 2017.

M223 "Artificial Intelligence Used to Diagnose Alzheimer's Disease," MedIndia News, August, 2017.

M224 "La Inteligencia Artificial podra detectar el cancer de piel antes que los medicos," TekCrispy Magazine, August, 2017.

M225 "Artificial intelligence to help detect early stage skin cancer," The Stack, August, 2017.

M226 "AI Technology is the Next Step in Fast Cancer Detection," IEEE Engineering360, August, 2017.

M227 "Artificial intelligence helps with earlier detection of skin cancer," ScienceDaily, August, 2017.

M228 "Artificial Intelligence Imaging Research Facilitates Disease Diagnosis," Clinical Lab Products Magazine, July, 2017.

M229 "From gaming to autonomous cars, NVIDIA shapes a fantastical future," Invest Ontario Success Story, July, 2017. (showcased evolutionary deep learning technology from my research group)

M230 "AI With A Difference," WEAL Magazine, July, 2017.

M231 "How Figure 1, The 'Instagram For Doctors' App, Plans To Introduce AI," Fast Company, June, 2017.

M232 "Figure 1 se lanza a la Inteligencia Artificial," Milenio, June, 2017.

M233 "Canadian Researchers Develop Low-Cost, Lens-Free Light-Field Microscope; Could Make Anatomic Pathology Labs Portable and More Affordable," Dark Daily, June, 2017.

M234 "Reading the minds of deep learning AI systems," Waterloo Stories, June, 2017.

M235 "AI-powered microscope has no lens yet sees nanoparticles for pathologists," Health Imaging, June, 2017.

M236 "Lens-free microscope enables full-colour pathology at low cost," The Engineer, June, 2017.

M237 "Artificial intelligence imaging research makes diagnosing disease easier," Technology Networks Magazine, June, 2017.

M238 "Artificial intelligence imaging research makes diagnosing disease easier," Lab Manager Magazine, June, 2017.

M239 "Artificial intelligence imaging research makes diagnosing disease easier," Exchange Magazine, June, 2017.

M240 "Artificial intelligence imaging research makes diagnosing disease easier," University of Waterloo Media Release, June, 2017.

M241 "Taking on Lake Eries Algae Monster: A look inside AquaHacking 2017," Water Institute News, June, 2017.

M242 "Which countries and universities are leading on AI research?" Times Higher Education, May, 2017.

M243 "How tech firms are racing to perfect conversational artificial intelligence," Canadian Business, May, 2017.

M244 "The Great Equalizer," Maclean's Magazine, May, 2017.

M245 "Seven wonders that will change your world," Waterloo Magazine, May, 2017.

M246 "Group wins award at hockey analytics conference," Waterloo Engineering Media Release, May, 2017.

M247 "Brain Drain North," Financial Post, March 27, 2017.

M248 "Artificial intelligence and the Waterloo-Toronto tech supercluster," Waterloo Stories, January 28, 2017.

M249 "Researchers edge out leading institutions to win AI award," Waterloo Engineering Research Media Release, December 16, 2016.

M250 "University of Waterloo Engineering Rated Number One by Macleans' Magazine," SpokeTV News, November, 2016.

M251 "The Best of the Physics arXiv (week ending June 25, 2016)," MIT Technology Review, June, 2016. (showcasing evolutionary deep intelligence)

M252 "Cancer detection technology at University of Waterloo," The Morning Edition with Craig Norris, CBC Radio One, May, 2016.

M253 "Prostate, lung cancer ID filter created at University of Waterloo," CBC News, May, 2016.

M254 "Breakthrough tech helps doctors more accurately diagnose cancer," Waterloo Stories, May, 2016.

M255 "Coded Hemodynamic Imaging," Focus Cantonese OMNI Television, May 4, 2016.

M256 "Coded Hemodynamic Imaging," Focus Mandarin OMNI Television, May 4, 2016.

M257 "Researchers honoured for advances in identifying cancer through imaging," Waterloo Engineering Research Media Release, March 31, 2016.

M258 "It takes a village," Lab Business, January/February, 2016. (showcased CHI technology)

M259 ""Selfie" under the skin: Mini camera tracking blood flow," Sina, February, 2016.

