UNIVERSITY of CALIFORNIA, SAN DIEGO

Gabriel A. Silva, MSc, PhD

Professor
Department of Bioengineering and Department of Ophthalmology
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(Last updated: August 25, 2014)

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Academic Appointments

All listed academic faculty appointments are at the University of California, San Diego

Full Professor with Tenure (2014 to present)
Department of Bioengineering, Jacobs School of Engineering
Department of Ophthalmology, School of Medicine

Associate Professor with Tenure (2009 to 2014)
Jacobs Faculty Fellows Professor of Bioengineering (2009 to 2014)
Department of Bioengineering, Jacobs School of Engineering
Department of Ophthalmology, School of Medicine

Co-Director, Retinal Engineering Center (2009 to present)
Institute for Engineering in Medicine (IEM)

Affiliated faculty member (2008 to present)
Department of NanoEngineering

Assistant Professor (2004 to 2009)
Department of Bioengineering, Jacobs School of Engineering
Department of Ophthalmology, School of Medicine

Faculty member in the following programs and institutes:
Center for Multiscale Imaging of Living Systems (2011 to present)
Institute for Neural Computation (2009 to present)
Biocircuits Institute (2009 to present)
Retinal Engineering Center (2008 to present)
Institute of Engineering in Medicine (2008 to present)
Neurosciences Graduate Program (2004 to present)
Computational Neurobiology Program (2004 to present)
Stein Institute for Research on Aging (2004 to present)
Materials Science and Engineering Graduate Program (2004 to present)
Whitaker Institute for Biomedical Engineering (2004-2008)

Academic Training

Postdoctoral Fellowship (2001-2003)
Institute for BioNanotechnology in Medicine (IBNAM) and Department of Neurology
Northwestern University, Chicago
Advisors: Dr. Samuel I. Stupp (IBNAM) and Dr. John A. Kessler (Neurology)

Doctorate (Ph.D., 1998-2001)
Department of Bioengineering and Department of Ophthalmology
University of Illinois at Chicago
Title: Experimental and theoretical study of mouse rod photoreceptors in vivo
Advisor: Dr. David R. Pepperberg (Ophthalmology)

Master of Science (M.Sc., 1996-1998)
Department of Physiology and Graduate Program in Neuroscience
University of Toronto
Title: Metabotropic glutamate receptor expression in rat spinal cord astrocytes
Advisors: Dr. Elizabeth Theriault (Neurosurgery) and Dr. Linda Mills (Physiology)

Honors Bachelors of Science (Hon. B.Sc., 1992-1996) Human physiology, University of Toronto
Bachelors of Science (B.Sc., 1992-1996) Biophysics, University of Toronto

Awards and Honors

Career Milestone Award, University of California, San Diego (2014)
Biocom Cell Art Exhibit winning entry: “SEM of cortical neurons on optoelectronics nanowires” (2014)
Society for Neuroscience (SFN) 2013 annual meeting ‘Hot Topic’ abstract (2013)
‘Faculty of the Year’ award for undergraduate education, Tau Beta Pi Engineering Honors Society (2012)
Beverley and Clarence Chandran Distinguished Lecture, Duke University (2010)
Jacobs Faculty Fellows Chair in Bioengineering (2009 to 2014)
Selection to “Nanoscience: The best of NATURE publications” (2009)
National Academy of Engineering (NAE) Frontiers Conference selection (2009)
American Society of Mechanical Engineers (ASME) Y.C. Fung Young Investigator Award (2008)
Wallace Coulter Foundation Early Career Award (2007)

National Science Foundation/Science Magazine Visualization Challenge semi-finalist (2007)
Associated Students of UCSD Faculty Award for undergraduate education (2005)
IEEE/EMBS Excellence in Neural Engineering Award (2005)
UCSD Faculty Career Development Award (2005)
Ray Thomas Edwards Medical Foundation Young Investigator Recognition Award (2004)
UCSD Academic Senate Faculty Award (2004)
Stein Institute for Research on Aging (SIRA) Faculty Award (2004)
Whitaker Foundation-University of California, San Diego Leadership Award (2003-2005)
Retina Research Foundation Travel Fellowship (2002)
Natural Sciences and Engineering Research Council (NSERC) Graduate Fellowship (1999-2001)
American Society for Artificial Internal Organs (ASAIO) Biomedical Engineering Fellowship (1999)
College of Engineering Dean's Fellowship, University of Illinois at Chicago (1998)
University of Toronto Open Fellowship (1998, declined)
Institute of Medical Science Research Studentship, University of Toronto (1998, declined)

Publications

Primary Research

CL MacDonald, N Bhattacharya, BP Sprouse, and GA Silva (*under review*) Efficient computation of the Grunwald-Letnikov fractional diffusion derivative using adaptive time step memory..

J Blumling III and GA Silva (*in press*) Sulforhodamine B-loaded polyethyleneimine/silica hybrid nanoparticles. *Journal of Nanoneuroscience.*

B Maranhao, P Biswas, JL Duncan KE Branham, GA Silva MA Naeem, SN Khan, S Riazuddin, JF Hejtmancik, JR Heckenlively, SA Riazuddin, PL Lee, and R Ayyagari (2014) exomeSuite: Whole exome sequence variant filtering tool for rapid identification of putative disease causing SNVs/indels. *Genomics* 103:169-176.

CL MacDonald and GA Silva (2013) A positive feedback cell signaling nucleation model of astrocyte dynamics. ***Frontiers in Neuroengineering*** 6:4. doi: 10.3389/fneng.2013.00004.

K Nizar, P Tian, Q Cheng, PA Saisan, H Uhlirova, L reznichenko, K Weldy, TY Steed, VB Sridhar, CL MacDonald, J Cui, S Sakadzic, DA Boas, TI Beka, GT Einevoll, J Chen, E Masliah, AM Dale, GA Silva, and A Devor (2013) In vivo stimulus-induced vasodilation precedes astrocytic calcium increase. ***Journal of Neuroscience*** 33:8411-8422.

S-J Kim, J Blumling, MC Davidson, H Saad, S-Y Eun, and GA Silva (2012) Calcium and EDTA induced folding and unfolding of calmodulin on functionalized quantum dot surfaces. ***Journal of Nanoneuroscience*** 2:75-81.

C Evans, M Fitzgerald, T Clemons, M House, B Padman, J Shaw, M Saunders, A Harvey, B Zdyrko, I Luzinov, GA Silva, S Dunlop, KS Iyer (2011) Multimodal analysis of PEI-mediated endocytosis of nanoparticles in neural cells. ***ACS Nano*** 5:8640-8648.

M Buibas and GA Silva (2011) A framework for simulating and estimating the state and functional topology of complex dynamic geometric networks. ***Neural Computation*** 23:183-214. [***ArXiv*** 0908.3934].

M Buibas, D Yu, K Nizar, and GA Silva (2010) Mapping the Spatiotemporal Dynamics of Calcium Signaling in Cellular Neural Networks Using Optical Flow. ***Annals of Biomedical Engineering*** 38:2520-2531. [***ArXiv*** 0912.0265].

SK Chow, D Yu, CL MacDonald, M Buibas, and GA Silva (2010) Amyloid-β-peptide directly induces spontaneous calcium oscillations, intercellular calcium waves, and gliosis in rat cortical astrocytes. *ASN Neuro* 2(1):art:e00026.doi:10.1042/AN20090035.

D Yu, M Buibas, Z Singer, I Lee, and GA Silva (2009) Characterization of calcium mediated intracellular and intercellular signaling in the rMC-1 glial cell line. *Cellular and Molecular Bioengineering* 2:144-155.

S Pathak, R Tolentino, K Nguyen, L DAmico, E Barron, L Cheng, WR Freeman, and GA Silva (2009) Quantum dot labeling and imaging of GFAP intermediate filaments and gliosis in the rat neural retina and dissociated astrocytes. *Journal of Nanoscience and Nanotechnology* 9:5047-5054.

F Mojana, L Cheng, D-WG Bartsch, GA Silva, I Kozak, N Nigam, and WR Freeman (2008) The role of abnormal vitreomacular adhesion in age-related macular degeneration: Spectral OCT and surgical results. *American Journal of Ophthalmology* 146:218-227.

C MacDonald, D Yu, M Buibas, and GA Silva (2008) Diffusion modeling of ATP signaling suggests a partially regenerative mechanism underlies astrocyte intercellular calcium waves. *Frontiers in Neuroengineering* 1:1-13.

I Falkenstein, L Cheng, F Wong-Staal, A Tammewar, E Barron, GA Silva, Q-X Li, D Yu, G Liu, N Ke, J MacDonald, and WR Freeman (2008) Toxicity and intraocular properties of a novel long acting anti-proliferative and anti-angiogenic compound IMS2186. *Current Eye Research* 33:599-609.

M Hashemi, M Buibas, and GA Silva (2008) Automated detection of intercellular signaling in astrocyte networks using the converging squares algorithm. *Journal of Neuroscience Methods* 170:294-299.

S Pathak, MC Davidson, and GA Silva (2007) Characterization of the functional binding properties of antibody conjugated quantum dots. *NanoLetters* 7:1839-1845.

I Kozak, OR Kayikcioglul, Cheng, I Falkenstein, GA Silva, D Yu, and WR Freeman (2006) The effect of recombinant human hyaluronidase on dexamethasone penetration into the posterior segment of the eye after sub-Tenon's injection. *Journal of Ocular Pharmacology and Therapeutics* 22:362-369.

M Ho, D Yu, MC Davidson, and GA Silva (2006) Comparison of standard surface chemistries for culturing mesenchymal stem cells prior to neural differentiation. *Biomaterials* 27:4333-4339.

S Pathak, E Cao, MC Davidson, S Jin, and GA Silva (2006) Quantum dot applications in neuroscience: New tools for probing neurons and glia. *Journal of Neuroscience* 26:1893-1895.

GA Silva, C Czeisler, KL Niece, E Beniash, D Harrington, JA Kessler, and SI Stupp (2004) Selective differentiation of neural progenitor cells by high-density epitope nanofibers. *Science* 303:1352-1355.

GA Silva and DR Pepperberg (2004) Step response of mouse rod photoreceptors modeled in terms of elemental photic signals. *IEEE Transactions on Biomedical Engineering* 51:3-12.

GA Silva, JR Hetling, and DR Pepperberg (2001) Dynamic and steady-state light adaptation of mouse rod photoreceptors in vivo. *Journal of Physiology* 534:203-216.

GA Silva, E Theriault, LR Mills, PS Pennefather, and CJ Feeney (1999) Group I and II metabotropic glutamate receptor expression in cultured rat spinal cord astrocytes. *Neuroscience Letters* 263:117- 120.

GA Silva, CJ Feeney, LR Mills, and E Theriault (1998) A novel and rapid method for culturing pure rat spinal cord astrocytes on untreated glass. *Journal of Neuroscience Methods* 80: 75-79.

Invited Reviews and Commentaries

GA Silva (in preparation- to be published in 2014) Interfacing with the brain: Neurotechnologies for nanoscale electrical stimulation and recording. *Nature Reviews Neuroscience.*

GA Silva and ML Khraiche (2013) Nanotechnologies for recording and stimulating from excitable cells. *Discovery Medicine* 15:357-365.

A Devor, PA Bandettini, DA Boas, JM. Bower, RB. Buxton, M Carandini, LB. Cohen, AM. Dale, GT Einevoll, P Fox, MA Franchescini, K Friston, JG Fujimoto, MA Geyer, JH Greenberg, E Halgren, MS. Hämäläinen, KD Harris, M Häusser, F Helmchen, BT Hyman, A Jasanoff, TL Jernigan, LL Judd, S-G Kim, D Kleinfeld, NJ Kopell, M Kutas, KK Kwong, ME Larkum, EH. Lo, PJ Magistretti, JB Mandeville, E Masliah, PP Mitra, WC Mobley, CI Moore, MA Moskowitz, A Nimmerjahn, JH Reynolds, BR Rosen, BM Salzberg, CB Schaffer, GA Silva, PTC. So, NC Spitzer, RB Tootell, DC Van Essen, W Vanduffel, SA Vinogradov, LL Wald, LV Wang, B Weber, AG. Yodh (2013) The challenge of connecting the dots in B.R.A.I.N. *Neuron* 80:270-274.

V Parpura GA Silva, PA Tass, KE Bennet, M Meyyappan, J Koehne, KH Lee, and RJ Andrews (2012) Neuromodulation: selected approaches and challenges. *Journal of Neurochemistry* 10.1111/jnc.12105

J Blumling and GA Silva (2012) Targeting the brain: Advances in drug delivery. *Journal of Current Pharmaceutical Biotechnology* 13:2417-2426

GA Silva (2011) The need for the emergence of mathematical neuroscience: Beyond computation and simulation. *Frontiers in Computational Neuroscience* 5:51. doi: 10.3389/fncom.2011.0005.

GA Silva (2010). Nanotechnology applications and approaches for neuroregneration and drug delivery to the CNS. *Annals of the New York Academy of Sciences* 1199:221-230.

GA Silva (2009) Shorting neurons with carbon nanotubes. *Nature Nanotechnology*. 4:82-83.

GA Silva (2009). Quantum dot nanotechnologies for neuroimaging. *Progress in Brain Research* 180:17-32.

JM Provenzale and GA Silva (2009) Use of nanoparticles to central nervous system imaging and therapy. *American Journal of Neuroradiology* 10.3174/ajnr.A1590:1-9.

NA Kotov*, JO Winter*, I Clements, E Jan, BP Timko, S Campiedelli, S Pathak, A Mazzatenta, CM Lieber*, M Prato*, RV Bellamkonda*, GA Silva*, NWS Kam, F Patolsky, and L Ballerini (2009) Nanomaterials for neural interfaces. *Advanced Materials* 21:1-35. (*corresponding authors)

GA Silva (2008) The central nervous system. *Drug Discovery Today: Disease Models* 5:1-3.

GA Silva (2008) Nanotechnology approaches for crossing the blood brain barrier and drug delivery to the CNS. *BMC Neuroscience* 9(Suppl 3):S4, 1-4.

D Yu and GA Silva (2008) Stem cell sources and therapeutic approaches for central nervous system and neural retinal disorders. *Neurosurgical Focus* 24:E10, 1-14.

GA Silva (2007) Nanotechnology approaches for drug and small molecule delivery across the blood brain barrier. *Surgical Neurology* 67:113-116.

GA Silva (2007) What impact will nanotechnology have on neurology? *Nature Clinical Practice Neurology*. 1:92-94.

I Kozak, L Cheng, GA Silva, and RF Freeman (2007) Testing of intraocular drugs for clinical use. *Investigative Ophthalmology and Visual Sciences* 48:4861-4863.

GA Silva (2007) Nanotechnology approaches for drug and small molecule deliver across the blood brain barrier. *Surgical Neurology* 67:113-116

GA Silva (2006) Neuroscience nanotechnology: Progress, challenges, and opportunities. *Nature Reviews Neuroscience* 7:65-74.

GA Silva (2006) Nanomedicine: Seeing the benefits of ceria. *Nature Nanotechnology* 1:92-94.

GA Silva (2005) Small Neuroscience: The nanostructure of the central nervous system and emerging nanotechnology applications. *Current Nanoscience* 1:225-236.

GA Silva (2005) Nanotechnology approaches for the regeneration and neuroprotection of the central nervous system. *Surgical Neurology* 63:301-306.

GA Silva (2004) Introduction to nanotechnology and its applications to medicine. *Surgical Neurology* 61:216-220.

Books, Book Chapters, and Multimedia

GA Silva and V Parpura. Editors. (2011) Nanotechnology for Biology and Medicine: At the Building Block Level. Springer Life Sciences, New York, New York. ISBN 978-0-387-31282-8.

GA Silva (2011) Quantum dots for cellular neural imaging. In: Nanotechnology for Biology and Medicine: At the Building Block Level. Springer Life Sciences, New York, New York. ISBN 978-0-387-31282-8.

GA Silva (2008) The structure of the nervous system and nanoengineering approaches to studying it and repairing it. In: Introduction to Bioengineering pp. 327-351. S Chien and P Chang, Editors. World Scientific Press, Hackensack, New Jersey. ISBN 978-981-270-793-2.

GA Silva (2007) The nanostrcutrue of the nervous system and the impact of nanotechnology on neuro- science. In: United Nations Educational, Scientific, and Cultural Organization (UNESCO) Encyclopedia of Life Support Systems (EOLSS). H Doelle, Editor, Biotechnology Theme. UNESCO Publishing-EOLSS Publishers, Oxford, UK.

GA Silva (2005) Bionanotechnology applications to the central nervous system. In: Exploring Nanotechnology multimedia CD ROM. Nanopolis Distributed Knowledge Network in Science and Engineering.

Conference Proceedings and Abstracts

M Khraiche, L Cheng, GA Silva and WR Freeman (2014) A nano-engineered light sensitive retinal prosthesis. American Society of Retinal Surgeons (ASRS).

M Khraiche, L Cheng, WR Freeman and GA Silva (2014) Evaluation of high efficiency optoelectronic nanowires in rabbits. BioMedical Engineering Society (BMES).

M Khraiche, GA Silva, and WR Freeman (2014) Evaluation of a high density photovoltaic nanowire based retinal prosthesis in rabbits. Association for Research in Vision and Ophthalmology (ARVO).

M Khraiche, L Cheng, Y Jing, GA Silva, and WR Freeman (2014) Functional and histological evaluation of a high-density optoelectronic nanowires in rabbits. University of California System Wide Bioengineering Symposium.

N Bhattacharya and GA Silva (2013) An efficient finite difference approach to solving the time-fractional diffusion equation. Society for Neuroscience.

M Khraiche, SE Emam, A Akinin, G Cauwenberghs, WR Freeman, GA SIlva (2013) Visual evoked potential characterization of a rabbit animal model for retinal prosthesis research. IEEE Engineering in Medicine and Biology Society 2013:3539-3542.

H Uhlirova, S Sakadzic, K Nizar, MA Yaseen, PA Saisan, Q Cheng, K Weldy, L Reznichenko, MA Yucei, GA Silva, Y Yanagawa, KA Kasischke, SA Vinogradov, AM Dale, E Masliah, DA Boas, and A Devor (2013) Regulation of cellular metabolism by variation in O2 availability: 2-photon imaging of NADH in cerebral cortex in vivo. Society for Neuroscience.

B Maranhao, P Biswas, GA Silva, JRHeckenlively, SARiazuddin, PL Lee, R. Ayyagari. (2013) exome-Suite: A whole exome variant filtering software for identification of disease causing variants. Association for Research in Vision and Ophthalmology (ARVO).

ML Khraiche, D Wang, G Cauwenberghs, D Wang, Y Lo, WR Freeman, and GA Silva (2012) Ultrahigh photosensitivity silicon nanophotonics for retinal prosthesis. Association for Research in Vision and Ophthalmology (ARVO).

ML Khraiche, Y Jing, S HA, Y Lo, WR Freeman, EJ Chichilnisky, D Wang, G Cauwenberghs, GA Silva (2012) Silicion nanophotonics for the replacement of the damaged photoreceptors in diseased retinas. Society for Neuroscience.

S. Damle, ML Kraiche, P Nguyen, JP Blumling, S Reiss, S Tandon, G Cauwenbergh, and GA Silva (2012) Optimization of surface roughness of flexible neural implants. Society for Neuroscience.

HG Saad and GA Silva (2012) Modeling heterogeneous dynamics and plasticity in cortical pyramidals. Society for Neuroscience.

S Ha, ML Khraiche, GA Silva, and G Cauwenberghs (2012) Direct inductive stimulation for energy efficient wireless neural interfaces. IEEE Engineering in Medicine and Biology Society 2012:883-886.

P Tian, H Uhlirova, Q Cheng, K Weldy, P Saisan, K Nizar, TC Steed, VB Sridhar, GA Silva, AM Dale, A Devor (2012) Spatial gradient of vasodilation kinetics in the mouse somatosensory cortex. Society for Neuroscience.

H Sadd and GA Silva (2012) At the interface of detail and abstraction: Modeling heterogeneous dynamics and plasticity in cortical pyramidal cells. Jacobs School of Engineering Research Expo.

ML Khraiche, D Wang, G Cauwenberghs, Y Lo, WR Freeman, and GA Silva (2011) Ultrahigh photosensitivity silicon nanophotonics for retinal prosthesis: Electrical characterisitcs. IEEE Engineering in Medicine and Biology Society 2011:2933-2936.

ML Khraiche, Y Lo, D Wang, G Cauwenberghs, WR Freeman, and GA Silva (2011) Ultra high photosensitivity vertical nanowire arrays for retinal prosthesis. Biomedical Engineering Society (BMES 2011)

S Ha, ML Khraiche, GA Silva, and G Cauwenberghs (2011) Wireless inductive link for nanoengineered retinal prosthesis. Biomedical Circuits and Systems Conference (BIOCAS 2011)

H Saad and GA Silva (2011) The emergence of functional connectivity patterns bound by an underlying structural connectivity substrate. Society for Neuroscience.

ML Khraiche, D Wang, G Cauwenberghs, Y Lo, WR Freeman, and GA Silva (2011) Ultrahigh photosensitivity silicon nanophotonics for retinal prosthesis. Society for Neuroscience.

M Buibas, J Cui, J Quinn, HDI Abarbanel, A Devor, and GA Silva (2011) Nonparametric estimation of neuronal time series: current from voltage and spikes from calcium. Society for Neuroscience.

B Maranhao and GA Silva (2011) Assessing predictive capability of neuronal network models by com- puting Lyapunov exponents. Computational Neurosciences (CNS) 2011.

H Saad and GA Silva (2011) The emergence of functional connectivity patterns bound by an underlying structural connectivity substrate. Computational Neurosciences (CNS) 2011.

T Hong, T Dai, M Khraiche, and GA Silva (2011) The effect of carbon nanotubes on the biocompatibility and electrical activity in the growth and development of neurons. American Society of Mechanical Engineers (ASME) Dayton Engineering Sciences Symposium (DESS) Symposium.

M Buibas and GA Silva (2010) Mapping functional connectivity of neural networks from calcium data: A unified simulation and estimation framework with parallel CPU/GPU implementation. Society for Neuroscience.

CL MacDonald and GA Silva (2010) The biophysical basis of glutamate and amyloid-beta mediated spontaneous intercellular calcium waves in astrocytes. Society for Neuroscience.

H Saad and GA Silva (2010) Multimodal information encoding in astrocytes. Society for Neuroscience.

BP Sprouse, CL MacDonald and GA Silva (2010) Computationally efficient simulation of fractional order ATP diffusion in glial networks. Society for Neuroscience.

J Cui, M Buibas, CL MacDonald, HDI Abarbanel, and GA Silva (2010) Estimation of spiking rates from intracellular calcium signals using balanced synchronization. Society for Neuroscience.

J Blumling and GA Silva (2010) Novel molecular tubes as membrane sensors and channels in neurons and astrocytes. Society for Neuroscience.

MC Davidson, S-J Kim, and GA Silva (2010) Site-directed mutagenesis of calmodulin for a quantum dot-FRET sub-cellular calcium sensor. Society for Neuroscience.

CL MacDonald and GA Silva (2010) Temporally delayed spontaneous calcium waves in a theoretical model of astrocyte glial signaling. Society for Neuroscience.

K Nizar, L Reznichenko, Q Cheng, S Sakadzic, DA Boas, E Masliah, AM Dale, GA Silva, and A Devor (2010) Unreliable and delayed astrocytic calcium response does not support the hypothesis of calcium dependent astrocytic regulation of blood flow. Society for Neuroscience.

J Blumling, H Saad, S-Y Eun, S-J Kim, and GA Silva (2010) Calcium and EDTA induced folding and unfolding of calmodulin on functionalized quantum dot surfaces. IEEE 10th International Conference on Nanotechnology and Nano Korea 2010.

CW Evans, M Fitzgerald, TD Clemons, BS Padman, JAS Harrison, CA Bartlett, JA Shaw, M Saunders, GA Silva, MJ House, SA Dunlop and KS Iyer (2010) Neuronal endocytosis of multifunctional polymer nanospheres Australian Neuroscience Society.

ML Khraiche, GA Silva, G Cauwenberghs, WR Freeman, D Wang, and Y Lo (2010) Ultra-high pho- tosensitivity vertical nanowire arrays for retinal prosthesis. Biomedical Engineering Society (BMES 2010).

ML Khraiche, GA Silva, G Cauwenberghs, WR Freeman, D Wang, and Y Lo (2010) Ultra-high photosensitivity vertical nanowire arrays for retinal prosthesis. Society for Neuroscience (SFN 2010).

ML Khraiche, GA Silva, G Cauwenberghs, WR Freeman, D Wang, and Y Lo (2010) Ultra-high photo- sensitivity vertical nanowire arrays for retinal prosthesis. Neural Interfaces 2010.

H Saad, M Buibas, and GA Silva (2009) Quantifying information in neuronal networks. Society for Neuroscience.

M Buibas, S-J Kim, Jay Blumling, K Nguyen, and GA Silva (2009) Construction and Characterization of Quantum dot-Calmodulin Calcium Sensor. Society for Neuroscience.

J Blumling, S-J Kim, K Nguyen, and GA Silva (2009) Multifunctionalized quantum dot-based sensors for neural network interrogation. Society for Neuroscience.

K Nguyen, J Blumling, S-J Kim, and GA Silva (2009) Intracellular delivery of quantum dots using cell penetrating peptides and antimicrobial peptides. Society for Neuroscience.

K Nguyen, I Kozak, MC Davidson, WR Freeman, and GA Silva (2009) Distribution of anti-VEGF molecules in ARPE-19 cells using quantum dot labeling. Association for Research in Vision and Oph- thalmology.

H Saad, C MacDonald, K Chiao, and GA Silva (2009) Continuous Real-Time Image and Electrophysi- ological Recording and Processing. Jacbos School of Engineering Research Expo.

CL MacDonald, KW Chaio, D Creveling,HDI Abarbanel, and GA Silva (2009) Nonlinear estimation of neuronal spike rates calcium measurements. Jacbos School of Engineering Research Expo.

M Buibas and GA Silva (2009) Advances in a spatial filtering model for mapping biological neural networks. Jacbos School of Engineering Research Expo.

GA Silva and J Blumling (2008) A nano/micro drug delivery device for non-invasive controlled and tunable drug delivery to the retina. Early Career Awardee Meeting, Coulter Foundation for Biomedical Research.

CL MacDonald, KW Chaio, D Creveling,HDI Abarbanel, and GA Silva (2008) Nonlinear estimation of spike rates from neuronal intracellular calcium signals. Society for Neuroscience.

KW Chaio and GA Silva (2008) Geometric and physiological properties spontaneously forming neuron networks. Society for Neuroscience.

S Pathak and GA Silva (2008) High resolution labeling of proteins implicated in central nervous system injury and disease using quantum dot nanocrystals. NanoScience and Technology Institute.

J Nissimov, MC Davidson, M Li, and GA Silva (2008) IL-6 and related cytokines induce gliosis in glial cell culture. 2008 Annual Scientific Meeting of the American Geriatrics Society.

GA Silva and S Pathak (2008) Optimizing protocols for imaging neural cells and tissues using function- alized quantum dots. SPIE Quantum Dots for Biomedical Applications.

F. Mojana, L. Cheng, D.-U.G. Bartsch, GA Silva, I. Kozak, N. Nigam, W.R. Freeman (2008) Abnormal vitreoretinal Interface in age-related macular degeneration: A spectral OCT study and preliminary surgical outcomes. Association for Research in Vision and Ophthalmology.

S Pathak, MC Davidson, and GA Silva (2007) Choroidal neovascularization lesion labeling and quan- tification using quantum dots. Society for Neuroscience.

D Yu, M Buibas, Z Singer, and GA Silva (2007) Characterization of perturbed intercellular Ca2+ tran- sient propagation in spinal cord astrocyte networks. Society for Neuroscience.

D Yu, M Buibas, Z Singer, S Chow, I Lee, and GA Silva (2007) Quantitative characterization of pertur- bations to intercellular Ca2+ transient propagations in glial networks in vitro. Society for Neuroscience.

D Yu, M Buibas, Z Singer, S Chow, I Lee, and GA Silva (2007) Characterization of pharmacological perturbations to intercellular calcium transient propagations in glial networks in vitro. University of California System Wide Bioengineering Symposium.

M Buibas and GA Silva (2007) Mapping and characterization of functional networks with single cell resolution. Society for Neuroscience.

MC Davidson, Z Singer, E Ai, and GA Silva (2007) IL-6 induces gliosis in rMC-1 cell cultures. Society for Neuroscience.

K Chaio and GA Silva (2007) The role of glial network calcium dynamics in neurological disorders. Society for Neuroscience.

GA Silva (2007) Nerve innervations: A systematic approach. Biomedical Engineering Society.

C MacDonald, D Yu, M Buibas, and GA Silva (2007) Dynamic model of glial signaling. Biomedical Engineering Society.

S Pathak, MC Davidson, and GA Silva (2007) Functional binding properties of antibody conjugated quantum dots and applications to the neural retina. Biomedical Engineering Society.

GA Silva (2007) Imaging vascular and neural retinal pathology using functionalized quantum dots. 10th International Congress on Amino Acids.

C Sharp, S Pathak, MC Davidson, and GA Silva (2007) Quantum dot labeling of retinal tissue sections. NanoScience and Technology Institute.

D Yu, M Buibas, SK Chow, GA Silva (2007) An in vitro model of spontaneously forming glial networks for studying intercellular signaling properties. University of California, San Diego, Jacobs School of Engineering Research Expo.

S Pathak, MC Davidson, C Sharp, and GA Silva (2007) Functionalized quantum dot characterization and applications in neuroscience. NanoScience and Technology Institute Nanotech 2007.

M Buibas, H Khanna, D Yu, SD Larson, and GA Silva (2006) Mapping the structure of dynamic networks and applications to biological neural networks. 2006 Biomedical Engineering Society Annual Meeting.

S Pathak, MC Davidson, C Sharp, and GA Silva (2006) Functionalized Quantum Dot Characteriza- tion, Quantification, and Applications in Neurosciences. 2006 Biomedical Engineering Society Annual Meeting.

D Yu, M Buibas, and GA Silva (2006) An in vitro model for quantitative analysis of calcium transients in glial networks. 2006 Biomedical Engineering Society Annual Meeting.

S Pathak and GA Silva (2006) High resolution optical imaging of neural cells using functionalized quan- tum dots. 28th Annual Symposium at the Burnham Institute for Medical Research.

MO Buibas and GA Silva (2006) Mapping the structure of neuronal and glial networks. University of California, San Diego, Jacobs School of Engineering Research Expo.

S Pathak and GA Silva (2006) Quantum dot nanocrystals in neuroscience. University of California, San Diego, Jacobs School of Engineering Research Expo.

D Yu and GA Silva (2006) Calcium signaling of neuronal and glial networks on a microfluidic device. University of California, San Diego, Jacobs School of Engineering Research Expo.

GA Silva (2006) Nanotechnology contributions to neuroscience and neurology. NanoScience and Tech- nology Institute Nanotech 2006 Conference Proceedings.

S Pathak, E Cao, MC Davidson, S Jin, GA Silva (2006) Quantum dot nanocrystals in neuroscience. NanoScience and Technology Institute Nanotech 2006 Conference Proceedings.

BG Cordero, MC Davidson, J Schallhorn, GA Silva (2005) Modulation of reactive gliosis by siRNA. Society for Neuroscience Abstracts.

GA Silva and B Culp (2005) High throughput algorithms for mapping the topology of neuronal and glial networks. IEEE/EMBS Neural Engineering Conference.

J Schallhorn, Y Valenzuela, M Davidson, GA Silva (2005) Development and characterization of a novel reactive gliosis cell culture model. International Congress of Physiological Sciences.

Diana Yu, Mai Ho, M Davidson, GA Silva (2005) Surface chemistry effects on the morphology of mes- enchymal stem cells. International Congress of Physiological Sciences.

B Culp, GA Silva (2005) Development of high throughput algorithms to map the network structure of biological neural networks. University of California, San Diego, Jacobs School of Engineering Research Review.

S Pathak, GA Silva (2005) Application of functionalized quantum dots to macroglial neural cells. Uni- versity of California, San Diego, Jacobs School of Engineering Research Review.

D. Yu, GA Silva (2005) Engineered transplantation approaches of adult stem cells for degenerative retinal disorders. University of California, San Diego, Jacobs School of Engineering Research Review.

M Ho, GA Silva (2005) Development of differentiation strategies and characterization of adult stem cells for degenerative retinal disorders. University of California, San Diego, Jacobs School of Engineering Research Review.

J Schallhorn, GA Silva (2005 Development of a novel quantitative cell culture model of central nervous system reactive gliosis. University of California, San Diego, Jacobs School of Engineering Research Review.

Y Valenzuela, J Schallhorn, GA Silva (2004) A novel cell culture model of reactive gliosis. Society for Advancement of Chicanos and Native Americans in Science.

KL Niece, C Czeisler, GA Silva, JD Hartgerink, JJJM Donners, JA Kessler, and SI Stupp (2004) Pre- sentation of two neurobiological epitopes in self-assembling peptide amphiphile gels. Gordon Research Conference, Signal Transduction by Engineered Extracellular Matrices.

GA Silva and B Culp (2004) Neural encoding of the rod photoreceptor response. Association for Research in Vision and Ophthalmology Abstracts.

JJJM Donners, SG Anthony, HA Behanna, GA Silva, and SI Stupp (2004) Growth factor binding self- assembling nanofiber networks for tissue regeneration. American Chemical Society Abstracts.

C Czeisler, VM Tysseling-Mattiace, GA Silva, SI Stupp, and JA Kessler (2003) Behavioral improvement and increased survival rate after treatment with a self-assembling gel in a rat model of spinal cord. Society for Neuroscience Abstracts.

GA Silva, KL Kehl, KL Niece, and SI Stupp (2003) Nanoengineered peptide amphiphile network for photoreceptor replacement in degenerative retinal disorders. Association for Research in Vision and Ophthalmology Abstracts.

GA Silva, C Czeisler, KL Niece, E Beniash, JD Hartgerink, JA Kessler, and SI Stupp (2002) Development of neural progenitor cells encapsulated in a peptide amphiphile substrate that is induced to self-assemble under physiological conditions. Society for Neuroscience Abstracts.

GA Silva, JC Stendahl, C Czeisler, TA Neideen, RC Claussen, JA Kessler, and SI Stupp (2002) Semi- dissociated mixed retinal cultures grown on a fibrous scaffold modified by self-assembling molecules containing L-lysine. Association for Research in Vision and Ophthalmology Abstracts.

GA Silva, and DR Pepperberg, D.R. (2001) Model of light adaptation of mouse rod photoreceptors based on paired-flash and step-plus-probe ERG data. Association for Research in Vision and Ophthalmology Abstracts 42: S368.

GA Silva, JR Hetling, and DR Pepperberg (2000) Electroretinographic determination of the response of mouse rods in vivo to a step of light. Association for Research in Vision and Ophthalmology Abstracts 41: S493.

JR Hetling, GA Silva, and DR Pepperberg (2000) Temporal properties of a gain parameter describing the rod flash response in the presence and absence of a background light. Association for Research in Vision and Ophthalmology Abstracts 41:S493.

GA Silva, E Theriault, and C Feeney (1997) Expression of group I and II metabotropic glutamate receptors in rat spinal cord astrocytes in vitro. Society for Neuroscience Abstracts 23:1489.

E Theriault, S Mortin-Toth, C Feeney, and GA Silva, (1997) Developmental expression and glial localiza- tion of group I and II metabotropic glutamate receptors in the rat spinal cord. Society for Neuroscience Abstracts 23:1489.

GA Silva, LR Mills, and E Theriault (1997) Developmental expression and functional assessment of Group I (mGlur1 and 5) and II (mGlur2 and 3) metabotropic glutamate receptors in rat spinal cord astrocytes in vitro and in situ. University of Toronto-McGill University Graduate Student Conference 1:12.

GA Silva, LR Mills, and E Theriault (1997) Developmental expression of group I and II metabotropic glutamate receptors in rat spinal cord astrocytes in vitro. Frontiers in Physiology Research Symposium 10: 25.

Invited Talks and Lectures

Note: All invited talks are listed. Talks with a title associated with them were accepted invitations. Entries without a title indicate invitations that were declined due to scheduling conflicts or other prior commitments.

Title to be determined. Okinawa Institute of Science and Technology Graduate University. (Date TBD). Okinawa Japan.

Neuromimetic algorithms derived from neural dynamics and signaling in the brain". Jet Propulsion Laboratory (JPL), NASA. (Date TBD). Pasadena, California.

"Neuromimetic algorithms derived from neural dynamics and signaling in the brain". Hughes Research Laboratories. July 10, 2014. Malibu, California.

"Integrating computational neuroscience, algorithms, and neurotechnologies for restoring neural function". American Society of Experimental Neurotherapeutics (ASENT): Science nonfiction in neurotherapeutics. February 20, 2014. Bethesda, Maryland.

"Graph theoretic methods for descriptive and predictive analyses of cellular neural network dynamics" Winter School on Neuromorphic Engineering: Dynamics of Multifunction Brain Networks. January 7, 2014. La Jolla, California.

"High density optoelectronic nanowire array selective stimulation of the neural retina: Comparison with other neural stimulation technologies" Society for Neuroscience, San Diego, California. November 10, 2013.

"A roadmap for translational nanomaterials and technologies aimed at restoring neurological function" BioCom 2013, Perth, Australia. October 3, 2013. (Invited plenary lecture.)

"Nanotechnology approaches for neurostimulation and restoring function". Graduate Program in Neurosciences, University of Minnesota. April 12, 2013. (Invited speaker as chosen by the graduate students in the program.)

"Opportunities and challenges of commercializing nanotechnologies aimed at treating neurological disorders". "The business of nanotechnology" symposium, Materials Research Society (MRS) annual meeting, Boston, Massachusetts, November 26-30, 2012.

"What we currently understand about the interface between nanoscale technologies and neural cells". "Nanotechnology approaches to manipulating and monitoring neural properties symposium", Society for Neuroscience (SFN) annual meeting, New Orleans, Louisiana, October 13-17, 2012.

"Theoretical, computational, and experimental considerations for mapping dynamic neural network connectivity". q-Bio Summer School, Biocircuits Institute, University of California, San Diego. July 30, 2012. NanoScience and Technology 2012 Annual Meeting. June 18-21, Santa Clara, California.

"Cell signaling in neural networks: Mapping dynamic activity and a nanophotonic interface". 6th edition of the European school on Neuroengineering, Genova, Italy. June 11-16, 2012. (Invited plenary lecture.)

"Where engineering meets ophthalmology: Designing an artificial retina". Department of Ophthalmology, University of California, San Diego. La Jolla, California. March 19, 2012

"Phototransduction and retinal neural stimulation with an ultra-high resolution nanoengineered prosthesis". Engineering Research Center on Sensorimotor Neural Engineering, San Diego State University. March 12, 2012.

"Predicting function form structure in cellular neural networks". Computational Neuroscience Program seminar, University of Chicago. February 21, 2012. (Invited speaker as chosen by the graduate students in the program.)

"Restoring vision with an ultra-high resolution nanoengineered retinal prosthesis". Circle of Sight lecture, Department of Ophthalmology, University of California, San Diego. La Jolla, California. February 8, 2012. Society for Neuroscience, Washington DC, November 12-16 2011.

“Geometric considerations for mapping the dynamic connectivity of cellular neural networks”. California Institute of Technology Neuromorphic Engineering Student Society retreat, Laguna Niguel, California. October 22, 2011. (Invited speaker as chosen by the graduate students in the program.)

“Neurobiological challenges facing the use of nanotechnologies and how to overcome them”. Nanodrug Delivery: From the Bench to the Patient. Instituto Superiore Di Sanita, Rome, Italy. October 10-13, 2011.

4th Joint Symposium between National Yang Ming University (NYMU) and the University of California, San Diego. August 10-12, 2011.

IEEE International Symposium on Information Theory: Special session on neuroscience and information theory. St Petersburg, Russia. August 2, 2011.

“Mapping functional cellular neural network dynamics and connectivity using GPU’s”. Computational Neuroscience (CNS) 2011 (CNS2011) workshop: Enabling Super-Computational Neuroscience: Low- Cost GPU-Parallel Analyses And Simulations. Stockholm, Sweden. July 27, 2011.

“Nanotechnological approaches to neurodegenerative disorders”. CIC NanoGune and InBioMed Foundation First Nanobiomedicine Seminar. San Sebastian, Guipuzcoa, Spain. April 15, 2011. (Invited plenary lecture.)

“Imaging cellular calcium neural signaling using FRET nanoprobes”. ImagineNano 2011. Bilbao, Biscay, Spain. April 14, 2011. (Invited plenary lecture.)

“Mathematical and engineering methods for understanding the dynamics of cellular neural networks”. Department of Neuroscience and Brain Technologies, Italian Institute of Technology, Genova, Italy. March 11, 2011.

“Mathematical and engineering methods for understanding the dynamics of cellular neural networks”. Department of Physiology, University of Trieste, Italy. March 9, 2011.

“Engineering methods for making sense of the function of neural circuits and networks from cell signal- ing”. Department of Bioengineering, University of Pennsylvania. March 3, 2011.

“Engineering methods for mapping the functional connectivity of cellular neural networks”. Department of Bioengineering, University of California, San Diego. February 11, 2011.

“From neural signaling and networks to a theory of brain function”. Defense Advanced Research Projects Agency (DARPA) Department of Defense Neural Tools workshop. Arlington, Virginia. November 4, 2010.

“Engineering methods for making sense of the function of neural circuits and networks from cell signaling”. Department of Bioengineering, University of Illinois at Chicago. October 8, 2010.

“Mapping the topology of functional neural networks with single cell resolution”. The Monte Verita’ Workshop: Frontiers in Neuroengineering. Centro Stefano Franscini of the Swiss Federal Institute of Technology (ETH), Zurich, Ascona, Switzerland. September 5-7, 2010.

“Nanotechnology based biosensors for imaging neural cells”. Molecular Neuroimaging Symposium. So- ciety for Nuclear Medicine Imaging Center of Excellence and National Institutes of Health, Bethesda, Maryland. May 6, 2010.

“Simulating and mapping the functional topology of cellular neural networks from experimental data”. Biocircuits Institute, University of California, San Diego. April 24, 2010. World Conference on Nanomedicine and Drug Delivery. Kottayam, Kerala, India. April 16-18, 2010.

“Where Engineering Meets Neurobiology: Imaging and Mapping the Functional Activity of Neurons, Astrocytes, and Neural Networks”. Beverley A. and Clarence J. Chandran Distinguished Lecture, Pratt School of Engineering, Duke University, Raleigh, North Carolina. April 8, 2010. (Invited plenary lecture.) Symposium for Nanotechnology to the Biological Sciences. University of North Texas, Denton, Texas. April 9, 2010.

“The electroretinogram and electrophysiology of the retina: Theory and practice”. Institute for Neural Computation, University of California, San Diego. April 1st, 2010.

International Congress of Antibodies. Beijing, China. March 24-26, 2010.

Global College of Neuroprotection and Neuroregeneration, Uppsala, Sweden. February 28-March 3, 2010.

“Novel nano-agents for drug delivery and in vivo imaging”. American Heart Association International Stroke Conference. San Antonio, Texas. February 24-26, 2010.

Entretiens Jacques Cartier colloquium, Building the Nanoworld. Grenoble, France. December 1-4, 2009. BIT Life Science’s Annual Congress, Foshan, China. December 1-7, 2009.

“Functionalized quantum dot systems for probing cellular neural function”. Biomolecular Science and Engineering, University of California, Santa Barbara. November 18, 2009.

“At the interface between systems and nano scales: Mapping and modeling functional neural network activity at cellular resolution”. Sandia National Laboratories, Albuquerque, New Mexico. November 12, 2009.

National Yang Ming University Symposium, Taipei, Taiwan. October 16-17, 2009.

Iberian-American Congress on Chemistry, Biochemistry and Chemical Engineering. Havana, Cuba. October 12-16, 2009.

Nanotechnology in Neuroscience symposium, Electroencephalograph and Clinical Neuroscience Society Meeting, September, Atlanta, Georgia. September 10-12, 2009.

17th Annual Conference on Composites and NanoEngineering, International Community on Composites Engineering. Honolulu, Hawaii. July 26-31, 2009.

2009 Rozman Symposium, West Chester, Pennsylvania. June 10, 2009.

“The need for nanotechnology methods to probe function in biological neural circuits and networks”. NanoScience and Technology NanoTech 2009, Houston, Texas. May 5, 2009.

BIT Life Sciences 2nd Annual World Congress of Industrial Biotechnology-2009, Seoul, Korea. April 5, 2009.

“Imaging neural cells with functionalized quantum dots: From structure to function”. Global College of Neuroprotection and Neuroregeneration, Vienna, Austria. March 4, 2009. (Invited plenary lecture.)

“An introduction to nanotechnology and its applications to the central nervous system: Implications for neuro-ophthalmology”. North American Neuro-Ophthalmology Society, Lake Tahoe, Nevada. February 25, 2009. (Invited plenary lecture.)

“The potential of stem cells in the retina and optic nerve for restoring vision”. North American Neuro-Ophthalmology Society, Lake Tahoe, Nevada. February 25, 2009. (Invited plenary lecture.)

“Nanoengineering and computational approaches for investigating the cellular structure and physiology of neural cells”. Jacobs School of Engineering Research Expo, University of California, San Diego. February 19, 2009.

“Imaging and deriving the structure and function of neural networks from cells to circuits”. University of Alabama, Birmingham. November 7, 2008.

“Functional signaling in neural networks from cells to circuits”. Department of Radiology, Emory University and Department of Biomedical Engineering, Georgia Institute of Technology, Atlanta, Georgia. October 29, 2008.

“Discovering and validating drug effects at the physiological level using computational methods”. 4th Annual Modern Drug Discovery and Development Summit, San Diego, California. October 15-17, 2008.

6th Annual Congress of International Drug Discovery Science and Technology. Beijing, China. October 18-22, 2008.

100th Year Nobel Award Anniversary of Paul Ehrlich for the Discovery of the Blood Brain Barrier. Nurnberg, Germany. October 3-5, 2008.

”Imaging and deriving the structure and function of neural networks from cells to circuits”. Department of Bioengineering, Yale University, New Haven, Connecticut. September 25, 2008.

“Imaging neural cellular anatomy and pathology with chemically functionalized quantum dot nanocrystals”. 9th International Conference on Neuroprotective Agents, Marine Biological Laboratories, Woods Hole, Massachusetts. September 10, 2008. (Invited plenary lecture.)

“Imaging the structure and deriving the function of neural networks from cells to circuits” Department of Bioengineering, University of Illinois at Champaign-Urbana. September 4, 2008.

Materials Science Workshop, Korea University, Seoul, Korea. August 29, 2008.

“Mapping the functional connectivity of cellular neural networks in order to investigate how networks represent and store information”. Department of Biomedical Engineering, Columbia University, New York City, June 9, 2008.

“Deriving functional signaling structures in cellular neural networks: Implications for both health and disease”. Division of Physiology, University of California, San Diego, June 6, 2008.

“Imaging structure and function in cellular neural networks”. Yang Ming University-University of Cali- fornia, San Diego symposium, La Jolla, California. April 9, 2008.

“New tools for imaging and quantitatively mapping function in neuronal and glial networks”. Department of Bioengineering, University of Southern California, Los Angeles, California. March 31, 2008.

“Imaging astrocytes using functionalized quantum dot nanocrystals”. American Society for Neurochem- istry, San Antonio, Texas. March 5, 2008.

Royan International Twin Congress: 9th congress on Reproductive Biomedicine and 4th congress on Stem Cell Biology and Technology. Tehran, Iran, January 27-29, 2008.

“Optimizing protocols for imaging neural cells and tissues using functionalized quantum dots”. SPIE Quantum Dots for Biomedical Applications, San Jose, California, January 20, 2008.

XII Congress of the Academy of Neurosurgery of Brasil. Sao Paulo, Brazil. December 2-8, 2007.

“Mapping functional signaling in neural networks: Towards a systems neuroscience understanding of health and disease”. Department of Bioengineering, University of California, San Diego. October 12, 2007.

“Neural regeneration: A systematic approach”. Biomedical Engineering Society (BMES) annual meet- ing. Los Angeles, California, September 26-29, 2007.

“Imaging vascular and neural retinal pathology using functionalized quantum dots”. 10th International Congress on Amino Acids. Chalkidiki, Greece. August 22, 2007.

“Nanotechnology and neuroscience: Opportunities for novel research and therapies”. Society of Biological Psychiatry, San Diego, California. May 17, 2007.

“Using nanoengineering and nanotechnology to treat neurological and neurosurgical disorders”. Society of Neurological Surgeons, San Francisco, California. May 6, 2007.

“Nanotechnology approaches for investigating and treating the central nervous system”. NanoBioNexus, NanoTumor Centers seminar series. March 23, 2007.

International Conference on Neuroplasticity and Neuroregeneration, Bucharest, Romania. March 22-25, 2007.

“Quantitatively mapping the spatial and temporal propagation of functional signaling in glial networks”. Gordon Research Conference on Glial Physiology, Ventura, California. March 13, 2007.

“Nanotechnology approaches for neuroprotection and regeneration of the CNS”. Association for Ocular Pharmacology and Therapeutics (AOPT), San Diego, California. February 9, 2007.

“Engineering approaches for drug delivery across the blood brain barrier”. Drug Discovery, Development, and Delivery for Neurodegenerative Diseases, Alzheimers Drug Discovery Foundation and Institute for the Study of Aging, New York, New York. February 5, 2007.

“Nanoengineering approaches for investigating cellular neurobiology across scales: From individual cells to systems of neural networks”. Winter Conference on Brain Research, Snowmass Colorado. January 27, 2007.

Colloidal Quantum Dots for Biomedical Applications II Conference, San Jose, California. January 20-24, 2007.

“Nanotechnology approaches for repairing the central nervous system”. 2006 International Conference on Bio and Pharmaceutical Science and Technology. San Diego, California. December 18, 2006.

“Imaging and mapping the dynamic structure of functional glial neural networks”. University of Texas at Austin, Texas. November 10, 2006.

“Imaging and mapping the topology of functional neural glial networks”. Center for Theoretical Biolog- ical Physics, University of California, San Diego and Salk Institute for Biological Sciences. October 20, 2006.

Nanomaterials for Application in Medicine and Biology, NATO Advanced Research Workshop, Bonn, Germany. October 4-10, 2006.

Cognitive Systems Workshop, Sandia National Laboratory and the University of New Mexico, Santa Fe, New Mexico. June 27-29, 2006

7th Annual University of California System Wide Bioengineering Symposium, University of California, Los Angeles. June 24-26

“Selective differentiation and imaging of neural progenitor cells using high density epitope nanofibers and quantum dots”. Regenerative medicine: Isolation and induction of neural progenitor cells, University of Rostock, Rostock, Germany. June 25, 2006.

“The future of neurotechnology: Cell signaling across spatial scales”. The Potomac Institute for Policy Studies workshop on neurotechnology, La Jolla, California. June 19, 2006.

“Nanotechnology contributions to neuroscience and neurology”. NanoScience and Technology Institute, Boston, Massachusetts. May 7, 2006.

“Nanotechnology approaches for differentiating stem cells into neural lineages”. Society of University Neurosurgeons, Salk Institute for Biological Sciences, La Jolla, California. March 30, 2006.

“Functional signaling between neural cells: From cells to networks”. Jacobs School of Engineering Research Expo 2006. February 23, 2006.

“Investigating central nervous system gliosis using nanotechnology”. National Amyotrophic Lateral Sclerosis (ALS) Society. Long Island, New York. January 11, 2006.

“Tracking physiological molecular dynamics in neural cells”. Powell Foundation Advisory Board, Jacobs School of Engineering, University of California, San Diego. November 9, 2005.

“Tracking molecular dynamics in neurons and glia with functionalized quantum dots”. 40th Anniversary Symposium for Bioengineering , University of Illinois at Chicago. September 16, 2005.

“Tracking molecular dynamics in neurons and glia with functionalized quantum dots”. Department of Bioengineering, University of Illinois at Urbana-Champaign. September 15, 2005.

“Characterization of previously unknown topologies in glial signaling networks identified by high through- put mapping”. Northwestern University Institute for Neuroscience, Chicago, Illinois. May 13, 2005.

“Challenges and opportunities for central nervous system repair by nanotechnology based approaches”, International Congress of Nanotechnology, San Francisco, California. November 10, 2004.

“Neural retinal engineering laboratory: Neural engineering through cell biology and molecular engineering”, University of California, San Diego, Bioengineering Industrial Review Board. October 8, 2004.

“Neural tissue engineering strategies for regeneration of the central nervous system”, Summer Training Academy for Research in the Sciences, University of California, San Diego. August 4, 2004.

“Light adaptation algorithm and neural network implementation for retinal prosthetic devicesv, von- Liebig Center for Entrepreneurship, University of California, San Diego. June 8, 2004.

“Nanoengineering approaches for reactive gliosis in central nervous system pathologies”, Department of Bioengineering, University of California, San Diego. June 4, 2004.

“Introduction to electroretinography: Foundations and applications”, Department of Ophthalmology, University of California, San Diego. April 14, 2004.

“Nanotechnology and engineering approaches towards reconstructing the retina”, Retina: A vision for the future symposium, dedication of the Jacobs Retina Center, Department of Ophthalmology, University of California, San Diego, November 13, 2003.

“Applying nanoengineering for neuroscience: New approaches for the regeneration of the central nervous system”, Department of Bioengineering, University of Wisconsin at Madison. May 11, 2003.

"The use of nanoengineering to replace diseased retinal elements", Department of Ophthalmology, University of California, San Diego. April 15, 2003.

"Applying nanoengineering for neuroscience: New approaches for the regeneration of the central nervous system", Department of Bioengineering, University of California, San Diego. January 11, 2003.

"Applications of nanoengineering to neuroscience", Department of Bioengineering, University of Illinois at Chicago. December 18, 2002.

"Experimental study of mouse rod photoreceptor light adaptation in vivo", Department of Electrical and Computer Engineering, University of Rhode Island. April 26, 2002.

Editorial Responsibilities

Associate Editor

Frontiers in Neuroengineering (2008 to present)
Journal of Biomedical Nanotechnology (2007 to present)
IEEE Transactions on Nanobioscience (2004 to present)

Editorial Board Member

Journal of Bioengineering and Biomedical Sciences (1014 to present)
CNS Drug-Target (2012 to present)
Dataset Papers in Medicine, ophthalmology section (2012 to present)
Frontiers in Fractal Physiology (2011 to present)
Journal of Tissue Science and Engineering (2011 to present)
World Journal of Neurology (2011 to present)
ISRN Nanotechnology (2011 to present)
Journal of Bioengineering and Biomedical Sciences (2010 to present)
American Journal of Neuroprotection and Neuroregeneration (2009 to present)
Current Nanoscience (2009-2013)
International Journal of Nanotechnology and Molecular Computation (2008 to present)
Experimental Biology and Medicine (2006 to 2013)
Journal of Nanoneuroscience (2007 to present)

Special Issue Invited Guest Editor

Drug Discovery Today: Disease Models (2008)
Combinatorial Chemistry and High Throughput Screening (2006 declined)
Frontiers in Bioscience (2006 declined)

Reviewed Manuscripts

American Chemical Society (ACS) Chemical Neuroscience American
Annual Review and Research in Biology
Chemical Society (ACS) Nano
Annals of Biomedical Engineering
Acta Biomaterialia
Applied Physics Letters Biomacromolecules
Biomaterials
Biomedical Materials
Biotechnology Progress
Bioconjugate Chemistry
Cellular and Molecular Bioengineering
ChemBioChem
Chemical Physics Letters
Clinical Medicine: Oncology
Clinical Ophthalmology
CRC Press
Current Drug Delivery
Current Nanoscience
Developmental Neurobiology
Drug Discovery Today
Experimental Biology and Medicine
Experimental Eye Research
Expert Opinion on Drug Delivery
Eye and Brain
Glia
IFAC Workshop on Fractional Derivatives and Applications
IEEE Transactions on Biomedical Engineering
IEEE Transactions on Neural Systems and Rehabilitation Engineering
International Journal of Molecular Sciences
International Journal of Nanomedicine
Interface Focus
ISRN Nanotechnology
Journal of the American Chemical Society (JACS)
Journal of Biometerials Research, Part A
Journal of Biomaterials Science, Polymer Edition
Journal of Biomedical Nanotechnology
Journal of Cell Transplantation
Journal of Controlled Release
Journal of Electronics Engineering Research
Journal of Luminescence
Journal of Histochemistry and Cytochemistry
Journal of Neurochemistry
Journal of Neural Engineering
Journal of Neurological Sciences

Journal of Neuroscience
Journal of Neuroscience Research
Medical Devices: Evidence and Reserach
Medical Principles and Practice
Medicinal Research Reviews
Medical Science Monitor
Neoplasia
Nanotechnology, Science, and Applications
Nano Letters
Nanomedicine
Nanotoxicology
Nature Materials
Nature Reviews Neuroscience
Nature Nanotechnology
Nano Today
Neuroimage
PLOS One
Proceedings of the National Academy of Sciences (PNAS)
Progress in Neurobiology
Recent Patents on Anti-Cancer Drug Discovery
Recent Patents on Nanomedicine
Retina
Small
Soft Matter
Surgical Neurology
Therapeutic Delivery
Tissue Engineering

Reviewed Grants

National

National Institutes of Health (NIH), Bioengineering Neuroscience and Low Vision Technologies study section (2012)

Vision Research Program (VRP), Telemedicine and Advanced Technology Research Center (TATRC), United States Army Medical Research and Materiel Command (USAMRMC) (2012)

Neurosciences Collaborative, American Association for the Advancement of Science (AAAS, 2010)

Alzheimer's Association (2009)

National Institutes of Health (NIH), Nanotechnology study section (2007)

National Institutes of Health (NIH), Neurogenetics study section (2007)

Citizens United for Research in Epilepsy (CURE, 2007)

US Army Medical Research and Materiel Command (USAMRMC, 2007-2008)

National Science Foundation (NSF), Graduate Research Fellowship Program (2006)

US Department of Defense, Air Force Office of Scientific Research (AFOSR, 2006)

Nanotechnology Integrated Research, National Science Foundation (NSF) (2006)

Nanoscale Exploratory Research, National Science Foundation (NSF) (2004-2005)

National Institutes of Health (NIH), Neurotechnology study section (2004 to 2011)

International

Wellcome Trust and India Alliance Fellowship (2013)

French National Research Agency (2013)

Medical Research Council (MRC), UK (2013)

French National Alliance for Life and Health Sciences (AVIESAN) (2012)

French National Cancer Institute (INCa) (2012)

Alliance Nationale Pour les Sciences de la Vie et de la Sante, Paris, France (2012)

Institut National de la Sante et de la Recherche Medicale (National Institute for Health and Medical Research), Paris, France (2012)

Human Frontier Science Program, France (2010) Biomedical Research Council (BMRC), Singapore (2010)

Fondazione Cassa di Risparmio di Pisa, Italy (2010) US-Israel Binational Science Foundation (2010)

The National Institute for Nanotechnology, National Research Council of Canada (2009)

Alberta Ingenuity Fund, Canada (2008)

Grants Research Council (GRC) of Hong Kong (2008)

Science Foundation Ireland (SFI), Investigator Program Grant, Dublin, Ireland (2006)

Teaching

All listed activities are at the University of California, San Diego unless noted.

Lecture Courses

All courses were taught as the primary instructor, unless noted. Courses listed with an asterisk indicate new developed courses.

BENG234 (Bioengineering), Introduction to neurophysiology: From molecules to systems*
BENG207 (Bioengineering), Mathematical Methods in Neuroscience*
BENG231 (Bioengineering) Foundations of Physiology for Bioengineering*
BENG207 (Bioengineering) Introduction to Neuroscience*
BENG101 (Bioengineering) Fundamentals of Medical Imaging

BENG140A (Bioengineering) Introduction to Physiology for Bioengineers I
BENG140B (Bioengineering) Introduction to Physiology for Bioengineers II
BENG 147A (Bioengineering) Design Development in Neural Engineering
BENG 147B (Bioengineering) Design Implementation in Neural Engineering
BENG 187A (Bioengineering) Senior Engineering Design
BENG260 (Bioengineering) Neurodynamics
BENG241A (Bioengineering) Foundations of Tissue Engineering Science (guest lecturer)
BENG100 (Bioengineering) Introduction to Bioengineering (guest lecturer)
BENG166A (Bioengineering) Cell and Tissue Engineering (guest lecturer)
MDE 231 (Advanced Masters in Medical Devices) Anatomy and Physiology*
CogSci101 (Cognitive Sciences and Psychology) Introduction to Cognitive Sciences (guest lecturer)
American Academy of Ophthalmology (AAO) Residency Home Course (guest lecturer)
Ophthalmology Basic Sciences Course (guest lecturer)
MatSci395 (Materials Science) Topics in Materials Science (guest lecturer; Northwestern University, Chicago)
Bioe475 (Bioengineering) Neural Engineering I: Neural Hybrid Systems (guest lecturer; University of Illinois, Chicago)

Participating faculty mentor in the following programs

Latin America-UC San Diego Science Connect, Center for Investigations of Health and Education Disparities (2014 to present)
Amgen Scholars Program (2012)
Howard Hughes Summer Research Program (2010)
Academic Internship Program (2010)
School of Medicine medical student faculty mentor (2008-2009)
Howard Hughes Medical Institute (HHMI) Multi-Scale Biology Program (2008 to present)
National Science Foundation (NSF), Research Experience for Undergraduates (2008-2010)
Initiative for Maximizing Student Diversity (IMSD, 2008-2010)
Medical Student Training in Aging Research (MSTR) program (2007 to 2011)
Summer Training Academy for Research in the Sciences (STARS, (2007 to 2008)
Regents Scholars Research Initiative Mentor Program (2007 to present)
Howard Hughes Medical Institute (HHMI) Scholars Program (2007)
Preuss School Health Partners Program (2006 to present)
Pacific Rim Undergraduate Experience (PRIME), National Science Foundation (NSF, 2006)
Stein Institute for Research on Aging (2005))
Jacobs School of Engineering Teams in Engineering Service (TIES, 2005)
Revelle College Freshman Honors Program (2005)
McNair Academic Enrichment Program (2005)
Leadership Excellence through Advanced Degrees (LEADS, (2004 to 2012)
California Alliance for Minority Participation in Science, Engineering and Mathematics (2004)
Summer Training Academy for Research in the Sciences (2004)

Research Trainees

All University of California, San Diego students are listed by their departments or programs. Visiting scholars or students to our lab are listed by their home institutions.

Visiting scholars

Arthur Zhang, PhD, (2014-present, Nanovision Biosciences)
Cynthia Overstreet, PhD (2013 to present, Nanovision Biosciences)
Yi Jing, PhD (2012 to present, