Curriculum Vitae

NING JIANG

Assistant Professor
Department of Systems Design Engineering
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Centre for Bioengineering & Biotechnology

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Education

Ph.D. Electrical Engineering, University of New Brunswick, Canada, 2009
Supervisors: Dr. Philip A. Parker and Dr. Kevin B. Englehart
Ph.D. Thesis Title:"*Extracting force functions from multi-channel surface electromyographic signal*", University of New Brunswick, 2009

M.Sc. Electrical Engineering, University of New Brunswick, Canada, 2004
Supervisors: Dr. Philip A. Parker and Dr. Kevin B. Englehart
MSc. Thesis Title:"*Modeling of motor unit innervation process correlation and motor unit common drive in human skeletal muscles*", University of New Brunswick, 2004

B.E. Information and Communications Engineering, Xi'an Jiaotong University, China, 1998
Senior project "Multi-sensor environmental data acquisition system for railway stations"

Research Interests

My main research interests is biological signal processing, such as Electroencephalogram (EEG) and Elecromyography (EMG), with emphasis on their applications in neurorehabilitation engineering by means of human-machine interfaces (HMI), including brain-computer interface (BCI), and muscle-man-interface (MMI). Specific applications that I have been working on include upper limb prosthetic control and rehabilitation of motor functions for patients such as stroke and Parkinson. Also interested in the applications of these biological signals as a general human machine interface in areas such as kinesiology, neural plasticity (cortical and peripheral), ergonomics and other related topics.

Teaching

1. 2015 Fall, SYDE252 Signals and Systems

Career Achievements

As of Feb. 2016, I have authored and co-authored 44 journal papers, mostly published in top level research journals in biomedical engineering, neurorehabilitation, neurophysiology, signal processing, machine intelligence and related areas. These include 13 as first author and two as corresponding author. Only 4 of these 14 papers were with my PhD supervisors. I was invited to present my research at 10 different international conferences, as plenary speaker, workshop speaker etc. I have published or present over 40 conference papers and abstracts. My research in surface EMG processing and advanced myoelectric control opened a new research direction in the field of myoelectric control: simultaneous and proportional prosthetic control. The relevant papers have been highly cited, and the direction has become one of the main research topics in the field in the past 5 years. Just in first half of 2014, I have published 6 research papers on the topic of myoelectric control in the flagship journal in rehabilitation engineering: IEEE Trans Neural Sys Rehab Eng. My research in BCI-based stroke rehabilitation has also attracted global attention. Our non-invasive, hundred-ms delay close-loop BCI system has shown to be able induce cortical plasticity in human within one hour, while other system require weeks. It is considered as one of the promising BCIs that will change the face of the field. As a results, my colleagues and I have been nominated as the top 10 research groups of the renowned annual BCI award competition four years in a row (2012-2015), making us the only group achieving record.

I have been serving as associated editors for two international research journals: IEEE Journal in Biomedical and Health Informatics, and the Brain Computer Interfaces. I am currently a guest editor for Frontiers in Neuroscience, and have serving as reviewers for over 20 journals from a broad spectrum of fields. I actively participated in the organization of several international conferences and workshops, and was elevated to Senior Member of IEEE/EMBS in 2014.

I have also supervising and mentoring students from different backgrounds at all levels since my senior years of PhD. As of Feb. 2016, four PhD students under my day-to-day supervision and mentoring have successfully defended their PhD thesis, and over 10 master students have finished their degrees.

Research Experience

Assistant Professor May 2015 - present

Department of Systems Design Engineering University of Waterloo, Waterloo, Canada

1. Scientific research in neurorehabilitation engineering and human machine interfaces.
2. Teaching in biomedical engineering.
3. supervising graduate and undergraduate students.

Research Scientist Nov. 2012 - Apr. 2015

Department of NeuroRehabilitaion Engineering University Medical Center Göttingen (UMG)

1. Scientific responsible for several research packages of EU-funded FP7 projects AMYO, MYOSENS, MERIDIAN and DEMOVE. Participating in EU-funded research project BETTER. Specific tasks are testing novel nanoparticle-based next generation intra-muscular electrodes; development (MERIDIAN), implementation, and validation of advanced EMG signal processing and control algorithms for OttoBock's next-generation

prosthesis: Michelangelo Hand (AMYO and MYOSENS); development, implementation and validation of advanced hybrid EMG/EEG signal processing algorithms for intelligent stroke rehabilitation tools based on Brain Computer Interface (DEMOVE); development, implementation and validation of EMG triggered multi-module stimulation system of sensory-motor integration for the application of phantom limb pain (PLP) treatment for amputees (MYOSENS);

2. Head of two laboratories at the Department: Advanced Myoelectric Control Lab and Brain Computer Interface Lab;
3. Developing new research initiatives, and preparing research grant applications;
4. Supervising Ph.D. students, master students and thesis interns.

Marie-Curie Fellow / Research Scientist Sep. 2010 - Oct. 2012

Strategic Technology Management / Department of NeuroRehabilitaion Engineering

OttoBock Healthcare GmbH (OBHC) / University Medical Center Göttingen (UMG)

1. Scientific responsible for several research packages of EU-funded FP7 projects AMYO and MYOSENS. Participating in EU-funded research project BETTER. Specific tasks are development, implementation, and validation of advanced EMG signal processing and control algorithms for OttoBock's next-generation prosthesis : Michelangelo Hand; development, implementation and validation of advanced hybrid EMG/EEG signal processing algorithms for intelligent stroke rehabilitation tools based on Brain Computer Interface (BCI);
2. Head of Advanced Myoelectric Control Laboratory;
3. Developing new research initiatives, and preparing research grant applications;
4. Supervising Ph.D. students, master students and thesis interns.

Research Assistant Professor April, 2009- Aug. 2010

Center for Sensory-Motor Interaction

Department of Health Science and Technology Aablorg University (AAU), Aalborg, Denmark

1. Developing research projects and program in the general area of neurophysiolog and human movement, and the applications of signal processing neurorehabilitation
2. Head of the laboratory of Advance Myoelectric Control at the Center
3. Discussing new research initiatives, and preparing research grant applications
4. Supervising Ph.D. students and master students

Research Assistant June, 2002- March, 2009

Dr. Philip Parker
Dr. Kevin Englehart

Institute of Biomedical Engineering, UNB

1. Developing signal processing algorithms to extract neural control information from electromyographic signals for applications such as:
   (a) Novel signal processing technique for extracting intuitive, simultaneous and proportional control information from surface electromyographic signal
   (b) The Modeling and signal processing of peripheral nerve signal
   (c) New approach to monitor muscle fatigue in workspace Ergonomics and Kinesiology
2. Mathematical Modeling of the human neuromuscular system, especially the neuromuscular innervation processes of single motor unit, motor unit pool, muscle and muscle groups.

Research Assistant Oct. 2008 - Jan. 2009

Dr. Brent Petersen Dept. of Electrical and Computer Engineering, UNB
Dr. Bruce Colpitts

Research and Development the optimized configuration of a multi-input multi-output multi-antenna array (MIMOMAA) for next generation ultra-highspeed wireless local area networks.

Summer Intern Summer of 2003

Mathematical Biosciences Institute Ohio State University

Mathematical modeling of the dynamics of neuronal rhythms and neuronal oscillations of coupled neurons and network of neurons.

