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Place of Birth: Brooklyn, NY

Education

1990	Bachelor's in Science with Honors in Neural Science	Neuroscience (Ford F. Ebner, Ph.D., thesis advisor)	Brown University
1999	Doctor of Medicine		Emory University School of Medicine
1999	Doctor of Philosophy	Neuroscience (Donald R. Humphrey, Ph.D., dissertation advisor)	Emory University Grad. School of A&S

Postdoctoral Training

1999 – 2000	Intern	Internal Medicine	Emory University Affiliated Hospitals Residency Training Program
2000 – 2003	Resident	Neurology	Massachusetts General Hospital/Brigham & Women's Hospital/Harvard Medical School
2003 – 2004	Chief Resident	Neurology	Massachusetts General Hospital/Brigham & Women's Hospital/Harvard Medical School
2003 – 2004	Fellow	Stroke/Neurocritical Care	Massachusetts General Hospital/Brigham & Women's Hospital/Harvard Medical School

Faculty Academic Appointments

2004 – 2009	Instructor of Neurology	Neurology	Harvard Medical School
2004 – 2008	Investigator in Neuroscience	Neuroscience	Brown University
2008 – 2013	Associate Professor	Engineering	Brown University
2010 – 2012	Visiting Associate Professor	Neurology	Harvard Medical School
2013 – Present	Senior Lecturer	Neurology	Harvard Medical School
2013 – 2015	Associate Professor (tenured)	Engineering	Brown University
2015 – Present	Professor	Engineering	Brown University

Appointments at Hospitals/Affiliated Institutions

Past:

09/00 – 06/03	Resident	Neurology	Massachusetts General Hospital/Brigham & Women's Hospital/Harvard Medical School
07/02 – 06/03	Chief Resident	Neurology	Massachusetts General Hospital/Brigham & Women's Hospital/Harvard Medical School
07/03 – 07/04	Graduate Assistant	Neurology	Massachusetts General Hospital/Brigham & Women's Hospital/Harvard Medical School
07/03 – 05/12	Associate Neurologist	Stroke and Neurocritical Care	Brigham and Women's Hospital

07/04 – 10/10	Assistant in Neurology	Services Neurocritical Care and Stroke Services	Massachusetts General Hospital
11/10 – 12/12	Associate Neurologist	Division of Neurocritical Care and Emergency Neurology, and Stroke Service, Department of Neurology	Massachusetts General Hospital
2012 – 2014	Neurologist	Stroke and Neurocritical Care Services	Brigham and Women's Hospital
<i>Current:</i>			
07/04 – Present	Consulting Staff	Neurology	Spaulding Rehabilitation Hospital
02/06 – Present	Physician	Center for Neurorestoration and Neurotechnology	Dept. of Veterans Affairs Medical Center, Rehabilitation R&D Service, Providence, RI
2007 – Present	Appointed at 30 additional hospitals in Massachusetts, New Hampshire, and Maine, solely for the provision of TeleStroke Services on behalf of Massachusetts General Hospital and Brigham & Women's Hospital		
01/13 – Present	Neurologist	Division of Neurocritical Care & Emergency Neurology, and Stroke Service, Department of Neurology	Massachusetts General Hospital

Other Professional Positions

2007	Scientific Advisory Panel	Stryker Development, LLC; GE Healthcare	
2008	Consultant	CardioFocus, Inc.	

Major Administrative Leadership Positions

Local

1992 – 1998	Founder and Coordinator, Electronic Transcript Database	Emory University	
1994 – 1998	Developer and Controller, EUSM LearnLink (Intranet for Medical Education)	Emory University	
2011 – Present	Director, Neurotechnology Trials Unit, Dept. of Neurology	Massachusetts General Hospital	
2012 – 2014	Associate Director, Center of Excellence for Neurorestoration and Neurotechnology, Rehab. R&D Service	Dept. of Veterans Affairs, Providence RI	
2014 – Present	Director, Center of Excellence for Neurorestoration and Neurotechnology, Rehab R&D Service	Dept. of Veterans Affairs, Providence RI	

Committee Service

Local

1992	LCME Accreditation Subcommittee on Student Analysis, Member; Report Editor	Emory University	
1992	Year-1 Curriculum Revision Committee and Subcommittee On Evaluation, Member	Emory University	
1999	LCME Accreditation Library/Computer & Information Resource Committee, Member	Emory University	
1999	Teaching and Education Strategic Plan: Informatics/Technology and Student Subcommittees, Member	Emory University	

2002 – 2003	Neuro Clinical Performance Management Comm., Member	Massachusetts General Hospital
2002 – 2004	Clinical Pathway Development Team Neurology “Safe Transitions in Anticoagulation Therapy”	Massachusetts General Hospital
2002 – 2006	Optimum Care Committee, Member	Massachusetts General Hospital
2005	15 th Reunion Gift Committee, Class of 1990	Brown University
2007	Ad hoc reviewer, Institutional Review Board	Spaulding Rehabilitation Hospital
2009	Neurology Finance Committee	Massachusetts General Hospital
2010 – 2011	Biomedical Engineering Faculty Search Subcommittee	Brown University
2011	Faculty Liaison to Clinical Policy & Records Committee, and Medical Policy Committee, re: Determination of Death by Brain Criteria in Adults (new policy adopted, May 2011)	Massachusetts General Hospital
2011	Member, Psychiatry Chief of Service Search Committee	Providence VA Medical Center and Brown University
2012	Computational Neuroscience Search Committee, Department of Neuroscience	Brown University
2011 – Present	Member, Executive Committee	Brown Institute for Brain Science
2012 – 2015	Research Committee, Dept. of Neurology	Massachusetts General Hospital
2012 – Present	Spaulding-Harvard Traumatic Brain Injury Model Systems Scientific Advisory Board	Spaulding – Harvard Medical School
2014 – 2015	Chair, Neuroengineering Faculty Search Committee	Brown University
<i>National</i>		
1995	5 th Reunion Gift Committee, Class of 1990	Brown University
2006	Task Group 10, Invited Member, “Smart Prosthetics” 2007	Keck Futures Initiative, National Academy of Sciences
2008 – 2009	Organizing Committee, Indo-US Frontiers of Science Frontiers of Science	National Academy of Sciences
2007 – 2010	Course Director, Brain-Computer Interfaces: Frontiers in Neurology and Neurosciences	American Academy of Neurology Annual Meeting
2009 – 2012	Point of Care Center in Emerging Neurotechnology Member, Advisory Board	University of Cincinnati and National Institute on Bioengineering and Biomedical Imaging
2011	Scientific Vision Workshop on Plasticity	Eunice Kennedy Shriver National Institute on Child Health & Human Development
2011	Member, Recovery and Rehabilitation Subcommittee, Stroke Progress Review Group	National Institute of Neurological Diseases and Stroke, NIH
2014	Translational Working Group on Brain-Computer Interfaces (Workshop, invited group leader)	Div. Neurologic & Physical Medicine Devices U.S. Food & Drug Administration

2014	Workshop: Ethical Issues in Neuroscience Research (invited participant)	Office of the Director, NIH
2014	Workshop: Addressing Paralysis Through Spinal Stimulation Technologies (invited participant; panelist)	National Institute of Biomedical Imaging and Bioengineering, NIH
2014	Brain-Computer Interface (BCI) Devices for Patients with Paralysis and Amputation (invited moderator)	Office of Device Evaluation, U.S. Food & Drug Administration
2014 - Present	Member, Scientific Program Advisory Committee	American Neurological Association
2014	Workshop: Ethical Issues in Neuroscience (invited participant)	Office of the Director, NIH
2015	Member, Industry Partnerships to Facilitate Early Access to Neuromodulation and Recording Devices for Human Clinical Studies	NIH Brain Initiative Workshop
2016	Internal Reviewer, R25 Applications	MGH
2016	Reviewer, Clinical Transitional Research Grant	RI Center for Translational Science/Brown

International

2011-2013	Steering/Program Committee, 5 th International Brain-Computer Interface Meeting
2013	Exploratory Committee, International Brain-Computer Interface Society
2014 - 2015	Executive Committee and Conference General Chair, International Clinical Brain-Machine Interface Conference, Tokyo, Japan
2016 - 2017	International Program Committee, 7th Graz Brain-Computer Interface Conference, Graz, Austria