M260 "Invent This Week: Day 3," Daily Planet (TV show on Discovery Channel), February, 2016. (showcased CHI technology)

M261 "The selfie that really DOES get under your skin: Camera can track blood flow and show it pulsing through the body," Daily Mail, January, 2016.

M262 "Imaging technology can spot heart problems at a glance," The Spectator, January, 2016.

M263 "Single Blood Pulse Reading Meets its Waterloo," Intellectual Capitals, January, 2016.

M264 "Touchless UW device monitors blood flow to look for abnormalities," The Waterloo Region Record, January, 2016.

M265 "Whole-body imaging technology uses contactless tracking of blood flow," Gizmag Magazine, January, 2016.

M266 "Canadian scientists invent portable device that can see blood flow in your veins to detect disease," International Business Times, January, 2016.

M267 "Non-contact imaging device for monitoring blood flow," The Engineer, January, 2016.

M268 "Now a body imaging device can help detect heart problems early," Deccan Chronicle, January, 2016.

M269 "Touchless device can provide whole body blood flow monitoring," United Press International, January, 2016.

M270 "New touchless device to better detect heart problems," Yahoo News!, January, 2016.

M271 "New touchless device to detect heart problems early," Business Standard, January, 2016.

M272 "Coded Hemodynamic Imaging: Dieses System macht den menschlichen Blutfluss sichtbar," Trends Der Zukunft, January, 2016.

M273 "Se puede predecir un ataque al corazon? Ese es el objetivo de este revolucionario dispositivo virtual," Prnoticias, January, 2016.

M274 "Un systeme permet de monitorer le rythme cardiaque sans contact," Pourquoi Docteur, January, 2016.

M275 "UW researchers out with new touchless device to prevent heart issues," 570 News, January, 2016.

M276 "New touchless device makes earlier detection of heart problems possible," University of Waterloo Media Release, January, 2016.

M277 "News in Artificial Intelligence and Machine Learning with Nathan Benaich", Medium, Nov 2015. (showcased discovery radiomics)

M278 "Industry partnership leads to Distinguished Paper Award," Waterloo Engineering Research Media Release, June 8, 2015.

M279 "No more sore fingers: hand-held device could make blood sugar testing less painful," Educating the Engineering of The Future, April, 2015.

M280 "An exceptional EYE-dea," Waterloo Life Blog, March, 2015.

M281 "Recognized excellence," Defining Tomorrow: 2014-2015 State of the University Report, University of

Waterloo, 2015.

M282 "Waterloo device could take the pain out of diabetics blood tests," Waterloo Stories, Feb, 2015.

M283 "Grad student honoured for easier blood glucose testing," Eng-e-News, vol. 11, no. 10, Nov, 2014.

M284 "Research Excellence Endorsed," WEAL Magazine, no. 60, Sept, 2014.

M285 "Health Warriors: How researchers at the University of Waterloo are improving - and saving - lives," University of Waterloo Magazine, Spring 2014.

M286 "Malaysia Airlines MH370: The challenges of a remote ocean search," CBC News, Mar 20, 2014 (provided expert opinion).

M287 "Four University of Waterloo engineering professors named Canada Research Chairs," University of Waterloo Media Release, March 28, 2014.

M288 "Making it harder for cancer to hide," Waterloo Stories, Jan, 2013.

M289 "Improving Early Diagnosis to Save Lives," Centre for Bioengineering and Biotechnology Media Release, Jan, 2013.

M290 "Taking Aim at Cancer," WEAL Magazine, no. 58, Sept, 2012.

M291 "Cancer Screening Gets a Boost," Eng-e-News, vol. 9, no. 5, May 9, 2012.

M292 "11 local researchers win provincial awards," The Waterloo Region Record, May 4, 2012.

M293 "Our next generation of researchers gets a strong leg up from the province," Waterloo Engineering Research Media Release, May 4, 2012.

M294 "Eight University of Waterloo researchers receive prestigious research grants," University of Waterloo Media Release, May 4, 2012.

M295 "A Golden Future," University of Waterloo Engineering Annual Report, 2011.

2.5 RESEARCH FUNDING

Total Funding: $9,687,794 in cash, $1,197,653 in-kind

2.6 AWARDS

IMPACT 50 April 2020
insideBIGDATA
Awarded as Co-founder of DarwinAI for being one of the industry's top 50 most impactful companies

AI 100 March 2020
CB Insights
Awarded as Co-founder of DarwinAI for being one of 100 most promising AI startups in the world

IMPACT 50 Jan 2020
insideBIGDATA
Awarded as Co-founder of DarwinAI for being one of the industry's top 50 most impactful companies

Game Changers 2020 Jan 2020
CB Insights
Awarded as Co-founder of DarwinAI for being one of 36 startups that could change the world

Toronto's Best Tech Startup Award Oct 2019
Tech in Motion Awards
Awarded as Co-founder of DarwinAI

Best AI Paper Award Nov 2019
Conference on Vision and Imaging Systems (CVIS), Canada

Best Vision Paper Award Nov 2019
Conference on Vision and Imaging Systems (CVIS), Canada

IMPACT 50 Sept 2019
insideBIGDATA
Awarded as Co-founder of DarwinAI for being one of the industry's top 50 most impactful companies

Cool Vendor in Enterprise AI Governance and Ethical Response Oct 2019
Gartner
Awarded as Co-founder of DarwinAI

Canada Research Chair Tier II 2018-2023
Natural Sciences and Engineering Research Council of Canada, Canada
Awarded for demonstrated excellence and academic contributions to artificial intelligence and medical imaging

Top 10 Best Paper Recognition (2) Aug 2019
International Conference on Image Analysis and Recognition (ICIAR), Canada

IMPACT 50 April 2019
insideBIGDATA
Awarded as Co-founder of DarwinAI for being one of the industry's top 50 most impactful companies

Fourth Prize Poster Award Feb 2019
IEEE-RAS-EMBS International Conference on Rehabilitation Robotics (ICORR), Canada

First Prize Jan 2019
Velocity Graduate Student Fund
Awarded as Co-founder of Blue Lion Labs

IMPACT 50 Jan 2019
insideBIGDATA
Awarded as Co-founder of DarwinAI for being one of the industry's top 50 most impactful companies

AI Leader of the Year (Nominated) Nov 2018
4th Annual Canadian FinTech & AI Awards

Top Ten Startups Award Nov 2018
AutoMobility LA
Awarded as Co-founder of DarwinAI

Toronto's Best Tech Startup Award (Runner-up) Oct 2018
Tech in Motion Awards
Awarded as Co-founder of DarwinAI

People's Choice Award Sept 2018
Elevate Festival ElevateR Competition, Canada
Awarded as Co-founder of Elucid Labs

Best Overall Paper Award Nov 2018
Conference on Vision and Imaging Systems (CVIS), Canada

Best Vision Paper Award Nov 2018
Conference on Vision and Imaging Systems (CVIS), Canada

Outstanding Performance Award 2018
University of Waterloo, Canada

Best Paper Award Dec 2017
NIPS Workshop on Transparent and Interpretable Machine Learning, USA

Millennium Technology Prize (nominated) 2018
Technology Academy Finland, Finland

E.W.R Steacie Memorial Fellowship (nominated) 2017
Natural Sciences and Engineering Research Council of Canada, Canada

Best Vision Paper Award Oct 2017
Conference on Vision and Imaging Systems (CVIS), Canada

Best Vision Paper Award (2nd place) Oct 2017
Conference on Vision and Imaging Systems (CVIS), Canada

Best Imaging Paper Award (2nd place) Oct 2017
Conference on Vision and Imaging Systems (CVIS), Canada

AquaHacking 2017 Challenge First Place Award (Cash prize) Sept 2017
de Gasp Beaubien Foundation, Canada

CIX Top 20 Award Sept 2017
Canadian Innovation Exchange, Canada
Awarded as Co-founder of Elucid Labs

Best Student Paper Award May 2017
Ottawa Hockey Analytics Conference, Ottawa

Young Engineer Award (nominated) 2016,2017
Professional Engineers Ontario (PEO), Canada

Best Student Paper Award May 2017
Ottawa Hockey Analytics Conference, Ottawa

Newport Research Excellence Award Jan 2017
SPIE Photonics West, San Francisco

Best Paper Award Dec 2016
NIPS Workshop on Efficient Methods for Deep Neural Networks, Spain