Publications at peer-reviewed journals

First Author and corresponding author Papers

1. David Hofmann, **Ning Jiang***, Ivan Vujaklija, and Dario Farina, "*Bayesian Filtering of Surface EMG for Accurate Simultaneous and Proportional Prosthetic Control*", IEEE Transactions on Neural Systems and Rehabilitation Engineering, In press, Nov. 2015 (DOI: 10.1109/TNSRE.2015.2501979) (***corresponding author**)
2. **Ning Jiang**, Leonardo Gizzi, Natalie Mrachacz-Kersting, Kim Dremstrup, Dario Farina, "*A Brain Computer Interface for Single-trial Detection of Gait Initiation from Movement Related Cortical Potentials*", Clinical Neurophysiology, Vol. 126, No. 1, pp. 154-159, Jan., 2015 (DOI: 10.1016/j.clinph.2014.05.003)
3. Ren Xu, **Ning Jiang***, Aleksandra Vuckovic, Muhammad Hasan, Natalie Mrachacz-Kersting, David Allan, Matthew Fraser, Bahman Nasseroleslami, Bernie Conway, Kim Dremstrup, and Dario Farina,"*Slow cortical potentials during motor imagery in spinal cord injured patients: effects of by pain sensation and impairment scaleMovement-related cortical potentials in paraplegic patients: abnormal patterns and considerations for BCI-rehabilitation*", Frontiers in Neuroengineering, Vol. 7, No.35, Aug. 2014 (DOI: 10.3389/fneng.2014.00035) (***corresponding author**)

4. **Ning Jiang**, Thomas Lorrain, and Dario Farina, "*A state-based and proportional myoelectric control method: online validation and comparison with clinical state-of-the-art*", Journal of NeuroEngineering and Rehabilitation, Vol. 11, No. 114, July, 2014 (DOI: 10.1186/1743-0003-11-110)
5. **Ning Jiang**, Ivan Vujaklija, Hubertus Rehbaum, Bernhard Graimann, Dario Farina, "*Is Accurate Mapping of EMG Signals on Kinematics Needed for Precise Online Myoelectric Control?*", IEEE Transactions on Neural Systems and Rehabilitation Engineering, Vol. 22, No. 3, pp. 549-558, May 2014 (DOI: 10.1109/TNSRE.2013.2287383)
6. **Ning Jiang**, Hubertus Rehbaum, Bernhard Graimann, Dario Farina, "*Intuitive, online, simultaneous and proportional myoelectric control over two degrees of freedom in upper limb amputees*", IEEE Transactions on Neural Systems and Rehabilitation Engineering, Vol. 22, No. 3, pp. 501-509, May 2014(DOI: 10.1109/TNSRE.2013.2278411) (One of most popular articles on TNSRE website)
7. **Ning Jiang**, Silvia Muceli, Bernhard Graimann, and Dario Farina, "*Effect of arm position on the prediction of kinematics from EMG in amputees*", Medical & Biological Engineering & Computing, Vol. 51, No. 1, pp. 143-151, 2013, (DOI: 10.1007/s11517-012-0979-4)
8. **Ning Jiang**, Strahinja Dosen, Klaus-Robert Müller, and Dario Farina,"*Myoelectric Control of Artificial Limbs: is There the Need for a Change of Focus?*", IEEE Signal Process Magazine, Vol. 29, No. 5, pp. 148-152, Sep., 2012 (DOI: 10.1109/MSP.2012.2203480)
9. **Ning Jiang**, Johnny L.G. Nielsen, Silvia Muceli, Dario Farina, "*EMG-based simultaneous and proportional estimation of wrist/hand kinematics in uni-lateral trans-radial amputees*", Journal of Neuroengineering and Rehabilitation, Vol. 9, No.42, Jun., 2012 (DOI: 10.1186/1743-0003-9-42)
10. **Ning Jiang** and Dario Farina, "*Covariance and time-scale methods for blind separation of delayed Sources*", IEEE Transaction on Biomedical Engineering, Vol. 58, No. 3, pp. 550-556, Mar., 2011 (DOI: 10.1109/TBME.2010.2084999)
11. **Ning Jiang**, Deborah Falla, Andrea d'Avella, Bernhard Graimann, Dario Farina, "*Myoelectric Control in Neural Rehabilitation*", Critical Reviews in Biomedical Engineering, Vol. 38, No. 4, 381-391, 2010
12. **Ning Jiang**, Philip Parker, and Kevin Englehart, "*Extracting Simultaneous and Proportional Neural Control Information for Multiple Degree of Freedom Prostheses from the Surface Electromyographic Signal*", IEEE Transaction on Biomedical Engineering, Vol. 56, No. 4, pp. 1070-1080, Apr., 2009 (DOI: 10.1109/TBME.2008.2007967)
13. **Ning Jiang**, Philip Parker, and Kevin Englehart,"*Spectrum of the nonstationary electromyographic signal modeled with integral pulse frequency modulation and its application to estimating neural drive information*", Journal of Electromyography Kinesiology, Vol. 19, pp. e267-e279, Jun., 2009 (DOI: 10.1016/j.jelekin.2008.05.007)
14. **Ning Jiang**, Kevin Englehart, and Philip Parker, "*A simulation method for the firing sequences of motor units*", Journal of Electromyography Kinesiology, Vol. 17, No. 5, pp. 527-534, Oct., 2007 (DOI:10.1016/j.jelekin.2006.07.003)
15. **Ning Jiang**, Philip Parker, and Kevin Englehart, "*Modeling of muscle motor unit innervation processes correlation and common drive*", IEEE Transaction on Biomedical Engineering, Vol. 53, No. 8, pp. 1605-1614, 2006 (DOI: 10.1109/TBME.2006.876631)

Papers with key contributions

16. Janne M. Hahne, **Ning Jiang**, Dario Farina, David Liebetanz, "*Chronic Subcutaneous Electrode Implants for Improving Robustness in Myoelectric Control*", Accepted, Frontiers in Neuroscience, Feb., 2016 (DOI: 10.3389/fnins.2016.00114)
17. Ren Xu, **Ning Jiang**, Natalie Mrachacz-Kersting, Kim Dremstrup, and Dario Farina, "*Factors of Influence on the Performance of a Short-Latency Non-Invasive Brain Switch: Evidence in Healthy Individuals and Implication for Motor Function Rehabilitation*", Frontiers in Neuroscience, Vol. 9, No. 527, 2016 (DOI: 10.3389/fnins.2015.00527)
18. Tamaś Kapelner, **Ning Jiang**, Aleš Holobar, Ivan Vujaklija, Aidan D. Roche, Dario Farina, and Oskar C. Aszmann, "*Motor unit characteristics after targeted muscle reinnervation*", PloS One, In press, Feb. 2016 (DOI: 10.1371/journal.pone.0149772)
19. Ren Xu, **Ning Jiang**, Strahinja Dosen, Chuang Lin, Natalie Mrachacz-Kersting, Kim Dremstrup, and Dario Farina, "*Endogenous Sensory Discrimination and Selection by a Fast Brain Switch for a High Transfer Rate Brain-Computer Interface*", Accepted, IEEE Transactions on Neural Systems and Rehabilitation Engineering, Jan., 2016 (DOI: 10.1109/TNSRE.2016.2523565)
20. Natalie Mrachacz-Kersting, **Ning Jiang**, Andrew JT Stevenson, Imran Khan Niazi, Viladmir Kostic, Aleksandra Pavlovic, Sasa Radovanovic, Milica Djuric-Jovic, Federica Agosta, Kim Dremstrup, Dario Farina, "*Efficient neuroplasticity induction in chronic stroke patients by an associative brain-computer interface*", Accepted, Journal of Neurophysiology, Dec. 2015 (DOI: 10.1152/jn.00918.2015)
21. Susan Aliakbaryhosseinabadi, **Ning Jiang**, Aleksandra Vuckovicc, Kim Dremstrup, Dario Farina, and Natalie Mrachacz-Kersting, "*Detection of movement intention from single-trial movement-related cortical potentials using random and non-random paradigms*", Vol. 2, No. 1, pp. 29-39, Brain Computer Interfaces, 2015, (DOI: 10.1080/2326263X.2015.1053301)
22. Michael Siomau, **Ning Jiang**, "*Myoelectric control of artificial limb inspired by quantum information processing*", Physica Scripta, Vol. 90, No. 3, pp. 035001, Feb. 2015 (DOI: 10.1088/0031-8949/90/3/035001) (Paper of the Week)
23. Ren Xu, **Ning Jiang**, Natalie Mrachacz-Kerstin, Chuang Lin, Guillermo Asin, Juan Moreno, Jose Pons, Kim Dremstrup, Dario Farina, "*A Closed-Loop Brain Computer Interface Triggering an Active Ankle Foot Orthosis for Inducing Cortical Neural Plasticity*", IEEE Transactions on Biomedical Engineering, Vol. 61, No. 7 , pp. 2092-2101, July, 2014 (DOI: 10.1109/TBME.2014.2313867) (Featured Story of the issue)
24. Dario Farina, **Ning Jiang**, Hubertus Rehbaum, Ales Holobar, Bernhard Graimann, Hans Dietl, and Oskar Aszmann, "*The Extraction of Neural Information from the Surface EMG for the Control of Upper-Limb Prostheses: Emerging Avenues and Challenges*", IEEE Transactions on Neural System and Rehabilitation Engineering, Vol. 22, No. 4, pp. 897-809, July, 2014 (DOI: 10.1109/TNSRE.2014.2305111) (Cover story of the issue)
25. Silvia Muceli, **Ning Jiang**, Dario Farina, "*Extracting Signals Robust to Electrode Number and Shift for Online Simultaneous and Proportional Myoelectric Control by Factorization Algorithms*", IEEE Transactions on Neural Systems and Rehabilitation Engineering, Vol. 22. No. 3, pp. 623-633, May 2014 (DOI: 10.1109/TNSRE.2013.2282898)
26. Sebastian Amsüss, Peter M. Göbel, **Ning Jiang**, Bernhard Graiman, Liliana Paredes and Dario Farina "*Self-correcting Pattern Recognition System of Surface EMG Signals for Upper Limb Prosthesis Control*", IEEE Transactions on Biomedical Engineering, Vol. 61, No. 4, pp. 1167-76, Apr., 2014 (DOI: 10.1109/TBME.2013.2296274)

27. Ren Xu, **Ning Jiang**, Chuang Lin, Natalie Mrachacz-Kerstin, Kim Dremstrup, and Dario Farina, "*Enhanced Low-latency Detection of Motor Intention from EEG for Closed-loop Brain-Computer Interface Applications*", IEEE Transaction on Biomedical Engineering, Vol. 61, No. 2, pp. 288-296, Feb., 2014 (DOI: 10.1109/TBME.2013.2294203)
28. Dario Farina, Francesco Negro, **Ning Jiang**, "*Modeling the Transmission of Synaptic Input to Motoneurone Output is Necessary for Understanding the Influence of EMG Rectification on Coherence Analysis*", Journal of Physiology, Vol. 592, No. 1, pp. 251-252, Jan., 2014 (DOI: 10.1113/jphysiol.2013.267070)(*Response to Letter*)
29. Dario Farina, Francesco Negro, **Ning Jiang**, "*Identification of Common Synaptic Inputs to Motor Neurons from the Rectified Electromyogram*", Journal of Physiology, Vol. 591, No. 10, pp. 2403-2418, May, 2013 (DOI: 10.1113/jphysiol.2012.246082)
30. Imran K. Niazi, **Ning Jiang**, Mads Jochumsen, Kim Dremstrup, and Dario Farina, "*Detection of movement-related cortical potentials based on subject-independent training*", Medical & Biological Engineering & Computing, Mar. Vol. 51, No. 5, pp. 507-512, 2013 (DOI: 10.1007/s11517-012-1018-1)
31. Imran K. Niazi, **Ning Jiang**, Dario Farina, "*Detection of movement intention from movement-related cortical potentials*", Journal of Neural Engineering, Vol. 8, No. 6, 066009, Oct., 2011 (DOI: 10.1088/1741-2560/8/6/066009)
32. Thomas Lorrain, **Ning Jiang**, Dario Farina, "*Influence of the training set on the accuracy of surface EMG classification in dynamic contractions for the control of multifunction prostheses*", Journal of Neuroengineering and Rehabilitation, Vol. 8, No. 1, pp. 25, May, 2011 (DOI: 10.1186/1743-0003-8-25)
33. Rui Zhou, **Ning Jiang**, Kevin Englehart, Philip Parker, "*A computational model of the efferent activity in the peripheral nerve system during voluntary muscle contractions*", Medical & Biological Engineering & Computing, Vol. 48, No. 1, pp. 67-77,.Jan., 2010 (DOI:10.1007/s11517-009-0555-8)
34. Quan Zhou, **Ning Jiang**, Kevin Englehart, Bernard Hudgins, "*Improved Phoneme-Based Myoelectric Speech Recognition*", IEEE Transaction on Biomedical Engineering, Vol. 56, No. 8, pp. 2016-2023, Aug., 2009 (DOI: 10.1109/TBME.2009.2024079)

Paper with significant contributions

35. Chuang Lin, Binghui Wang, **Ning Jiang**, Ren Xu, Natalie Mrachacz-Kersting, and Dario Farina, "*Discriminative Manifold Learning Based Detection of Movement-Related Cortical Potentials*", In Press, IEEE Transactions on Neural Systems and Rehabilitation Engineering, Jan., 2016 (DOI: 10.1109/TNSRE.2016.2531118)
36. Lizhi Pan, Dingguo Zhang, **Ning Jiang**, Xinjun Sheng, Xiangyang Zhu, "*Improving Robustness against Electrode Shift of High Density EMG for Myoelectric Control through Common Spatial Patterns*", Journal of NeuroEngineering and Rehabilitation, Vol. 12, No. 1, pp. 110, 2015, (DOI: 10.1186/s12984-015-0102-9)
37. Mads Jochumsen, Imran K. Niazi, Natalie Mrachacz-Kersting, **Ning Jiang**, Dario Farina, Kim Dremstrup, "*Comparison of spatial filters and features for the detection and classification of movement-related cortical potentials in healthy individuals and stroke patients*", Journal of Neural Engineering, Vol. 12, No. 5, 056003, July, 2015 (DOI: 10.1088/1741-2560/12/5/056003)
38. Jiayuan He, Dingguo Zhang, **Ning Jiang**, Xinjun Sheng, Dario Farina, and Xiangyang Zhu, "*User adaptation in long-term, open-loop myoelectric training: implications to pattern recognition-based myoelectric prosthetic control*", Journal of Neural Engineering, Vol. 12, No. 4, 046005, June, 2015 (DOI: 10.1088/1741-2560/12/4/046005)

39. Jianwei Liu, Xinjun Sheng, Dingguo Zhang, **Ning Jiang**, and Xiangyang Zhu, "*Towards Zero Re-training for Myoelectric Control Based on Common Model Component Analysis*", In press, IEEE Transactions on Neural Systems and Rehabilitation Engineering, April, 2015 (DOI: 10.1109/TNSRE.2015.2420654)
40. Binghui Wang, Lin Chuang, Xin Fan, **Ning Jiang**, Dario Farina, "*Hierarchical Bayes based Adaptive Sparsity in Gaussian Mixture Model*", Pattern Recognition Letter, Vol. 49, pp. 238-247, Nov., 2014 (DOI: 10.1016/j.patrec.2014.07.008)
41. Janne Hahne, Felix Biessmann, **Ning Jiang**, Hubertus Rehbaum, Dario. Farina, Frank Meinecke, Klaus-Robert Mller, Lucas Parra, "*Linear and non-linear regression techniques for simultaneous and proportional myoelectric control*", IEEE Transactions on Neural Systems and Rehabilitation Engineering, Vol.22, No. 2 , pp. 269-279, Mar. 2014 (DOI: 10.1109/TNSRE.2014.2305520)
42. Dario Farina, Hubertus Rehbaum, Ales Holobar, Ivan Vujaklija, **Ning Jiang**, Christian Hofer, Stefan Salminger, Hans-Willem van Vliet, and Oskar Aszmann, "*Non-Invasive, Accurate Assessment of the Behavior of Representative Populations of Motor Units in Targeted Reinnervated Muscles*", IEEE Transactions on Neural System and Rehabilitation Engineering, Vol. 22, No. 4, pp. 810-819, July, 2014, (DOI: 10.1109/TNSRE.2014.2306000)
43. Imran Niazi, Natalie Mrachacz-Kersting, **Ning Jiang**, Nielsen Kim, Dario Farina "*Peripheral electrical stimulation triggered by self-paced detection of motor intention enhances Motor Evoked Potentials*", IEEE Transactions on Neural Systems and Rehabilitation Engineering, Vol. 20, No. 4, pp. 595-604, Jul., 2012 (DOI: 10.1109/TNSRE.2012.2194309)
44. Johnny Nielsen, Steffen Holmgaard, **Ning Jiang**, Kevin Englehart, Dario Farina, and Philip Parker, "*Simultaneous and Proportional Force Estimation of Multifunction Myoelectric Prostheses Using Mirrored Bilateral Training*", IEEE Transactions on Biomedical Engineering, Vol. 58, No. 3, pp. 681-688, Mar., 2011(DOI: 10.1109/TBME.2010.2068298)

Book Chapters

1. Andrej Savic, Romulus Lontis,**Ning Jiang**, Mirjana Popovic, Dario Farina, Kim Dremstrup, and Natalie Mrachacz-Kersting, "*Movement Related Cortical Potentials and Sensory Motor Rhythms during Self Initiated and Cued Movements*", in Replace, Repair, Restore, Relieve Bridging Clinical and Engineering Solutions in Neurorehabilitation, Eds. W. Jensen et al., Springer, 2014
2. **Ning Jiang**, Natalie Mrachacz-Kersting, Ren Xu, Kim Dremstrup and Dario Farina"*An Accurate, Versatile, and Robust Brain Switch for Neurorehabilitation*", in Brain-Computer Interface Research A State-of-the-Art Summary 3, Eds. Christoph Guger, Brendan Z. Allison and Eirc C. Leuthardt, Springer Berlin Heidelberg, 2014
3. Natalie Mrachacz-Kersting,**Ning Jiang**, Kim Dremstrup and Dario Farina, "*A novel brain-computer interface for chronic stroke patients*", in Brain-Computer Interface Research A State-of-the-Art Summary 2, Eds. Christoph Guger, Brendan Z. Allison, and Eric C. Leuthardt, Springer Berlin Heidelberg, 2014
4. N. Mrachacz-Kersting, I.K. Niazi, **N. Jiang**, A.M. Pavlović, S. Radovanović, V. Kostic, D. Popović, K. Dremstrup and D. Farina, "*A novel brain-computer interface for chronic stroke patients*", in Converging Clinical and Engineering Research and Neurorehabilitation, Eds. J. Pose, D. Torricelli and M. Pajaro, pp. 837-841, Springer Berlin Heidelberg, 2013 (DOI:10.1007/978-3-642-34546-3-136)
5. Dario Farina, **Ning Jiang**, Hubertus Rehbaum, Silvia Muceli, and Massimo Sartori, "*Simultaneous and Proportional Myocontrol of Multiple Degrees of Freedom*", in Converging Clinical and Engineering Research and Neurorehabilitation, Eds. J. Pose, D. Torricelli, and M. Pajaro, pp. 1225-1228, Springer Berlin Heidelberg, 2013 (DOI: 10.1007/978-3-642-34546-3-203)

Journal publications under review/revision

1. Chuang Lin, Binghui Wang, **Ning Jiang**, and Dario Farina, "*Sparse Non-negative Matrix Factorization for Unsupervised Extraction of Optimal Basis Functions for Myocontrol in Upper Limb Prostheses*", submitted to IEEE Transactions on Neural Systems and Rehabilitation Engineering, Jan., 2015
2. Signe Rom Kristensen, Imran Khan Niazi, Mads Jochumsen, **Ning Jiang**, Dario Farina, Kim Dremstrup, and Natalie Mrachacz-Kersting "*Influence of detection accuracy on the corticospinal excitability by combining electrical stimulation in association to motor imagery*", submitted to Journal of NeuroEngineering and Rehabilitation, June, 2014
3. Binghui Wang, **Ning Jiang**, Dario Farina, Chuang Lin, "*Spectral Graph Based Locality Preserving Subspace Learning via Sparse Coding*", submitted to Image Vision and Computing, Mar. 2014
4. Chuang Lin, Binghui Wang, Xin Fan, **Ning Jiang**, Dario Farina, and Zheming Lu, "*Orthogonal and Probabilistic Enhanced Linear Discriminant Analysis for Face Recognition*", submitted to Optical Communications, Mar. 2014

Invited Conference Presentations and Seminars (all as presenter)

1. **Ning Jiang** and Dario Farina, "*Myoelectric control of upper limb prosthesis: current status, challenges and recent advances*", MERIDIAN 30M workshop, XXXIII "Scuola Annuale di Bioingegneria" , Sep., 2014, Brixen, Italy (DOI: 10.3389/conf.fneng.2014.11.00004)
2. **Ning Jiang**, Dario Farina, Natalie Mrachacz-Kersting, and Kim Dremstrup, "*Modulation of Cortical Excitability by Detection of Motor Intention and Artificial Afferent Feedback: A New Avenue for Neurorehabilitation*", the 2nd International Conference on NeuroRehabilitation (ICNR2014), pre-conference workshop on Brain computer interfaces, June 2014, Aalborg, Denmark
3. **Ning Jiang** and Dario Farina, "*Human-machine Interfacing by surface EMG*", The 5th International US-Turkey Advanced Institute on Global Healthcare Challenges, June 2014, Antalya, Turkey
4. **Ning Jiang** and Dario Farina, "*Modulation of Cortical Excitability by the Detection of Motor Intention and Artificial Afferent Feedback: a novel approach for motor rehabilitation of stroke*", the 3rd International Conference of Rehabilitation and Medical Engineering, May 2014, Shanghai, China
5. **Ning Jiang** and Natalie Mrachacz-Kersting, "*Detection of movement intentions and applications in motor rehabilitation for stroke*", Brain-Computer Interface Workshop and hands-on seminar, June 2013, Aalborg, Denmark (Keynote speaker)
6. **Ning Jiang and Dario Farina**, "*Special Symposium on Neural and Rehabilitation Engineering*", the 5th International Congress on Image and Signal Processing (CISP 2012) and the 5th International Conference on BioMedical Engineering and Informatics (BMEI 2012), Oct. 2012, Chongqing, China (invited as symposium speaker)
7. **Ning Jiang**, "*Myoelectric signal, human machine interface, and intelligent rehabilitation engineering systems*", Fachtagung "Life Science and Biotechnology" - ein Symposium zum akademischen Austausch und das 6. Jahrestreffen der GCLB, Sep. 2011, Bonn
8. **Ning Jiang**, "*The state-of-the-art in myoelectric signal processing for prosthetic control*", 7. Deutsches BioSensor Symposium, Apr. 2011, Heilbad Heiligenstadt.
9. **Ning Jiang** and Dario Farina, "*Sampling and decoding Neural control information from motor neuron activity for Rehabilitation Robotics*", Workshop "Softening Rehabilitation Robotics" at the 2010 IEEE International Conference on Robotics and Automation, May 2010, Anchorage, USA.

10. Dario Farina, Thomas Lorrain, Francesco Negro, **Ning Jiang**, "*High-Density EMG E-Textile Systems for the Control of Active Prostheses*", Invited Talk, 32nd Annual International Conference of the IEEE Engineering in Medicine and Biology Society, Buenos Aires, Argentina, pp. 3591-3593, Sep. 2010.(DOI: 10.1109/IEMBS.2010.5627455)

Conference Presentations

11. N. Mrachacz-Kersting, L. Yao, S. Gervasio, N. Jiang, BD Ebbesen, TS Palsson, TG Nielsen, R. Xu, D. Falla, K Dremstrup and D Farina, "*A BCI to combat musculoskeletal pain*", Global 10 nominee of the 2015 BCI Research Award, presented at the Society of Neuroscience, Oct. 2015, Chicago, USA
12. S. Aliakbaryhosseinabadi, **N. Jiang**, L. Petrini, D. Farina, K. Dremstrup and N. Mrachacz-Kersting, "*Robustness of Movement Detection Techniques from Motor Execution: single trial movement related cortical potential*", the International IEEE EMBS Conference on Neural Engineering, Apr., 2015, Montpellilier, France
13. Tamas Kapelner, **Ning Jiang**, Ivan Vujaklija, Oskar C. Aszmann, Ales Holobar and Dario Farina, "*Classication of Motor Unit Activity Following Targeted Muscle Reinnervation*", the International IEEE EMBS Conference on Neural Engineering, Apr., 2015, Montpellilier, France
14. Heiko Scheel, Ren Xu, **Ning Jiang**, Natalie Mrachacz-Kersting, Kim Dremstrup, and Dario Farina, "*Influence of External Cues on Synchronized Brain-Computer Interface based on Movement Related Cortical Potentials*", the International IEEE EMBS Conference on Neural Engineering, Apr., 2015, Montpellilier, France
15. Chuang Lin, Binghui Wang, **Ning Jiang**, Ren Xu, Dario Farina, "*Discriminative Manifold Learning Based Detection Method of Movement-Related Cortical Potentials (MRCP) Signal*", Neuroscience & Neurotechnology Bernstein Conference and Neurex Annual Meeting (BC14), Sep. 2014, Göttingen, Germany (DOI: 10.12751/nncn.bc2014.0143)
16. Chuang Lin, Binghui Wang, **Ning Jiang**, Dario Farina, "*Simultaneous and Proportional Multiple Degrees of Freedom Control of Active Prostheses with Sparseness Constraint Non-Negative Matrix Factorization of EMG Signal*", Neuroscience & Neurotechnology Bernstein Conference and Neurex Annual Meeting (BC14), Sep. 2014, Göttingen, Germany (DOI: 10.12751/nncn.bc2014.0167)
17. Natalie Mrachacz-Kersting, **Ning Jiang** , Susan Aliakbaryhosseinabadia, Ren Xu, Laura Petrini, Ramulus Lontis, Mads Jochumsen, Kim Dremstrup and Dario Farina, The changing Brain: Bidirectional learning between algorithm and user, Global 10 nominee of the 2014 BCI Award, BCI Conference 2014, Sep 2014, Graz, Austria
18. Susan Aliakbaryhosseinabadi, Laura Petrini, **Ning Jiang**, Dario Farina, Kim Dremstrup and Natalie Mrachacz-Kersting, Effect of Different Attentional Level and Task Repetition on Single-trial Movement-Related Cortical Potential, BCI Conference 2014, Sep 2014, Graz, Austria
19. Natalie Mrachacz-Kersting, **Ning Jiang**, Ren Xu, Kim Dremstrup, and Dario Farina, Plasticity following skilled learning and the implications for BCI performance, BCI Conference 2014, Sep 2014, Graz, Austria
20. A Savic, R. Lontis, N. Malesevic, M. Popovic, **N. Jiang**, K. Dremstrup, D. Farina and N. Mrachacz-Kersting, "*Feasibility of an Asynchronous Event Related Desynchronization based Brain Switch for control of Functional Electrical Stimulation* ", the 48th annual conference of the German Society for Biomedical Engineering, Oct. 2014, Hannover, Germany
21. Lin Chuang, Francesco Negro, Ning Jiang, Dario Farin, Estimation of Muscle Force by Linear Regression of Motor Unit Spike Trains, the 36th annual IEEE Engineering in Medicine and Biology Society, Aug. 2014, Chicago, USA

22. D. Hofmann, **N. Jiang**, M. Herrmann, and D. Farina, "*Bayesian Filtering Improves Proportional Myoelectric Prosthesis Control*", The XX Congress of the International Society of Electrophysiology and Kinesiology, July 2014, Rome, Italy (winner of the Granata Award for Young Scientist)
23. M. Jochumsen, I.K. Niazi, H. Rovsing, C. Rovsing, G.A.R. Nielsen, T.K. Andersen, N.P.T. Dong, M.E. Srensen, N. Mrachacz-Kersting, **N. Jiang**, D. Farina and K. Dremstrup, "*Detection of movement intentions through a single channel of electroencephalography*", the 2nd International Conference on NeuroRehabilitation (ICNR2014), June 2014, Aalborg, Denmark
24. S. Aliakbaryhosseinabadi, N. Jiang, A. Vuckovic, R. Lontis, K. Dremstrup, D. Farina, and N. Mrachacz-Kersting, "*Detection movement intention from movement-related cortical potentials with different paradigms*", the 2nd International Conference on NeuroRehabilitation (ICNR2014), June 2014, Aalborg, Denmark
25. A. Savic, R. Lontis, **N. Jiang**, M. Popovic, D. Farina, K. Dremstrup and N. Mrachacz-Kersting, "*Movement Related Cortical Potentials and Event Related Oscillations During Self Initiated and Cued Movements* ", the 2nd International Conference on NeuroRehabilitation (ICNR2014), June 2014, Aalborg, Denmark
26. Dario Farina, **Ning Jiang**, "*The Extraction of Neural Information from the Surface EMG for the Control of Upper-Limb Prostheses: Emerging Avenues and Challenges*", the 3rd International Conference of Rehabilitation and Medical Engineering, May 2014, Shanghai, China
27. Ren Xu, **Ning Jiang**, Natalie Mrachacz-Kersting, Kim Dremstrup, and Dario Farina, "*Comparison of Sensory-motor Rhythm and Movement Related Cortical Potential During Ballistic and Repetitive Motor Imagery: an initial report*", the 3rd International Conference of Rehabilitation Medical Engineering (CRME2014), May, 2014, Shanghai, China
28. K. Dremstrup, IK. Niazi, M. Jochumsen, **N. Jiang**, N. Mrachacz-Kersting, D. Farina, "*Rehabilitation Using a Brain Computer Interface Based on Movement Related Cortical Potentials A Review*", XIII Mediterranean Conference on Medical and Biological Engineering and Computing, 2013, Seville, Spain (DOI: 10.1007/978-3-319-00846-2-409)
29. N. Mrachacz-Kersting, **N. Jiang**, K. Dremstrup, D. Farina, "*Coupling of motor imagination and nervous system stimulation to induce cortical plasticity*", Clinical Neurophysiology, Vol. 124, No. 10, pp e46-e47, Oct., 2013 (DOI: 10.1016/j.clinph.2013.04.041)
30. **Ning Jiang**, Natalie Mrachacz-Kersting, Ren Xu, Kim Dremstrup and Dario Farina, "*An Accurate, Versatile, and Robust Brain Switch for Neurorehabilitation*, top-10 Finalist of the 2013 BCI Award, Awarded at the 6th International BCI Meeting, June 2013, Asilomar, USA
31. IK. Niazi, M. Jochumsen, **N. Jiang**, N. Mrachacz-Kersting, D. Farina, K. Dremstrup, "*Review: Movement related cortical potential based brain computer interface for rehabilitation*", the Proceedings of the 5th International BCI Meeting, June 2013, Asilomar, USA
32. R. Xu, **N. Jiang**, G. Asin, J.C. Moreno, J.L. Pons, N. Mrachacz-Kersting, D. Farina, "*An ambulatory BCI-driven orthosis for stroke rehabilitation*", the Proceedings of the 5th International BCI Meeting, June 2013, Asilomar, USA
33. Signe R. Kristensen, Imran K. Niazi, Mads Jochumsen, **Ning Jiang**, Dario Farina, Natalie Mrachacz-Kersting, "*Changes in corticospinal excitability following the use of a BCI based protocol combined with sham visual feedback*", 2012 International Conference on NeuroRehabilitation (ICNR2012), Nov. 2012, Toledo, Spain
34. N. Mrachacz-Kersting, **N. Jiang**, K. Dremstrup, D. Farina, "*A novel Brain-Computer Interface for Chronic Stroke Patients.*", top-10 Finalist of the 2012 BCI Award, Awarded at Society for Neuroscience 2012, New Orleans, USA

35. N. Mrachacz-Kersting, **N. Jiang**, I. Niazi, A.M. Pavlović, S. Radovanović, V.S. Kostić, D.B. Popović, K. Dremstrup and D. Farina, "*The potential of Imagination and Artificial Afference in Stroke Rehabilitation*", 11th Symposium on Neural Network Applications in Electrical Engineering (NEUREL 2012), Sep. 2012, Belgrade, Serbia
36. J. Hahne, H. Rehbaum, F. Biessmann, F. C. Meinecke, K.-R. Müller, **Ning Jiang**, D. Farina, L. C. Parra, "*Simultaneous and Proportional Control of 2D Wrist Movements with Myoelectric Signals*", 2012 IEEE International workshop on Machine Learning for Signal Processing, Sep. 2012, Satander, Spain
37. Hubertus Rehbaum, **Ning Jiang**, Liliana Paredes, Sebastian Amsuess, Bernhard Graimann, Dario Farina, "*Real Time Simultaneous and Proportional Control of Multiple Degrees of Freedom from surface EMG: preliminary results on subjects with limb deficiency*", 34rd Annual International Conference of the IEEE Engineering in Medicine and Biology Society, pp. 1346-1349, Aug. 2012, San Diego, USA (DOI: 10.1109/EMBC.2012.6346187)
38. **Ning Jiang**, Hubertus Rehbaum, and Dario Farina, "*Effect of arm position for simultaneous and proportional myoelectric control: a comparison between amputee and intact-limbed individuals*", the XIX Congress of the International Society of Electrophysiology and Kinesiology, Jun. 2012, Brisbane, Australia
39. Hubertus Rehbaum, **Ning Jiang**, and Dario Farina, "*A new software environment for high-density emg recording, real time analysis and online feedback*", the XIX Congress of the International Society of Electrophysiology and Kinesiology, Jun. 2012, Brisbane, Australia
40. Natalie Mrachacz-Kersting, **Ning Jiang**, Imran Niazi, and Dario Farina, "*Peripheral electrical stimulation triggered by movement related cortical potentials enhances cortical excitability*", Computational Neuroscience & Neurotechnology Bernstein Conference and Neurex Annual Meeting (BC11), Oct. 2011, Freiburg, Germany (DOI: 10.3389/conf.fncom.2011.53.00092)
41. **Ning Jiang**, Johnny Vest-Nielsen, and Dario Farina, "*EMG-based Simultaneous and Proportional Estimation of Wrist Kinematics and its Application in Intuitive Myoelectric Control for Unilateral transradial Amputees*", Computational Neuroscience & Neurotechnology Bernstein Conference and Neurex Annual Meeting (BC11), Oct. 2011, Freiburg, Germany (DOI: 10.3389/conf.fncom.2011.53.00081)
42. Thomas Lorrain, Imran K. Niazi, **Ning Jiang**, Dario Farina, "*Movement onset detection in various positions for state-based myo-control scheme*", Myoelectric Control Symposium 2011 (MEC'11), Aug. 2011, Fredericton, Canada
43. Thomas Lorrain, Imran K. Niazi, Olivie Thibergien,**Ning Jiang**, Dario Farina, "*LivBioSig: Development of a Toolbox for Online Bio-Signals processing and experimentation*", 33rd Annual International Conference of the IEEE Engineering in Medicine and Biology Society, Sep. 2011, Boston, USA (DOI: 10.1109/IEMBS.2011.6091703)
44. Silvia Muceli, **Ning Jiang**, Dario Farina, "*Multichannel Surface EMG Based Estimation of Bilateral Hand Kinematics during Movements at Multiple Degrees of Freedom*" 32nd Annual International Conference of the IEEE Engineering in Medicine and Biology Society, pp. 6066-6069, Sep. 2010, Buenos Aires, Argentina (**Finalist for student paper competition.**) (DOI: 10.1109/IEMBS.2010.5627622)
45. Thomas Lorrain, **Ning Jiang**, Dario Farina, "*Surface EMG classification during dynamic contractions for multifunction transradial prostheses*", 32nd Annual International Conference of the IEEE Engineering in Medicine and Biology Society, pp. 2766-2769, Sep. 2010, Buenos Aires, Argentina (DOI: 10.1109/IEMBS.2010.5626587)
46. Thomas Lorrain, **Ning Jiang**, Dario Farina, "*Surface EMG classification during dynamic contractions for multifunction transradial prosthesis*", the XVIII Congress of the International Society of Electrophysiology and Kinesiology, Jun. 2010, Aalborg, Denmark.

47. Imran K. Niazi, **Ning Jiang**, Dario Farina, "*Effect of abstract feedback following use of BCI for upper limb rehabilitation*", the XVIII Congress of the International Society of Electrophysiology and Kinesiology, Jun. 2010, Aalborg, Denmark.
48. Imran K. Niazi,**Ning Jiang**, Thomas Lorrain, Alvaro F. Calbrera, Natalie Mrachacz-Kersting, Kim Dremstrup, Dario Farina, "*Changes in Cortical Excitability following the use of a BCI with abstract feedback*", the 4th International BCI Meeting, May 2010, Asilomar, USA
49. Johnny Nielsen, Steffen Holmgaard, **Ning Jiang**, Kevin Englehart, Dario Farina, and Philip Parker, "*Enhanced EMG signal processing for simultaneous and proportional myoelectric control*", the the 31th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, pp. 4335-4338, Sep. 2009, Minneapolis, USA (**Finalist for student paper competition.**)
    (DOI: 10.1109/IEMBS.2009.5332745)
50. Rui Zhou, **Ning Jiang**, Kevin Englehart, and Philip Parker, "*Simulation and Classification of the efferent activity in brachial nerves*", the 31th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, pp. 4954-4957, Sep. 2009, Minneapolis, USA
    (DOI: 10.1109/IEMBS.2009.5332707)
51. **Ning Jiang**, Philip Parker, Kevin Englehart, "*Estimating Forces at Multiple Degrees of Freedom from Surface EMG using Non-negative Matrix Factorization for myoelectric control*", the Proceedings of the First International Symposium on Applied Sciences in Biomedical and Communication Technologies (ISABEL 2008), Oct. 2008, Aalborg, Denmark (DOI: 10.1109/ISABEL.2008.4712582)
52. **Ning Jiang**, Philip Parker, Kevin Englehart, "*A Note on the Signal-to-noise Ratio of Myo-electric Channel*", the Proceedings of the XVII Congress of the International Society of Electrophysiology and Kinesiology, Jun. 2008, Niagara Falls, Canada.
53. **Ning Jiang**, Philip Parker, Kevin Englehart, "*A Novel Approach for Myo-electric Powered Prosthesis: Simultaneous and Proportional Control of Multi-DOF*", the Proceedings of the XVII Congress of the International Society of Electrophysiology and Kinesiology, Jun. 2008, Niagara Falls, Canada.
54. **Ning Jiang**, Philip Parker, Kevin Englehart, "*EMGSIM: A Comprehensive Simulation Toolbox for Electromyography*", the Proceedings of the 31th Annual Conference of the Canadian Medical and Biological Engineering Society, Jun. 2008, Montréal, Canada.
55. Quan Zhou, **Ning Jiang**, Kevin Englehart, Bernie Hudgins, "*Improved Phoneme-based Myo-electric Speech Recognition*", the Proceedings of the 31th Annual Conference of the Canadian Medical and Biological Engineering Society, Jun. 2008, Montréal, Canada.
56. Rui Zhou, **Ning Jiang**, Kevin Englehart, Philip Parker, "*A Computational Model of Nerve Signal Detection and Recognition During Voluntary Muscle Contractions*", the Proceedings of the 31th Annual Conference of the Canadian Medical and Biological Engineering Society, Jun. 2008, Montréal, Canada.
57. **Ning Jiang**, Philip Parker, Kevin Englehart, "*Extracting neural drives from surface EMG: a generative model and simulation studies*", the Proceedings of the 29th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, pp. 4838-4841, Aug. 2007, Lyon, France.
    (DOI: 10.1109/IEMBS.2007.4353423)
58. **Ning Jiang**, Philip Parker, Kevin Englehart, and Jose Gonzalez-Cueto, "*A simulation study on the parameter sensitivity of the deconvolution CVD estimator for motor units*", the Proceedings of the 29th annual conference of the Canadian Medical and Biological Engineering Society, Jun. 2006, Vancouver Canada.
59. **Ning Jiang**, Philip Parker, and Kevin Englehart, "*The motor unit innervation process correlation and its effects on EMG applications*", the Proceedings of the 27th annual international conference of the IEEE Engineering in Medicine and Biology Society, Sep. 2005, Shanghai, China. (DOI: 10.1109/IEMBS.2005.1615400)

60. **Ning Jiang**, Philip Parker, and Kevin Englehart, "*A novel simulation model for the motor unit innervation process*", the Proceedings of the 27th annual international conference of the IEEE Engineering in Medicine and Biology Society, Sep. 2005, Shanghai, China. (DOI: 10.1109/IEMBS.2005.1617103)
61. **Ning Jiang**, Philip Parker, and Kevin Englehart,"*Correlation and common drive in motor units*", the Proceedings of the 19th Congress of the International Society of Electrophysiology and Kinesiology, Jun. 2004, Boston, USA.

Research Projects

Project Name	**Granting Agency/ Grant Type**	**Role**	**Duration**
Closed-loop Non-invasive BCI for Rehabilitation of Freezing of Gait (FOG) in Parkinson	Center for Chronic Disease Prevention Seed Grant	PI	2015-2016
Implantable Multimodal Peripheral REcording and Stimulation System (IMPRESS)*	Hand Proprioception and Touch Interfaces (HAPTIX) program, Defense Advanced Research Projects Agency (DARPA), USA	Co-PI	2015-2019
Decoding the Neural Code of Human Movements for a New Generation of Man-Machine Interfaces (DEMOVE)	European Research Council, Advanced Grant, Systems and Communications Engineering	Scientific staff	2011-2016
Micro and Nano Engineered Bi-Directional Carbon Interfaces for Advanced Peripheral Nervous System Prosthetics and Hybrid Bionics (MERIDIAN)	Nanosciences, Nanotechnologies, Materials and new Production Technologies: FP7-NMP-2011-SMALL-5, EU	Key scientific staff	2012-2015
Myoelectric Interfacing with Sensory-motor Integration (MYOSENS)	FP7-Marie Curie Industry-Academia Partnerships and Pathways (IAPP), EU	Scientific staff	2012-2016
Advanced Myoelectric Control Prosthetic Systems (AMYO)	IAPP, EU	Key scientific staff	2010-2013
Re-learning of motor tasks after stroke by BCI	Danish Council for Technology and Production Sciences, Denmark	Participant	2009-2012
EMG based Epilepsy Alarm System	High Technology Council of Denmark, Denmark	Participant	2009-2011
An ambulatory BCI-driven tremor suppression system using FES (BETTER)	FP7-Information and Communication Technologies, EU	Participant	2009-2011

* I left my post at UMG soon after the project officially started.

Mentoring Experiences

At University of Waterloo

Fatemeh Karimi, PhD students, EEG algorithms for close-loop Brain computer interfaces, from 2015.09

Bahareh Tolooshams, Co-op student, from 2015.01 to 2015.04

Kevin Chan, Co-op student, from 2015.01 to 2015.04

At Aalborg University, Ottobock GmbH and University Medical Center Göttingen

Konstantin Akhmadeev, Exchange student, Myoelectric control with intra-muscular EMG signals, from 2014.03

Susan Aliakbaryhosseinabadi, Ph.D. student, BCI-based neuroerhabilitation, from 2013.10 (With Prof. Mrachcz-Kersting at AAU)

Tamas Kapelner, Ph.D. student (UMG), Myoelectric control with intra-muscular EMG signals, from 2013.08

Ren Xu, Ph.D. student (UMG), EEG signal analysis and BCI application in strok, from 2012.10

Ivan Vujaklija, Master student/Engineering (OBHC/UMG), Advanced myoelectric control, from 2012.08

Mads Jochumsen, Ph.D. (AAU), BCI-based neurorehabilitation, from 2012.8

Liliana Paredes, Ph.D. student/Engineer (OBHC), Advanced myoelectric signal processing for sensory-motor integration,from Sep. 2011

Nan Ge (OBHC), Master student (AAU/UMG), software design for advance muscle machine interface, from Sep. 2011

Marike Krüger, Student intern (OBHC), Software design for human machine interfaces, from May 2010 to Apr. 2011

Hubertus Rehbaum, Ph.D. student/Engineer (OBHC/UMG), Advanced Myoelectric control for simultaneous and proportional control, from Sep. 2010

Janne Hahne, Ph.D. student/Engineer (OBHC), Advanced Myoelectric control for simultaneous and proportional control, from Sep. 2010

Clement Gilavert, Exchange master student (UMG), Signal processing for brain computer interface, May 2011 to Oct. 2011

Simon Beckmann, Student intern (OBHC), Software design for human machine interfaces, from Sep. 2010 to Apr. 2011

Johnny Nielsen, Exchange master student from AAU (UNB/AAU), Simultaneous myoelectric control of mulitple DOFs, Sep. 2008 to May 2012

Signe Kristnesen, Ph.D. (AAU) BCI-based neurorehabilitation, 2009.4 - now

Thomas Lorrain, Ph.D. student (AAU/UMG), Advance Myoelectric control for simultaneous and proportional control, from May 2009

Olivier Tiberghien, (Exchange master student (AAU), Software design for real time brain computer interfaces, May 2010 to Oct. 2010

Xavier Artusi, Exchange Ph.D. student (AAU), Brain Computer Interface, and its applications in neurorehabilitation, from May 2009 to Sep. 2009

Imran Khan Nizai, Ph.D. student (AAU/UMG), Brain Computer Interface, and its applications in neurorehabilitation, from May 2009

Silvia Muceli, Ph.D. student (AAU/UMG), Muscle synergy and its application in myoelectric control, from May 2009

Steffen Holmgaard, Exchange master student from AAU (UNB/AAU), Simultaneous myoelectric control of mulitple DOFs, Sep. 2008 to Dec. 2008

At University of New Brunswick

Quan Zhou, Master student (UNB), Speech recognition by surface EMG, starting from Sep. 2007 to Aug. 2009

Rui Zhou, Master student (UNB), Modeling of peripheral nerve signal and surface EMG, Starting from Sep. 2007 to Jan. 2010

Weizhong Ye, NSERC summer student (UNB), Numerical model of motor unit innervation processes, summer 2007

Honors and Awards

Research and Academic

BCI Award 2015, top 10 global nomination	Sep 2014	N/A
BCI Award 2014, 3rd place	Sep 2014	N/A
BCI Award 2013, top 10 global nomination	June 2013	N/A
BCI Award 2012, top 10 global nomination	Oct. 2012	N/A
NSERC Industrial R&D Fellowship	November, 2008	3 yrs, € 53,000 per year from NSERC and Victhom Inc. (Declined)
ISEK2008 student paper competition, 3rd place	June, 2008	Value of € 80
National Science and Engineering Research Council (NSERC), PGS-D Scholarship	May 2005-May 2008	€ 16,000 per year
Doctoral Tuition Award	Sep. 2004- Aug. 2007	€ 3,800 per year
Depart. Top-up for NSERC holder	May 2005- May 2007	€ 3,800 per year
Research Assistantship	Sep. 2004-May 2005	€ 13,800 per year
Research Assistantship	Jun. 2002-Aug. 2004	€ 11,500 per year

Student paper competition, 3rd prize, MITACS 2004 Conference	Mar. 2004	€ 60
Entrepreneurship and Leadership		
New Brunswick Innovation Foundation (NBIF) Student Entrepreneurship competition	Mar. 2006	€ 8,000

Academia appointments

Tenured Associate Professor, Department of Health Science and Technology, Aalborg University, Aalborg, Denmark; Nov. 2014; declined.

Patent

One US patent (9,031,613 B2): Adaptive antenna array for source localization

Professional Affiliations

Senior Member of IEEE/Engineering in Medicine and Biology Society, since 2014

Member of International Society Electrophysiology and Kinesiology, since 2010

Member of IEEE/Engineering in Medicine and Biology Society, 2009 - 2013

Graduate student member of IEEE/Engineering in Medicine and Biology Society, 2002-2009

Student member of Canadian Medical and Biological Engineering Society, since 2002-2009

Professional Activities

Associate Editor (AE), IEEE Journal of Biomedical and Health Informatics, since Jan. 2013

Associate Editor (AE), Brain-Computer Interfaces since Feb. 2014

Guest Associate Editor, Frontiers in Neurosciences, 2014-2016

Associated Editor (AE), IEEE-RAS ICRA 2016 (IEEE International Conference on Robotics and Automation)

International Committee Chair, 1st Shanghai Symposium on Translational Neurorehabilitation, Shanghai, China, June, 2015

Organizer, Special session on rehabilitation robotics, the 8th International Conference on Intelligent Robotics and Applications, Portsmouth, UK, August 2015

BCI Workshop organizer, 2nd International Conference on NeuroRehabilitation (ICNR2014), June 2014, Aalborg, Denmark

International Committee member, the 3rd International Conference of Rehabilitation Medical Engineering (CRME2014), May 2014 Shanghai, China

External Grant Application Reviewer for Czech Science Foundation

External Grant Application Reviewer for MITACS, Canada

External Opponent for PhD defense: Anders Founger, Norwegian University of Science and Technology, Trondheim, Norway, April 26, 2013

External Committee member for PhD defense: Max Ortiz Catalan, Chalmers University of Technology, Gothenburg, Sweden, June 12, 2014

External Committee member for PhD defense: Ali Ameri, University of New Brunswick, Fredericton, Canada, 2014 (declined due to conflict of interest)

Served as reviewer for over 100 scientific manuscripts for the following research journals and international conferences:

IEEE Trans. on Biomedical Engineering

IEEE Trans. on Neural System and Rehabilitation Engineering

IEEE Trans. on Information Technology in Biomedicine

IEEE Trans. on Robotics

Journal of Neural Engineering

IEEE Reviews on Biomedical Engineering

IEEE Robotics and Automation Magazine

Journal of Applied Biomechanics

NeuroComputing

Annual International Conference of the IEEE Engineering in Medicine and Biology Society

IEEE/EMBS International Neural Engineering Conference

Journal of NeuroRehabilitation and Engineering

Journal of Neuroscience Methods

Journal of Electromyography and Kinesiology

Journal of Neurophysiology

Medical & Biological Engineering & Computing

Biological Signal Processing and Control

Medical Engineering and Physics

Physiological Measurement

Sensors

Bi-annual Congress of the International Society of Electrophysiology and Kinesiology