Professional Societies

1993 - Present	Society for Neuroscience, Member
2001 - Present	American Academy of Neurology, Member (elected Fellow, 2012)
2008 - 2009	Member, Work Group on Spinal Cord/Nerve Repair/Neurorehabilitation, AAN
2001 - Present	Massachusetts Medical Society, Member
2003 - Present	Neurocritical Care Society, Member
2003 - 2014	American Stroke Association/American Heart Association, Member
2014 - Present	American Neurological Association, Fellow
2015 - Present	Founding and Executive Board Member, Brain Computer Interface Society

Grant Review Activities

2006	Netherlands Organization for Scientific Research Ad hoc grant reviewer
2007	CIMIT Ad hoc grant reviewer

2008	Point of Care Center for Emerging Neurotechnology (POCENT) Member	NIH/NIBIB
2009	Challenge Grant Review (ZRG1 BBBP-J (58)) Stage I Reviewer	NIH
2009 – Present	Merit Review Study Section, Rehabilitation R&D Service Reviewer	Dept. Veterans Affairs
2009 – Present	Career Development Panel Study Section, Rehabilitation R&D Service, Reviewer	Dept. Veterans Affairs
2009	K99/R00 Grant Review Study Section (ZNS1 SRB-M (73)) Reviewer	NIH/NINDS
2010	Pre-Doctoral Associated Health Rehabilitation Research Fellowship Reviewer	Dept. Veterans Affairs
2012	R01 Grant Review Study Section (ZDC SRB Y 59) Reviewer	NIH/NIDCD
2014	P41 Grant Review Study Section/Site Visit (ZEB1 OSR-C (M2)) Reviewer	NIH/NIBIB
2016	Bioengineering of Neuroscience, Vision and Low Vision Technologies (BNVT) Study Section Ad-Hoc Reviewer	NIH

Editorial Activities

Ad hoc Reviewer:

Archives of Internal Medicine, Epilepsy and Behavior, Journal of the American Medical Association, Journal of Neural Engineering, Journal of Neuroscience Methods, Journal of Rehabilitation Research and Development, Lancet, Neurobiology of Disease, New England Journal of Medicine, Neuron, Neurology, Neurorehabilitation and Neural Repair, Scholarpedia, others.

Other Editorial Roles:

2009	Review Editor	Frontiers in Neuroprosthetics
2013	Manuscript Editor	Proceedings of the National Academy of Sciences (US)

Honors and Prizes

1990 – 1992	Robert W. Woodruff Fellow in Medicine	Emory University School of Medicine
1998 – 1999	Robert W. Woodruff Fellow in Medicine	Emory University School of Medicine
1992	American Federation for Clinical Research Award	American Federation for Clinical Research
1994	Excellence in Teaching Award	Emory University, Graduate Division of Biological and Biomedical Sciences
1998	Omicron Delta Kappa	Emory University
1999	Dean's Award	Emory University School of Medicine
2002	Outstanding Teaching Resident Award	Emory University School of Medicine
2002	Partners in Excellence Award (Awarded to Neurology Chief Residents)	Massachusetts General Hospital/Brigham & Women's Hospital, Harvard Medical School
2003	American Academy of Neurology Annual Meeting Resident Scholarship	American Academy of Neurology
2005	Dean's Teaching Excellence Award	Warren Alpert Medical School of Brown U.
2006	Partners in Excellence Award (Awarded to MGH Telestroke Team)	Massachusetts General Hospital/Brigham & Women's Hospital/Harvard Medical School
2007	Dean's Teaching Excellence Award	Warren Alpert Medical School of Brown U.
2007	Fellow, 19th Annual Kavli Frontiers of Sciences	Symposium, National Academy of Sciences
2008	Dean's Teaching Excellence Award	Warren Alpert Medical School of Brown U.
2008	Clinical Scientist Development Award	Doris Duke Charitable Foundation
2009	Dean's Teaching Excellence Award	Warren Alpert Medical School of Brown U.
2010	Frontiers in Clinical Neuroscience Plenary Lecturer	American Academy of Neurology
2010	Exemplary Teaching Recognition	Warren Alpert Medical School of Brown U.
2011	Exemplary Teaching Recognition	Warren Alpert Medical School of Brown U.
2012	Exemplary Teaching Recognition	Warren Alpert Medical School of Brown U.

2012	Fellow of the American Academy of Neurology (FAAN)	American Academy of Neurology
2013	Joseph B. Martin Research Prize in Basic Research Top prize awarded annually for basic science research	Massachusetts General Hospital
2013	Herbert Pardes Award for Excellence in Clinical Research Top prize awarded annually for clinical research	Clinical Research Forum
2013	Exemplary Teaching Recognition Israel Brain Technologies International B.R.A.I.N. Prize (\$1 million, to BrainGate team, awarded by President Shimon Peres)	Warren Alpert Medical School of Brown U. 2013 Moshe Mirilashvili Memorial Fund
2014	Fellow of the American Neurological Association (FANA)	American Neurological Association
2014	Distinguished Medical Achievement Award	Emory University School of Medicine
2014	Derek Denny-Brown Young Neurological Scholar Award	American Neurological Association
2015	Spirit of Lou Gehrig Award (to six Brown faculty)	ALS Association, Rhode Island Chapter
2016	Elected Alumni Member	Alpha Omega Alpha

Report of Funded and Unfunded Projects

Funding Information

Past Funding

1990 - 1999	Trainee	Medical Scientist Training Program, Emory University School of Medicine
1994	Trainee	Emory Center for Neurological Sciences (Lucille P. Markey Charitable Trust)
1994	PI	Southern Medical Association, Research Project Grant Stability and Plasticity of the Arm-Hand Representations in Primate Primary Cortex The major goal of the study was to understand changes in the somatotopic representation of the macaque arm and hand during learning of a novel motor task
2003	Scholarship Recipient	American Academy of Neurology, Resident Scholarship, AAN Annual Meeting
2005 - 2009	PI	Cyberkinetics Neurotechnology Systems, Inc. Feasibility Study of the BrainGate Neural Interface System for Patients Unable to Use Their Hands This is a pilot clinical trial of an intracortically-based brain-computer interface for people with spinal cord injury, brainstem stroke, or muscular dystrophy.
2006 - 2009	PI	Cyberkinetics Neurotechnology Systems, Inc. Feasibility of the BrainGate Neural Interface System in Persons with Motor Neuron Disease This is a pilot clinical trial of an intracortically-based brain-computer interface for people with ALS or other motor neuron diseases.
2006 - 2008	PI Associate Investigator Award	Rehabilitation R&D Service, Dept. Veterans Affairs
2007 - 2009	PI	NIH/NIDCD R21 DC009317 Utility of the P300 Brain-Computer Interface for Patients in Acute Care Environments The major goal of this project is to test the feasibility of a non-invasive brain-computer interface to improve the communication of patients acutely hospitalized with paralysis and an inability to speak.
2008 - 2011	PI	Rehabilitation R&D Service, Dept. Veterans Affairs B6310N VA Career Development Transition Award This is a Career Development Transition Award (CDTA) focusing on the development of intracortical neural interface systems (NISs) for the restoration of communication, mobility, and independence for veterans and others with severe paralysis or limb loss.
2008 - 2011	Subcontract PI	NICHD/NCMRR

N01HD53403

Controller Development for Upper Limb Movement

This is a subcontract for maintenance of the clinical trial of an implanted neural interface system. The overall project goal is to design a cortical controller for implanted functional electrical stimulation devices.

2009 - 2012 Subcontract PI

NICHD

1RC1HD063931

Cortical Control of an Assistive Robot Arm - Challenge Grant

The goal of this grant is to demonstrate the intracortically-based neural control of an assistive robot arm to assist people with tetraplegia.

2008 - 2013 PI

Doris Duke Charitable Foundation

Clinical Scientist Development Award

Neural Interfaces for Restoration of Function After Paralysis

This Clinical Scientist Development Award is for further development and leadership in the development of neurally-controlled assistive devices for people with stroke or spinal cord injury.

2009 - 2013 Co-Investigator

NSF/EFRI

EFRI-BioSA

Integration of Dynamic Sensing and Actuating of Neural Microcircuits

The goal of this project is to study complex nonlinear dynamics of brain microcircuits and their function by developing and fusing a new biosensing (recording) and actuation (neurostimulation) techniques.

2010 - 2014 Subcontract Co-PI

DARPA

REPAIR

The goal of this contract is to harness and expand optogenetic technologies for the understanding of sensorimotor integration and cortical plasticity.