Synaptive Best Medical Imaging Paper Award Oct 2016
Conference on Vision and Imaging Systems (CVIS), Canada

Distinguished Performance Award 2016
University of Waterloo, Canada

Magna Cum Laude Paper Awards (2) March 2016
Annual Meeting of the Imaging Network of Ontario, Canada
Awarded two Magna Cum Laude Paper Awards for papers on radiomics-driven clinical decision support

Cum Laude Paper Award March 2016
Annual Meeting of the Imaging Network of Ontario, Canada
Awarded a Cum Laude Paper Award for paper on lung cancer analysis

Sandford Fleming Teaching Excellence Award 2015
Sandford Fleming Foundation, Canada

Outstanding Performance Award 2015
University of Waterloo, Canada

Best Paper Award Oct 2015
Conference on Vision and Imaging Systems (CVIS), Canada

Distinguished Paper Award June 2015
Conference of Society of Information Display

Steacie Prize for Natural Sciences (Nominated) 2015, 2016
E.W.R. Steacie Memorial Fund, Canada

Norman Edmund Inspiration Award Nov 2014
Edmund Optics, USA
with Shahid Haider
Awarded for research that inspires others on a daily basis, especially children, to pursue careers in science and technology by developing new devices to advance medical sciences and cure any illnesses that they may face in their lifetimes

Canada Research Chair Tier II 2013-2018
Natural Sciences and Engineering Research Council of Canada, Canada
Awarded for demonstrated excellence and academic contributions to medical imaging systems

Early Researcher Award 2012-2017
Ministry of Research and Innovation, Canada
Awarded for demonstrated excellence and academic contributions in computer-aided prostate diagnosis using multi-parametric MRI imaging

CIPPRS Best Paper Award May 2014
Conference on Computer and Robot Vision (CRV), Canada

Engineering Faculty Research Award 2012
University of Waterloo, Canada
Awarded for outstanding achievement, commitment to research excellence, and the advancement of innovation in the field of biomedical image processing and analysis

Outstanding Performance Award 2012
University of Waterloo, Canada

Microsoft Research Faculty Fellowship (Nominated) 2013, 2012
Microsoft Corp., USA

NSERC Postdoctoral Fellowship 2010-2012
Natural Sciences and Engineering Research Council of Canada, Canada

Alumni Gold Medal (Top Ranking Doctoral Graduate) Oct 2010
University of Waterloo, Canada

Best Oral Presentation Award Apr 2010
University of Waterloo Graduate Research Conference, Canada

Carl A. Pollock Postgraduate Fellowship 2009-2010
University of Waterloo, Canada

CIPPRS Best Paper Award May 2009
Conference on Computer and Robot Vision (CRV), Canada

Annual Conference Travel Grant May 2009
GEOIDE (GEOmatics for Informed DEcisions) Network, Canada

NSERC Doctoral Postgraduate Scholarship 2007-2009
Natural Sciences and Engineering Research Council of Canada, Canada

President's Graduate Scholarship 2007-2009
University of Waterloo, Canada

NSERC Industrial Postgraduate Scholarship 2005-2007
Natural Sciences and Engineering Research Council of Canada, Canada

Faculty of Engineering Graduate Scholarship Jan-Apr 2007
University of Waterloo, Canada

University of Waterloo Graduate Scholarship May-Aug/Sept-Dec 2006, Jan-Apr 2010
University of Waterloo, Canada

Governor General's Bronze Medal (Top Rank in Graduating Class) May 2000
Mary Ward C.S.S., Canada

3 SERVICE

3.1 COMMITTEES

- Member of the Artificial Intelligence undergraduate program committee at University of Waterloo (2017-Present)
- Member of the Artificial Intelligence Institute committee at University of Waterloo (2016-Present)
- Member of the Biomedical Engineering undergraduate committee at University of Waterloo (2014-Present)
- Member of the Biomedical Engineering program committee at University of Waterloo (2011-2014), Role: Participated in Curriculum Design

3.2 EDITORIAL POSITIONS

- Senior Editorial Board Member, BMC Medical Imaging, Springer Nature. (2020-Present)
- Section Editor, BMC Medical Imaging, Springer Nature. (2015-2020)
- Section Editor, Encyclopedia of Biomedical Engineering, Elsevier. (2016-Present)
- Area Editor, IEEE Canadian Journal of Electrical and Computer Engineering. (2020-Present)
- Co-Editor-in-Chief, Journal of Computational Vision and Imaging Systems (2015-Present)
- Associate Editor, Sensors Journal. (2019-Present)
- Associate Editor, Electronic Letters. (2019-Present)
- Associate Editor, IEEE Canadian Journal of Electrical and Computer Engineering. (2013-2020)
- Guest co-editor, Sensors Journal, Special Issue on Embedded Artificial Intelligence (AI) for Smart Sensing and IoT Applications, MDPI. (2020-Present)
- Guest co-editor, Sensors Journal, Special Issue on Artificial Intelligence in Medical Sensors, MDPI. (2019-Present)
- Guest co-editor, Sensors Journal, Special Issue on Biomedical Imaging and Sensing, MDPI. (2018-Present)
- Associate Editor, BMC Medical Imaging, Springer. (2013-2015)
- Editorial board member, International Scholarly Research Notices. (2014-Present)
- Editorial board member, ISRN Biomedical Imaging. (2012-2014)
- Editorial board member, ISRN Signal Processing. (2010-2014)
- Editorial board member, Journal of the Canadian Game Studies Association. (2008-Present)

3.3 CONFERENCE ORGANIZATION

- Conference co-chair, Annual Conference on Vision and Imaging Systems (CVIS 2015, 2016, 2017, 2018, 2019, 2020)
- Technical program committee member, BMVC Workshop on Visual Artificial Intelligence and Entrepreneurship, 2019.
- Co-chair, Special Session on Medical Imaging and Analysis Using Deep Learning and Machine Intelligence at International Conference on Image Analysis and Recognition (ICIAR) (2019)
- Co-chair, Special Session on Deep Learning on the Edge at International Conference on Image Analysis and Recognition (ICIAR) (2019)
- Technical program committee member, CVPR International Workshop on Computer Vision for Physiological Measurement (CVPM 2018)
- Co-chair, Workshop on Machine Learning for Medical Care at International Conference on Image Analysis and Recognition (ICIAR) (2017)
- Co-chair, BIRC Workshop on Deep Learning in Medicine (2017)
- Scientific committee member, International Conference on Inverse Problems in Engineering (ICIPE 2017)
- Technical program committee member, The 19th CSI International Symposium on Artificial Intelligence and Signal Processing (AISP 2017)
- Technical program committee member, International Conference on Image Analysis and Recognition (ICIAR 2017,2018)
- Session chair, International Conference on Inverse Problems in Engineering (ICIPE 2017)
- Technical program committee member, International Conference on Single Processing and Data Mining (ICSPDM 2015)
- Technical program committee member, International Symposium on Computer Vision and the Internet (VisionNet 2015)
- Technical program committee member, International Conference on Computer Vision and Image Analysis (ICCVIA 2015)
- Technical program committee member, International Conference on Computer Applications and Aided Diagnosis (ICCAAD 2014)
- Technical program committee member, Conference on Computer and Robot Vision (CRV 2012, 2013, 2014, 2015, 2016, 2017, 2018)
- Technical program committee member, International Conference on Electronic & Mechanical Engineering and Information Technology, 2011
- Technical program committee member, The 3rd International Conference on Internet Technology and Applications (iTAP 2012)

3.4 REVIEWING

- I serve as a reviewer for the following grants:
  - NSERC Discovery Grants.
  - Canada Research Chair Grants.
  - Fonds de recherche Nature et technologies Establissement de nouveaux chercheurs universitaires.
  - Swiss National Science Foundation Croatian-Swiss Research Programme.
  - Hong Kong Innovation and Technology Commission Research Grants.
  - NSERC Collaborative Research and Development Grants.
  - MITACS Accelerate Program.
- I review five papers per month on average and have served as a reviewer for the following research journals, conferences, and books:
  - IEEE Transactions on Medical Imaging.
  - IEEE Transactions on Image Processing.
  - IEEE Transactions on Biomedical Engineering.
  - IEEE Journal of Biomedical and Health Informatics.
  - IEEE Journal on Selected Areas in Communications.
  - IEEE Journal of Selected Topics in Earth Observations and Remote Sensing.
  - IEEE Transactions on Geoscience and Remote Sensing.
  - IEEE Signal Processing Letters.
  - IEEE Geoscience and Remote Sensing Letters.
  - IEEE Canadian Journal of Electrical and Computer Engineering
  - Scientific Reports, Nature Publishing Group.
  - Optics Express, Optical Society of America.
  - Optics Engineering, Society of Photo-Optical Instrumentation Engineers (SPIE).
  - Journal of the Optical Society of America A, Optical Society of America.
  - Pattern Recognition Letters, Elsevier.
  - Signal Processing: Image Communication, Elsevier.
  - Signal Processing, Elsevier.
  - Journal of Visual Communication and Image Representation, Elsevier.
  - Biomedical Signal Processing and Control, Elsevier.
  - Computer and Geoscience, Elsevier.
  - Information Fusion, Elsevier.
  - Journal of the Franklin Institute, Elsevier.
  - BMC Medical Imaging, Springer.
  - Machine Vision and Applications, Springer.
  - Signal, Image and Video Processing Journal, Springer.
  - Journal of Signal Processing Systems, Springer.
  - Journal of Electrical and Computer Engineering.

- Journal of Ophthalmology.
- EURASIP Journal on Image and Video Processing.
- ISRN Signal Processing.
- Advances in Multimedia.
- Current Medical Imaging Reviews, Bentham Science.
- Journal of Spectral Imaging.
- An Introductory Guide to the Emerging Areas of Digital Image Processing (book), IConcept Press Ltd.
- Multivariate Statistical Modeling in Engineering and Management (book), CRC Press.
- International Journal of Image and Graphics, World Scientific.
- International Journal of Pattern Recognition and Artificial Intelligence, World Scientific.
- Remote Sensing, Molecular Diversity Preservation International (MDPI).
- International Journal of Open Problems in Computer Science and Mathematics.
- International Journal of Optomechatronics, Taylor and Francis.
- Journal of Canadian Game Studies Association.
- British Machine Vision Conference (BMVC).
- IEEE International Symposium on Geoscience and Remote Sensing (IEEE IGARSS).
- IEEE International Conference on Image Processing (IEEE ICIP).
- International Engineering in Medicine and Biology Conference (IEEE EMBC).
- IEEE International Conference on Semantic Computing (IEEE ICSC).
- International Symposium on Visual Computing.
- IEEE Canadian Conference on Electrical and Computer Engineering (IEEE CCECE).
- The Annual Conference of the IEEE Industrial Electronics Society (IEEE IECON).
- International Symposium on Computer Vision and the Internet (VisionNet).

4 PROFESSIONAL ACTIVITIES

4.1 SOCIETY MEMBERSHIPS

- **Professional Engineer**, Professional Engineers of Ontario (PEO) (2010-Present) [with Certificate of Authorization]
- The College of New Scholars, Artists and Scientists, Royal Society of Canada (Member) (2018-Present)
- Institute of Electrical and Electronics Engineers (IEEE) (Senior Member) (2005-Present)
  - Voting member on IEEE Communication Society Multimedia Communications Technical Committee
  - Member on IEEE Computer Society Technical Committee on Pattern Analysis and Machine Intelligence
  - Member on IEEE Computer Society Technical Committee on Multimedia Computing
- Member of Partnership on AI (2018-Present)
  - Member on ABOUT ML (Annotation and Benchmarking on Understanding and Transparency of Machine learning Lifecycles) Steering Committee
- Member of Canadian Nutrition Society (2019-Present)
- Association for Computing Machinery (ACM) (2005-Present)
- Kitchener-Waterloo Vision and Imaging Society (KW-VIS) **(Founding Co-President)**(2013-Present)
- Canadian Game Studies Association (CGSA) (2007-Present)
- Canadian Image Processing and Pattern Recognition Society (CIPPRS) (2010-Present)
- Waterloo Artificial Intelligence Institute **(Founding Member and Steering Committee Member)**(2016-Present)
- Centre for Bioengineering and Biotechnology (2012-Present)
- Water Institute (2015-Present)

4.2 STANDARDS COMMITTEE MEMBERSHIPS

- Member, MC/ISO/IEC JTC 1/SC 42 - Artificial intelligence Committee, Standards Council of Canada (2019-Present)