2011 - 2014 Subcontract PI

NICHD/NCMRR

N01HD53403

Controller Development for Upper Limb Movement

This is a subcontract for direction of the clinical trial of an implanted neural interface system. The overall project goal is to design a cortical controller for implanted functional electrical stimulation devices.

2011 - 2015 PI

Stanford University

BrainGate: Stanford Clinical Trial Site

This is a contract between Stanford and MGH for collaborative clinical research activities associated with the BrainGate2 pilot clinical trial.

2015 PI

National Science

Meeting grant: International Conference on Clinical Brain - Machine Interfaces

Current Funding

2016 - 2019 Subcontract PI

NINDS

Cash, PI

U01 (RFA-NS-16-008)

Understanding the Neural Basis of Volitional State through Continuous Recordings in Humans

The overarching goal of this research is to utilize platforms which allow for continuous acquisition of high-fidelity neural ensemble activity in humans synchronized with behavioral data and contextual information to allow discovery of the neural basis for changes in intent.

2015 - 2020 Contract and Co-PIs

NINDS UH2/UH3

Hochberg and Nurmikko UH2NS095548

High-Bandwidth Wireless Interfaces for Continuous Human Intracortical Recording

This project will complete the regulatory testing and conduct the early clinical testing of a new, fully implanted neural interface system that can record from up to 100 neurons and transmit that neural activity to a nearby receiver. An important goal of the system is to allow people with neurologic injury to control cursors on a computer screen simply by thinking about the movement of their own hands.

- 2008 – 2016 PI MGH Deane Institute
Restoration of Motor Function After Stroke
The goal of this grant is to provide post-doctoral support to further develop intracortically-based neuroprosthetics for people with brainstem stroke.
- 2008 – 2018 PI Rehabilitation R&D Service, Department of Veterans Affairs
B6453R
VA Merit Review Award
This Merit Review Award supports two participants in a pilot clinical trial toward the testing and further development of a neural interface system for people with ALS. (Includes subcontract to MGH).
- 2009 – 2017 PI NIDCD
R01DC009899
Restoring Communication with an Intracortical Neural Interface System
The major goal of this project is to develop an intracortically-based communication system for people with locked-in syndrome.
- 2012 – 2017 Co-Investigator NINDS
R01NS079533
Multi-Scale Cortical Dynamics in Human Epilepsy
The goal of this project is to understand, at the mesoscale level of ensembles of individual neurons, the evolution of seizures in people with medically intractable epilepsy.
- 2014 – 2018 Co-Investigator Rehabilitation R&D Service/Department of Veterans Affairs,
Merit Review (1101RX000668)
Merit Review, “Multi-Scale Cortical Dynamics and Seizure Prediction in Human Focal Epilepsy”
The goal of this project is to develop models for the detection and prediction of seizure in people with medically intractable epilepsy.
- 2012 – 2016 PI Case Western Reserve University
BrainGate: Case Western Clinical Trial Site
This is a contract between Case Western and MGH for collaborative clinical research activities associated with the BrainGate2 pilot clinical trial.
- 2014 – 2019 Subcontract PI NICHD/NCMRR
Kirsch, PI; R01HD077220
Intracortical control of FES-restored arm and hand function in people with SCI
This is a subcontract to MGH for maintenance and coordination of the BrainGate2 clinical trial as it relates to evaluating an implanted functional electrical stimulation system under direct brain control.
- 4/1/2015 –
3/30/2020 Subcontract PI NIDCD
Henderson, PI; R01DC014034
Advanced Neural Decoders for Communication Interfaces R01
This subcontract to MGH supports the clinical research and regulatory oversight of the project, focused on developing next-generation neural decoders to help people with locked-in syndrome.
- 2012 – 2017 PI Rehabilitation R&D Service/Department of Veterans Affairs,
N9228-C
Center of Excellence for Neurorestoration and Neurotechnology
The goal of this Center is to promote and facilitate interdisciplinary research in neurotechnology and translational neuroscience in service of our nation’s Veterans.
- 2011 – 2016 Subcontract PI Rehabilitation R&D Service/Department of Veterans Affairs,
Simeral, PI A-6779-I
Direct Intracortical Control of a Multijoint Prosthetic Arm
This is a subcontract to MGH for clinical activities and research activities for BrainGate2 participants engaged in research associated with this project.

Grants submitted:

- 2016 – 2020 PI Rehabilitation R&D Service/Department of Veterans Affairs,
BrainGate: Robust Neural Decoding for Veterans with ALS
Center of Excellence for Neurorestoration and Neurotechnology
This project will complete the regulatory testing and conduct the early clinical testing of a new, fully implanted neural interface system that can record from up to 100 brain cells (neurons) and transmit that neural activity to a nearby receiver
- 2016 – 2021 PI NINDS
1P01NS092522
Dynamics and Decoding of Human Motor Cortex
This Program Project Grant aims to explain human cognitive and motor behaviors, including learning, at the critical scale of ensembles of 100 or more individual neurons recorded over months and years through four synergistic projects.
- 2009 – 2017 PI NIDCD
R01DC009899
Restoring Communication with an Intracortical Neural Interface System
The major goal of this project is to develop an intracortically-based communication system for people with locked-in syndrome.

Report of Local Teaching and Training**Teaching of Students in Courses:**

- 2005 – 2013 Neurobiology Lecturer
First year medical students, Brown University 10 ('05), 2 ('06), 4 ('07-'13) hour lectures
- 2008 – 2010 Clinical Approach to the Human Brain
Undergraduate students, Massachusetts Institute of Technology One hour lecture
- 2009 – 2014 Neuroengineering Lecturer and Course Director
Undergraduate and Graduate Students, Brown University Taught or co-taught 16 one-hour lectures,
(sabbatical 2014, 3 lectures)
- 2009 Bench-to-Bedside
Graduate students and Psychiatry residents, Brown Institute for Brain Sciences and Department of Neuroscience One hour lecture
- 2009 Careers in Medicine Panelist
Medical and MD/PhD students, Brown University One hour panel
- 2009, 2010 Neurotechnology Lecturer
First-year Engineering students, Brown University One hour lecture
- 2011 Integrative Mind-Brain Lecturer
Second year medical students, Harvard Medical School One hour lecture
- 2012, 2013 Integrative Mind-Brain Lecturer
Third year medical students, Harvard Medical School One hour lecture
- 2012 – 2013 Biomedical Engineering Honors Director
Coordinated the evaluation and symposium for 10 students pursuing the Sc.B. with Honors in Biomedical Engineering Symposium
- 2013 – 2014 Engineering Lecturer
First year undergraduate students, Brown University One hour lecture: ENGN 0020,
Introduction to Engineering

Formal Teaching of Residents, Clinical Fellows and Research Fellows (post-docs):

- 2006- Brain-Computer Interfaces
Neurology Residents, Stroke Fellows MGH/BWH One hour lecture

2007, 2009 Locked-In Syndrome
Stroke and Neurocritical Care Fellows MGH/BWH One hour lecture

Clinical Supervisory and Training Responsibilities:

2004 – 2006 Neurology Consult Attending SRH One half-day per week
2004 – Present Acute Stroke Attending MGH 24 evenings per year
2006 – 2010 Neurology Stroke/ICU
Consult Service Attending MGH Four weeks per year
2004 – 2011 Neuroscience Intensive Care Unit BWH
Attending One weekend per month
2010 – 2011 Neuroscience Intensive Care Unit MGH Four weeks per year
2011 – Present Neuroscience Intensive Care Unit MGH Six weeks/year and one weekend/month

Laboratory and Other Research Supervisory and Training Responsibilities:

2006 – Present Guide multidisciplinary research effort of residents,
post-doctoral students and junior faculty at Harvard
Medical School and Brown University Daily interaction
2007 – Present Direct weekly BrainGate meeting, videoconference between
MGH, Brown, Case Western Reserve University, PVAMC,
and Stanford University; guide multiple post-doctoral and
graduate students Weekly interaction
2007 Guide summer undergraduate student in P300 Research Weekly mentorship for 3 months
2008 – Present Supervision of undergraduate honors thesis students in
Neuroscience, Biomedical Engineering, Computer Science Weekly mentorship
2009 – Present Supervision of graduate students in Biomedical Engineering
and/or Neuroscience Weekly mentorship

Formally Supervised Trainees:

Residents, Clinical Fellows, and Postdoctoral Fellows:

2007 – 2009 John Mislow, M.D., Ph.D. Neurosurgery Resident, BWH/HMS
Residency research co-mentor
2007 – 2012 Terrance Kummer, M.D., Ph.D. Instructor in Neurology,
Residency mentor Washington University School of Medicine
2008 – Present John Simeral, Ph.D. Assistant Professor (Research),
Senior postdoctoral and research faculty mentor Brown University
2009 – 2011 Nivideta Jerath, M.D. Neuromuscular Fellow,
Residency mentor University of Iowa
2009 – Present Wasim Malik, Ph.D. Instructor in Anesthesiology,
Postdoctoral/junior faculty research advisor MGH/HMS
(with Emery Brown, M.D., Ph.D.)

Recent Position

2010 – Present	Beata Jarosiewicz, Ph.D. Postdoctoral/junior faculty research advisor (with John Donoghue, Ph.D.)	Investigator in Neuroscience, Brown University
2010 – 2011	Jie Liu, Ph.D. Postdoctoral research advisor	Research Engineer, Rehabilitation Institute of Chicago
2010 – 2011	Nicholas Masse, Ph.D. Postdoctoral Co-Advisor	Postdoctoral research fellow, University of Chicago
2010 – 2013	Janos Perge, Ph.D. Postdoctoral research advisor	Post-Doctoral Research Associate Brown University
2013 – 2015	Brian Edlow, M.D. Career/Transition to Faculty Mentor	Instructor in Neurology, Harvard Med. School NeuroICU Attending, MGH
2012 – 2014	Tomislav Milekovic Postdoctoral research advisor (with John Donoghue, Ph.D.)	Post-Doc, Ecole Polytechnique Federale de Lausanne, Geneva, Switzerland
2014 – Present	David Lin, M.D., Ph.D. Residency Mentor/Research Advisor	Resident in Neurology, MGH/BWH/HMS
2015 – Present	Vamsi Chavakula, M.D., Ph.D. Postdoctoral research advisor	Resident in Neurosurgery, BWH/HMS
2015 – Present	Marco Vilela, Ph.D. Postdoctoral research advisor	Post-Doc, School of Engineering, Brown University
2015 – 2016	Damien Lesenfants, Ph.D. Postdoctoral research advisor	Post-Doc, Belgium
Graduate Students and Medical Students		
2007 – 2008	Nicholas Taylor, B.S. Completed M.S. project in neurotechnology device development	U. Penn. School of Medicine, 21 st Century Scholar
2008 – 2009	Ammar Shaikhouni, Sc.B. Ph.D. Thesis Committee Member and reader	Neurosurgery Resident, Ohio State University
2010 – 2012	Sunmee Park, B.S., Ph.D., Thesis committee member	Engineering, Brown University
2009 – 2013	Brandon King, B.S. Thesis committee member	Neuroscience, Brown University
2010 – 2013	Jessica Feldman, Sc.B. M.D./Ph.D. research co-advisor	Medical Student, Brown University
2009 – 2014	Mark Homer, M.S. Ph.D. Dissertation Advisor Thesis: Novel algorithms for better decoding neural signals	Postdoctoral Fellow, Clinical Informatics Harvard Medical School
2011 – 2012	David Borton, B.S. Thesis committee member	Assistant Professor of Engineering, Brown University
2012 – 2014	Fabien Wagner, B.S. Ph.D. Thesis committee member, Neuroscience	Post-Doctoral Research Associate, Brown University

2013 – Present	David Brandman, M.D. Ph.D. Thesis Advisor, Neuroscience	Neurosurgery Resident, Dalhousie University, Ph.D. Candidate, Brown University
2012 – 2014	Erin Hoops, BS Lab Rotation Advisor	Neuroscience Graduate Training, Brown University
2014 – 2016	Jose Albites Sanabria, B.S. Master's Thesis Advisor	Biomedical Engineering, Peru

Undergraduate Students

2008	Stephen Van Wert Summer undergraduate student in P300 research	Graduate Student, Pennsylvania State University, PA
2008 – 2009	Jacob Donoghue Mentor, undergraduate honors thesis in Neuroscience, “Stability of continuous multi-electrode recordings in motor cortex during control of a neural interface system”	HST Student, Harvard Medical School
2009 – 2010	Tanya Lewis Mentor, undergraduate honors thesis in Biomedical Engineering	Whitaker Fellow in Biomedical Engineering, Germany; Writer, LiveScience.com
2010	Phillip Grice Reader, honors thesis in Biomedical Engineering	Graduate Student, Biomedical Engineering, Penn State University
2010 – 2012	Kathryn Tringale Mentor, undergraduate honors thesis in Biomedical Engineering	Medical Student, University of California, San Diego
2011 – 2012	Anish Sarma Independent Study Advisor (co-mentored with John Simeral, Ph.D.)	Graduate Student, California Institute of Technology
2011 – 2012	William Schweitzer Independent Study Advisor (co-mentored with Beata Jarosiewicz, Ph.D.)	
2012 – 2014	Ignacio Peres Poseulo Special Concentration Advisor (Neuroengineering)	
2013 – 2015	Lev Levitchskiy Undergraduate Research Advisor, Neuroengineering	Research Assistant, Brod Institute, Boston
2013 – Present	Daniel Milstein Undergraduate Research Co-Advisor, Computer Science (co-mentored with Erik Sudderth, Ph.D.)	Master's Student, Brown University
2013 – 2014	James Besancon Undergraduate Honors Research Co-Advisor, Bioelectrical Engineering	Master's Student, Brown University
2013 – 2014	Camille Spencer Salmon Undergraduate Honors Research Advisor (co-mentored with Beata Jarosiewicz, Ph.D.)	Clinical Research Coordinator, MGH, Neurology
2013 – 2014	Mark St. Louis Undergraduate Research Advisor, Neuroscience	
2012 – 2014	Evan Matteson Undergraduate Honors Research (co-mentored with John Simeral, Ph.D.)	Grad Student, Biomedical Engineer, Brown University
2016	Miranda Olson Undergraduate Research Advisor	Undergrad Student, Biomedical Engineering, Brown University

2016	John Eager	Undergrad Student, Brown University
	Undergraduate Research Advisor	
2016	Mark Hays	Undergrad Student, Brown University
	Undergraduate Research Advisor	
2016	Benjamin Shanahan	Undergrad Student, Brown University
	Undergraduate Research Advisor	
2016	Naryan Murthy	Undergrad Student, Brown University
	Undergraduate Research Advisor	

Clinical Neurotechnology Research Assistants – daily interaction, career mentorship

2008 – 2010	Katherine Centrella Newell	Resident, Emergency Medicine, George Washington School of Medicine
2010 – 2011	Etsub Berhanu	Examiner, US Patent and Trademark Office
2010 – 2012	Erin Gallivan Oakley	Resident, Emergency Medicine, Boston University
2012 – 2015	Brittany Sorice	Grad student, Speech and language pathology, Emerson College
2015 – Present	Brian Franco	Research Assistant, MGH Neurology
2016 – Present	Jessica Kelemen	Research Assistant, MGH Neurology

Formal Teaching of Peers:

2005	Ischemic & Hemorrhagic Update	Antiplatelet Therapy in Secondary Prevention of Stroke Harvard Medical School, Boston	Single Presentation
2006	Impact of Technology on Stroke Rehabilitation	Brain-Computer Interfaces in Neurorehabilitation Harvard Medical School, New York	Single Presentation
2007	Ischemic & Hemorrhagic Update	Vertebrobasilar Disease: Medical management and Indications for Intervention Harvard Medical School, Boston	Single Presentation
2013	Harvard Neuroradiology Postgraduate Course	BrainGate: Toward Restoring Communication, Mobility, and Independence	Single Presentation

Local Invited Presentations:

2004	Brain-Computer Interfaces: From Bench to Bedside PM&R, Spaulding Rehabilitation Hospital	Lecture
2004	Brain-Computer Interfaces: Turning Thought into Action Boston, MA	Seminar Cyberkinetics, Inc. (no compensation)
2004	Mind to Movements: Turning Thought into Action Boston, MA	Seminar Cyberkinetics Inc. (no compensation)
2005	Advanced Technologies in the Neurosciences	Seminar

CIMIT/Dartmouth College/Harvard Medical School

2005	Restoring Function: Blending Human and Machine	Lecture
	Brown University	
2005	Chronic Intracortical Recordings	Grand Rounds
	Department of Neurosurgery, Children's Hospital/BWH	
2005	Brain-Computer Interface in Neurorehabilitation	Lecture
	PM&R, Spaulding Rehabilitation Hospital	
2006	Progress in Intracortical Brain-Computer Interfaces	Lecture
	Department of Neuroscience, Brown University	
2006	Intracortically-based Brain-Computer Interfaces	Grand Rounds
	Department of Neurosurgery, MGH	
2006	Neurotechnology: Restoring Communication and Mobility	Seminar
	OT/PT/SLP, Massachusetts General Hospital	
2006	NeuroRobotics	Lecture
	Boston Society of Neurology and Psychiatry	
2007	Brain-Computer Interfaces in Neurorehabilitation	Grand Rounds
	PM&R, Spaulding Rehabilitation Hospital	
2007	Brain-Computer Interfaces	Grand Rounds
	Departments of Neurology, BIDMC/BWH/CH	
2007	Brain-Computer Interfaces	Grand Rounds
	Telestroke Service	
2007	Neurotechnology	Lecture
	Center for Engineering and Medicine, MGH	
2008	Brain-Body Interfaces	Lecture
	CIMIT	
2008, 2009, 2011	EEG and Intracortical Brain-Computer Interfaces	Lecture
	Stroke Service, MGH	
2009	Creating an IDE Trial at MGH	Lecture
	MGH Clinical Research Council	
2009	Intracortical Brain-Computer Interfaces	Grand Rounds
	Leonard Morse Hospital	
Sept 2010	Connected Health Symposium	Invited Panelist
	Partners HealthCare Center for Connected Health	
Jan 2011	Ethics in Implanted Neural Interfaces	Invited Faculty Lecture
	Brown University Bearcore	
Dec 2011	BrainGate Research	Invited Presentation
	Leonard Florence Center for Assisted Living, Chelsea, MA	
Apr 2012	BrainGate2: Neurologists Listening to Neurons	Invited Presentation
	MGH Case Management Education Committee	

2012	BrainGate: Collaborative Research in Neurorestoration General Executive Committee, The General Hospital Corporation	Invited Presentation
Nov 2012	Intracortical Neural Interfaces MGH Departments of Neurology, Neurosurgery, and Psychiatry	Combined Neuroscience Grand Rounds
March 2014	Machine-Brain Interface 1005 th Meeting of the Boston Society for Neurology and Psychiatry	Invited Presentation
2014	Intracortically-based Communication Devices Board of Trustees, The Boston Home	Invited Presentation
May 2015	BrainGate Research at MGH MGH Office for Research Career Development, Research Fellows Celebration	Keynote Presentation
Oct 2015	Neurologists Listening to Neurons" MGH Department of Psychiatry, Russell Museum, Boston	Lecture, MGH HUBweek
Oct 2015	Connected Health Symposium Partners HealthCare Center for Connected Health	Invited Panelist
Nov 2015	"Neural interfaces for restoring communication and mobility" American Physical Therapy Association of Massachusetts Fall Conference	Invited Presentation
Dec 2015	"Ethics of Brain-Computer Interfaces" Harvard Medical School, Center for BioEthics, Boston	Invited Presentation
Jan 2016	Neuroprosthetics and Learning MGH, Alzheimer's Disease Research Center, Boston	Lecture
Jan 2016	Human Performance Enhancement American Academy of Arts and Sciences, Somerville, MA	Panel, Dinner Lecture
Aug 2016	BrainGate Research Study Summer Learning Series, MGH, Stroke Research Center, Boston, MA	Lecture

Report of Regional, National and International Invited Teaching and Presentations

Regional

2005	The BrainGate Clinical Trial Northeastern Rehabilitation Center, Salem, NH	Plenary Talk
2005	Cortical Control of Limb Prosthesis: Rehabilitation R&D Service, Providence VA Medical Center	Bench to Bedside Lecture
March 2005	Chronic Intracortical Recordings in Humans: Frontiers In Clinical Neuroscience and Neurorehabilitation Dartmouth-Hitchcock Medical Center, Hanover, NH	Grand Rounds
2006	Frontiers in Intracortical Recordings Department of Neurology, University of Massachusetts Medical School	Grand Rounds
2006	Neurotechnology Futures Workshop Potomac Institute for Policy Studies, Charlestown, MA	Policy Discussion
2006	Restoring Function after Stroke Northeast Cerebrovascular Consortium, Boston, MA	Lecture

Jan 2007	Brain-Computer Interfaces and Restorative Neurotechnologies: Emerging Tools to Help Our Patients Association of Neuroscience Nurses (Boston Chapter)	Seminar
March 2007	Brain-Computer Interfaces and Restorative Neurotechnology CIMIT	Lecture
2009	Toward Restoring Communication and Mobility with Intracortical Neurotechnologies IEEE Engineering in Biology in Medicine (Boston Chapter)	Lecture
2009	Neurologists Listening to Neurons Department of Neurology, Boston University School of Medicine	Grand Rounds
Nov 2012	Brain-Machine Interfaces 33rd Annual Braintree Neurorehabilitation Conference, Cambridge, MA	Keynote Lecture
Oct 2014	Update: Intracortical Brain-Computer Interfaces Departments of Neurosurgery and Neurology, Boston University School of Medicine	Grand Rounds
Oct 2015	Turning Thought into Action: Brown, BrainGate, and the Restoration of Mobility and Independence Brown University, Providence, RI	Lecture
Jan 2016	Brain Science and Neurotechnology Brown University, Providence, RI	Lecture
Nov 2016	Neurotechnology Update: mindBEAGLE and BrainGate Spaulding Stroke Research Symposium, Charlestown, MA	Presenter
<i>National</i>		
2005	Intracortical Recordings: Frontiers in Neuroscience and Functional Neurosurgery Research in Neuroscience for Neurosurgeons, Woods Hole, MA	Lecture RUNN/Duke University
2006	Frontiers in Intracortical Recordings Albany Medical College	Grand Rounds
2006	Workshop on Brain-Computer Interfaces for Speech Synth. National Institute of Deafness and Communicative Disorders, Bethesda, MD	Lecture
2006	Brain-Machine Interface American Society of Stereotactic and Functional Neurosurgery, Boston, MA	Plenary Talk
2006	Neural Interface Workshop National Institute of Neurological Diseases and Stroke, Bethesda, MD	Special Presentation
2006	Restorative Neurology Department of Biomedical Engineering, Johns Hopkins University	Grand Rounds
2006	Applied Neural Computing IEEE Engineering in Medicine and Biology Annual Conference	Lecture
2007	Brain-Computer Interfaces for ALS ALS Association Annual Meeting, California	Lecture

2007	Brain-Computer Interfaces: Frontiers in Neurology and Neuroscience American Academy of Neurology, Boston, MA	Lecture
2007	Implanting Change: The Ethics of Neural Prosthetics Pennsylvania State University	Plenary Talk
2007	Neurologists Listening to Neurons Departments of Neurology and Neurosurgery, University of Pennsylvania	Grand Rounds
2007	Neural Interfaces for Restoration of Communication and Mobility Kavli Frontiers of Science, National Academy of Science, California	Lecture
2007	Neurologists Listing to Neurons: Brain-Computer Interfaces in Neurorehabilitation Dept. of Neurology, UCLA David Geffen School of Medicine	Grand Rounds
2007	Intracortical Recordings: Frontiers in Neuroscience and Functional Neurosurgery Research in Neuroscience for Neurosurgeons, Woods Hole, MA	Lecture RUNN/Duke University
2008	Brain-Computer Interfaces: Frontiers in Neurology and Neuroscience American Academy of Neurology, Chicago, IL	Lecture
2008	Brain-Computer Interfaces for Restoring Function After Stroke International Stroke Conference/American Stroke Association/American Heart Association	Special Lecture
2008	Inaugural Soffia Wathne Memorial Lecture Mt. Sinai School of Medicine, New York, NY	Special Lecture
2008	Brain-Comp. Interfaces and Restorative Neurotechnology Society for Laparoendoscopic Surgery, Chicago, IL	Keynote Speaker
2008	Brain-Computer Interfaces in Neurorehabilitation 29th Annual Braintree Neurorehabilitation Conference, Cambridge, MA	Lecture
2008	Intracortical Recordings: Frontiers in Neuroscience and Functional Neurosurgery Research in Neuroscience for Neurosurgeons, Woods Hole, MA	Lecture RUNN/Duke University
2009	Neurologists Listening to Neurons PM&R, Columbia/Cornell School of Medicine	Grand Rounds
2009	Brain-Computer Interfaces: Frontiers in Neurology and Neuroscience American Academy of Neurology, Seattle, WA	Lecture
2009	Brain-Computer Interfaces Singularity University, NASA Ames Research Center, Palo Alto, CA	Lecture
2009	Research in Restorative Neurotechnology Rocky Mountain Brown Club	Lecture
2009	Neurologists Listening to Neurons Neurology, University of Pittsburgh Medical Center, Pittsburgh, PA	Grand Rounds

2009	Clinical Trials of an Intracortical Neural Interface System Biomedical Engineering Society, Pittsburgh, PA	Special Lecture
2009	Intracortically-based Brain-Computer Interfaces and Restorative Neurotechnologies 15th Annual Brain Injury Symposium, Miami, FL	Keynote Lecture
2009	Intracortical Recordings: Frontiers in Neuroscience and Functional Neurosurgery Research in Neuroscience for Neurosurgeons, Woods Hole, MA	Lecture RUNN/Duke University
2009	Neurologists Listening to Neurons Neurology, Northwestern University Medical School, Chicago, IL	Grand Rounds
2010	Brain-Computer Interfaces Yeshiva University, New York, NY	Invited Lecture
2010	Intracortically-based Brain-Computer Interfaces and Restorative Neurotechnologies Boston-Area Brain Machine Interface Group, Boston University	Invited Lecture
2010	Brain-Computer Interfaces: Frontiers in Neurology and Neuroscience American Academy of Neurology, Toronto, Ontario, Canada	Lecture
2010	American Society of Stereotactic and Functional Neurosurgery, Biannual Meeting New York Marriott Downtown, New York, NY	Invited Lecture
2010	BrainGate Update 4th International Brain-Computer Interface Conference, Asilomar, CA	Oral Presentation
2010	Intracortically-Based Brain-Computer Interfaces Transforming Technologies Conference Rancho Los Amigos National Rehabilitation Hospital, Downey, CA	Invited Lecture
2010	BrainGate2 Update New York Academy of Sciences "Building Better Brains" Aspen Brain Forum, Given Institute, Aspen, CO	Invited Lecture
2010	Intracortical Recordings: Frontiers in Neuroscience and Functional Neurosurgery Research in Neuroscience for Neurosurgeons, Woods Hole, MA	Lecture RUNN/Duke University
2010	Neurologists Listening to Neurons SUNY Downstate Medical Center, Brooklyn, NY	Grand Rounds
2010	Neurotechnology Panel Discussion Partners Connected Health Symposium, Boston, MA	Invited Panelist
2010	BrainGate Research Study Rhode Island Neurological Society	Invited Lecture
2011	Neurologists Listening to Neurons Emory University School of Medicine, Atlanta, GA	Grand Rounds
2011	Intracortical Brain-Computer Interfaces	Invited Lecture and Panelist

American Association for the Advancement of Science, and The Dana Foundation, “Neurotechnology and the Military”, hosted by House Armed Services Committee, Emerging Threats and Capabilities Subcommittee, Rayburn House Office Building, Washington, DC

2011	IEEE Engineering in Medicine and Biology Conference Annual IEEE EMBC, Boston, MA	Invited Lectures (4)
2011	Intracortical Recordings: Frontiers in Neuroscience and Functional Neurosurgery Research in Neuroscience for Neurosurgeons, Woods Hole, MA	Lecture RUNN/Duke University
Oct 2011	Update on BrainGate Pilot Clinical Trials Congress of Neurological Surgeons, Washington, DC	Special Lecturer
Nov 2011	Restoring Communication and Mobility Association for Research in Nervous and Mental Diseases, 91st Annual Meeting, Rockefeller University, NY	Invited Speaker
June 2012	Update on BrainGate Pilot Clinical Trials American Association for Stereotactic and Functional Neurosurgery, San Francisco, CA.	Invited Presenter
June 2012	Clinical Imperatives in BCIs Neural Interfaces Conference, Salt Lake City, UT	Invited Speaker and Panelist
June 2012	Intracortically-based Neural Interfaces Department of Neurosurgery, University of Texas - Southwestern, Houston, TX	Grand Rounds Presenter
Nov 2012	BrainGate Pilot Clinical Trials Miami Project to Cure Paralysis, University of Miami, FL	Gail F. Beach Memorial Lecture Series
Nov 2012	Intracortically-based Restorative Neurotechnologies 26th Annual Roland D. Pinkham, M.D., Basic Science Lectureship	Invited Speaker and Panelist
Dec 2012	Neurologists Listening to Neurons Yale School of Medicine, New Haven, CT	Grand Rounds Presenter
Feb 2013	BrainGate FutureMed, Singularity University, California	Keynote Speaker
Feb 2013	Progress and Lessons Being Learned: BrainGate Pilot Trials 1st International Conference on Brain-Neural Machine Interfaces, Houston, TX	Invited Speaker
Feb 2013	Intracortical Neural Interfaces for Restoring Function American Society of Experimental Neurotherapeutics, Washington, DC	Invited Speaker and Panelist
April 2013	Brain Computer Interfaces and Neurotechnology Lawrence Technological University, Detroit, MI	Cisler Lecturer
April 2013	Intracortical Neural Interfaces for Restoring Function Michigan State University/Spectrum Health, Grand Rapids, MI	Grand Rounds
May 2013	Intracortical Neural Interfaces for Restoring Function Inova Fairfax Hospital, Fairfax, VA	Visiting Professor and Grand Rounds
June 2013	Implantable BCI Panel, 5th International BCI Meeting Asilomar, Pacific Grove, CA	Invited Speaker

Oct 2013	Presidential Symposium American Neurological Association Annual Meeting, New Orleans, CA	Invited Lecture
Dec 2013	BrainGate and Neurotechnologies Annual Retreat, UCSF/Berkeley Center for Neural Engineering and Prostheses	Keynote Lecture
Feb 2014	The Next Big Thing in Stroke Plenary Session International Stroke Conference, San Diego, CA	Invited Speaker
July 2014	BrainGate Research International Surgical Conference	Special Lecture
Sept 2014	Listening to Neurons International Maternal Fetal Surgical Society	Keynote Lecture
March 2015	Restoring Communication and Mobility University of Alabama, Birmingham	Keynote Lecture
June 2015	Neurologists Listening to Neurons University of Virginia School of Medicine	Grand Rounds
Oct 2015	Prosthesis and Brain Interface 13th Neurocritical Care Society Meeting, Scottsdale, AZ	Invited Speaker
Feb 2016	Neuroethics Workgroup NIH BRAIN Multi-Council Working Group, Bethesda, MD	Panelist
Sep 2016	Session: Agency and Brain Stimulation NTC Kavli Futures Symposium, Columbia University, New York, NY	Invited Panelist
Oct 2016	The Neuroscience of Consciousness and Coma ANA Pre-Meeting Symposium, Baltimore, MD	Chair
Nov 2016	Intracortical Neural Interfaces for the Restoration of Communication and Mobility 10 th International Workshop on Electroencephalography, San Diego, CA	Presenter
Nov 2016	Intracortical BCI Pilot Clinical Trials - Progress, Promise, Challenges, and Opportunities ASNR Annual Meeting, San Diego, CA	Invited Speaker
Nov 2016	Session: Brain Machine Interface for Neural Prosthetics and Recovery of Function ASNR Annual Meeting, San Diego, CA	Session Director
Dec 2016	Neurologists Listening to Neurons SUNY Downstate, New York, NY	Grand Rounds Presenter
<i>International</i>		
2004	Neuronal Recordings as Input to Robotic Devices University Medical Center, Utrecht, Netherlands	Lecture
2005	Clinical Studies in Neuromotor Prostheses 3rd International Brain-Computer Interface Meeting, Rensselaer, NY	Lecture
2005	Clinical Trials and Frontiers in Intracortical BCIs and Human Neuromotor Prostheses	Lecture

Society for Psychophysiological Research, Lisbon, Portugal

2006	Intracortical Recordings and Plasticity Winter Conference on Neural Plasticity, Barbados	Lecture
2006	Chronic Intracortical Recordings for Restoring Neurological Function Japanese Neurosurgical Society, Kyoto, Japan	Plenary Presentation
2006	Intracortically-based Brain-Computer Interfaces: First Experience with a Person with ALS Motor Neuron Disease Association, Yokohama, Japan	Lecture
2007	Intracortical BCIs and Restorative Neurotechnology 2nd International BCI2000 Workshop, Beijing, China	Lecture
2007	BrainGate Pilot Clinical Trial Update International Neuromodulation Society and North American Neuromodulation Society, Acapulco, Mexico	Lecture INS/NANS
2008	Brain Control of Prosthetic Devices for Humans With Tetraplegia Institut Guttmann Annual Spinal Cord Injury Symposium, Institut Guttmann, Barcelona, Spain	Presentation
2010	Intracortical BCIs for Stroke Rehabilitation Chinese University of Hong Kong, Hong Kong, China	Invited Lecture
2010	Frontiers in Clinical Neuroscience American Academy of Neurology Annual Meeting, Toronto, Ontario, Canada	Plenary Lecture
2012	Intracortically-based Brain Computer Interfaces BMI-Osaka, Japan Neurosurgery Society, Osaka, Japan	Invited Lecture
2013	Plenary Lecture, International Conference on Control, Automation and Systems ICCAS Annual Meeting, Gwangju, Korea	(could not attend)
2013	Opening, Centre for Translational Systems Neuroscience and Institute for Neuroscience Annual Lecture University of Newcastle, Newcastle-Upon-Tyne, UK	Inaugural Lecture
2013	International Center for Scientific Debate Barcelona, Spain	Lecture
2014	Federation of European Neuroscience Societies Controlling Neurons, Circuits, and Behavior Copenhagen, Denmark	Invited Lecture
2015	Lessons Being Learned in the BrainGate Pilot Clinical Trials and, Roadmaps for BMI research Tokyo, Japan	Keynote Lecture
2016	Neuroprosthetics Workshop University of Valencia Valencia, Spain	Invited Lecture
2016	Brain-machine interface systems for motor rehabilitation	Invited Speaker

International Conference on Neurorehabilitation

Segovia, Spain

Report of Clinical Activities and Innovations**Current Licensure and Certification:**

2003	Massachusetts Board of Registration in Medicine
2005	Diplomate in Neurology, American Board of Psychiatry and Neurology
2007	New Hampshire Board of Medicine
2008	Diplomate in Vascular Neurology #491, American Board of Psychiatry and Neurology
2008	Maine Board of Licensure in Medicine
2011	Diplomate in Neurocritical Care, United Council of Neurologic Subspecialties

Practice Activities (all affiliated with Harvard Medical School):

Neurocritical Care	Attending	NeuroICU, MGH	Six weeks per year
Neurocritical Care	Attending	NeuroICU, MGH	One weekend per month
Acute Stroke	Consultation	ED and Interventional Suite, MGH	2 evenings per month

Report of Technological and Other Scientific Innovations

BrainGate2 Neural Interface System

Investigational Device Exemption, BrainGate2 Neural Interface System
FDA IDE G090003

Sponsor-Investigator, Study Director, and Principal Investigator for academically directed, federally and philanthropically funded pilot clinical trial of BrainGate Neural Interface System. Trial is the clinical core resource for multiple research pursuits at MGH, Brown University, Case Western Reserve University, Stanford University, and the Department of Veterans Affairs, all directed toward developing improved assistive technologies for people with paralysis or limb loss.

International Patent Application

Methods for Prediction and Early Detection of Neurological Events; filed December 5, 2011.

Truccolo, W.T., Hochberg L.R., Donoghue, J.P., and Cash, S.S.

PCT/US11/63269

Report of Education of Patients and Service to the Community Activities

2006	Speaker	Brain Injury Association of New Hampshire
2006	Keynote Lecturer	Spastic Paraplegia Foundation
2007	Speaker	No Barriers Festival
	"Restorative Neurotechnology for Persons with Paralysis"	
2008	Honorary Benefit Gala Committee	The Boston Home
2010	Keynote Lecturer	Steve Saling ALS Residence Grand Opening
2010 - 2011	Research featured at "The Brain" exhibit	American Museum of Natural History, NYC
2011	Research featured at RoboLab exhibit	Ars Electronica Center, Linz, Austria
2012	Honorary Benefit Gala Committee	The Boston Home
2012 - Present	Member, Board of Trustees	The Boston Home
	Established in 1881, The Boston Home, in Dorchester, Massachusetts, is a not-for-profit specialized care residence for 96 adults with advanced multiple sclerosis and other neurological diseases.	
2013 - Present	Founder and Board Member	Speak Your Mind Foundation
	A spin-off of my laboratory, SYMFound (www.speakyourmind.org) is a not-for-profit foundation developing and providing low-cost, personalized assistive technologies for people with motor and speech disabilities.	

Educational Material for Patients and the Lay Community

2006 - Present Interviewed/quoted by:

60 Minutes/CBS News (International), CNN (International), CBS-TV (National), CBS4-TV (Boston), WCVB/ABC-TV (Boston), WFXT/Fox-TV (Boston), WHDH/NBC-TV (Boston), BBC (radio), Canadian Broadcasting Company (radio), News Network (Internet), Washington Post, Providence Journal, Providence Business Journal, Reuters, San Jose Mercury News, The Telegraph (UK), The Australian, Liberation/Paris, Science Magazine, Lancet, Technology Review, Wired Magazine, Applied Neurology, Neurocritical Care

Newsletter, Quest (Muscular Dystrophy Association newsletter), Alzheimer's Research Forum, Boston Globe, Men's Health, National Public Radio, ABC News (National), Brown Daily Herald, Harvard Medicine, Science News and Views, Minnesota Public Radio, Daily Planet (Canada), NPR Science Friday with Ira Flato, NPR All Things Considered with Robert Siegel, Wall Street Journal, PBS News Hour with Margaret Warner, NOVA Science Now with David Pogue, Michael Chorost, Business Insider, Wired UK, and others.

Other Recognition

1999 Who's Who Among Students in American Universities And Colleges
2010 Who's Who in America

Report of Scholarship

Publications:

Peer-Reviewed Publications in print or other media

Research investigations

1. Burrow M, Dugger J, Humphrey DR, Reed DJ, and **Hochberg LR**. Cortical control of a robot using a time-delay neural network. In: Proceedings of the Fifth International Conference on Rehabilitation Robotics; 1997.
2. **Hochberg LR**, Sims JR, Davis BT. West Nile encephalitis in Massachusetts. *N Engl J Med*. 2002; 346(13):1030-1.
3. Kubler A, Mushahwar VK, **Hochberg LR**, Donoghue JP. BCI Meeting 2005-workshop on clinical issues and applications. In: IEEE Trans Neural Syst Rehabil Eng; June 2005; New York; 2006. p. 131-4.
4. **Hochberg LR**, Serruya MD, Friehs GM, Mukand JA, Saleh M, Caplan AH, Branner A, Chen D, Penn RD, Donoghue JP. Neuronal ensemble control of prosthetic devices by a human with tetraplegia. *Nature*. 2006; 442(7099):164-71.
5. **Hochberg LR**, Donoghue JP. Sensors for brain-computer interfaces. *IEEE Eng Med Biol Mag*. 2006; 25(5):32-8.
6. Aaron RK, Herr HM, Ciombor DM, **Hochberg LR**, Donoghue JP, Briant CL, Morgan JR, Ehrlich MG. Horizons in prosthesis development for the restoration of limb function. *J Am Acad Orthop Surg*. 2006; 14(10):S198-204.
7. Donoghue JP, **Hochberg LR**, Nurmikko AV, Black MJ, Simeral JD, and Friehs G. Neuromotor Prosthesis Development. *RI Medicine and Health*. 2007; 90(1);12-15.
8. Donoghue JP, Black M, Nurmikko A, and **Hochberg LR**. Assistive technology and robotic control using MI ensemble-based neural interface systems in humans with tetraplegia. *Journal of Physiology*. 2007; March 15; 569(3) p. 603-11. PMC2151381.
9. Kim S-P, Simeral JD, **Hochberg LR**, Donoghue JP, Friehs GM, and Black MJ. Multi-state decoding of point-and-click control signals from motor cortical activity in a human with tetraplegia. *IEEE Engineering in Medicine and Biology International Conference on Neural Engineering*. 2007; 486-489.
10. Truccolo W, Friehs GM, Donoghue JP, **Hochberg LR**. Primary motor cortex tuning to intended movement kinematics in humans with tetraplegia. *Journal of Neuroscience*, 2008; 28(5);1163-1178.
11. Kim S-P, Simeral JD, **Hochberg LR**, Donoghue JP, and Black MJ. Neural control of computer cursor velocity by decoding motor cortical spiking activity in humans with tetraplegia. *J. Neural Eng*. 2008; 5: 455-476. PMC2911243.
12. Jha RM, **Hochberg LR**, Hakimelahi R, Hirsch JA, González RG, and Yoo AJ. Hyperacute stent placement in acute cervical internal carotid artery occlusions: the potential role of magnetic resonance imaging. *J. NeuroIntervent. Surg*. 2009; 1: 171-174.
13. Truccolo W, Hochberg LR, and Donoghue JP. Collective Dynamics in Human and Monkey Sensorimotor Cortex: Predicting Single Neuron Spikes from Intra and Inter-Areal Ensemble Spiking Histories. *Nature Neuroscience* 2010 Jan;13(1):105-11. PMC2820252.
14. Nurmikko AV, Donoghue JP, **Hochberg LR**, Patterson, WR, Song Y-K, Bull CW, Borton DA, Laiwalla F, Park S, Ming Y, Aceros J. Listening to Brain Microcircuits for Interfacing With External World—Progress in Wireless Implantable Microelectronic Neuroengineering Devices. *Proc IEEE*. 2010; 98(3); 375-388.
15. Keller CJ, Truccolo W, Gale JT, Eskandar E, Thesen T, Carlson C, Devinsky O, Kuzniecky R, Doyle WK, Madsen JR, Schomer DL, Mehta AD, Brown EN, **Hochberg LR**, Ulbert I, Halgren E, and Cash SS. Heterogeneous neuronal firing patterns during interictal epileptiform discharges in the human cortex. *Brain* 2010; 133: 1668-1681.
16. Ajiboye A, **Hochberg LR**, Donoghue JP, and Kirsch RF. Application of system identification methods for decoding imagined single-joint movements in an individual with high tetraplegia. *Conf Proc IEEE Eng Med Biol Soc*. 2010; 1:2678-81.
17. Malik WQ, Truccolo W, Brown EN, and **Hochberg LR**. Efficient Decoding with Steady-State Kalman Filter in Neural Interface Systems. *IEEE Trans. Neural Syst. Rehab. Engin*. 2011; 19(1):25-34. (PMC3044609).
18. Kim S-P, Simeral JD, **Hochberg LR**, Donoghue JP, Friehs GM, and Black MJ. Point-and-click cursor control with an intracortical neural interface system in humans with tetraplegia. *IEEE Trans. Neural Syst. Rehab. Engin*. 2011. 19(2):193-203
19. Simeral JD, Kim S-P, Black MJ, Donoghue JP, **Hochberg LR**. Neural control of cursor trajectory and click by a human with tetraplegia 1000 days after implant of an intracortical microelectrode array. *J. Neural Engin*. 2011; 8(2) 02027.
20. Truccolo W, Donoghue JA, **Hochberg LR**, Eskandar E, Madsen J, Anderson WS, Brown EN, Halgren E, and Cash SS. Single neuron dynamics in human focal epilepsy. *Nature Neuroscience* 2011; 14(5): 635-41.

21. Chadwick EK, Blana D, Simeral JD, Lambrecht J, Kim S-P, Cornwell AS, Taylor DM, **Hochberg LR**, Donoghue JP, and Kirsch RF. Continuous neuronal ensemble control of simulated arm reaching by a human with tetraplegia. *J. Neural Engin.* 2011 8(3): 034003.
22. Peyrache A, Dehghani N, Eskandar EN, Madsen JR, Anderson WS, Donoghue JA, **Hochberg LR**, Halgren E, Cash SS, Destexhe A. Spatio-temporal dynamics of neocortical excitation and inhibition during human sleep. *Proc Natl Acad Sci USA* 2012; 109(5):1731-6.
23. **Hochberg LR**, Bacher D, Jarosiewicz B, Masse NY, Simeral JD, Vogel J, Haddadin S, Liu J, Cash SS, van de Smagt P, and Donoghue JP. Reach and grasp by people with tetraplegia using a neurally controlled robotic arm. *Nature* 2012; 485: 372-375.
24. Ajiboye AB, Simeral JD, Donoghue JP, **Hochberg LR**, and Kirsch RF. Prediction of Imagined Single-Joint Movements in a Person with High Level Tetraplegia. *IEEE Transactions in Biomed. Engin.* 2012; Oct 59(10):2755-65.
25. Lewis LD, Weiner VS, Mukamel EA, Donoghue JA, Eskandar EN, Madsen JR, Anderson WS, **Hochberg LR**, Cash SS, Brown EN, and Purdon PL. Rapid fragmentation of neuronal networks at the onset of propofol-induced unconsciousness. *Proc Natl Acad Sci USA.* 2012 Nov 5.
26. Kramer MA, Truccolo W, Eden UT, Lepage KQ, **Hochberg LR**, Eskandar EN, Madsen JR, Lee JW, Maheshwari A, Halgren E, Chu CJ, and Cash SS. Human seizures self-terminate across spatial scales via a critical transition. *Proc Natl Acad Sci USA.* 2012 Dec 18;109(51):21116-21.
27. Shaikhouni A, Donoghue JP, and **Hochberg LR**. Somatosensory Responses in a Human Motor Cortex. *J Neurophysiol.* 2013 Apr;109(8):2192-204.
28. Chan AM, Dykstra AR, Jayaram V, Leonard MK, Travis KE, Gygi B, Baker JM, Eskandar E, **Hochberg LR**, Halgren E, and Cash SS. Speech-Specific Tuning of Neurons in Human Superior Temporal Gyrus. *Cereb Cortex.* 2013 May 16.
29. Perge JA, Homer ML, Malik WQ, Cash S, Eskandar E, Friehs G, Donoghue JP, and **Hochberg LR**. Intra-day signal instabilities affect decoding performance in an intracortical neural interface system. *J Neural Eng.* 2013 Jun;10(3):036004.
30. Edlow BL, Giacino JT, Hirschberg RE, Gerrard J, Wu O, **Hochberg LR**. Unexpected Recovery of Function After Severe Traumatic Brain Injury: The Limits of Early Neuroimaging-Based Outcome Prediction. *Neurocrit Care.* 2013; 19: 364-375.
31. Jarosiewicz B, Masse NY, Bacher D, Cash SS, Eskandar E, Friehs G, Donoghue JP, **Hochberg LR**. Advantages of closed-loop calibration in intracortical brain-computer interfaces for people with tetraplegia. *J Neural Eng.* 2013 Aug; 10(4):046012.
32. Homer M, Perge J, Black M, Harrison M, Cash S, **Hochberg LR**. Adaptive Offset Correction for Intracortical Brain Computer Interfaces. *IEEE Trans Neural Syst Rehabil Eng.* 2014 Mar;22(2):239-48.
33. Perge JA, Zhang S, Malik WQ, Homer ML, Cash S, Friehs G, Eskandar EN, Donoghue JP, **Hochberg LR**. Reliability of directional information in unsorted spikes and local field potentials recorded in human motor cortex. *J Neural Eng.* 2014 Jun 12; 11(4):046007.
34. Truccolo W, Ahmed OJ, Harrison MT, Eskandar EN, Cosgrove GR, Masden JR, Blum AS, Potter NS, **Hochberg LR**, Cash SS. Neuronal ensemble synchrony during human focal seizures. *J. Neurosci* 2014 July 23;34(30)9927-44.
35. Masse NY, Jarosiewicz B, Simeral JD, Bacher D, Stavisky SF, Cash SS, Oakley EM, Berhanu E, Eskandar E, Friehs G, **Hochberg LR**, Donoghue JP. Non-causal spike filtering improves decoding of movement intention for intracortical BCIs. *J. Neurosci. Meth.* 2014 Oct 30;236:58-67.
36. Malik WQ, **Hochberg LR**, Donoghue JP, and Brown EN. Modulation Depth Estimation and Variable Selection in State-Space Models for Neural Interfaces. *IEEE Trans. Biomed. Eng.* 2015 Feb;62(2):570-81.
37. Bacher D, Jarosiewicz B, Masse N, Stavisky S, Simeral J, Newell K, Oakley E, Cash SS, Friehs G, **Hochberg LR**. Neural point-and-click communication by a person with incomplete locked-in syndrome. *Neurorehab. Neural Repair* 10 Nov. 2014. (Pub. online).
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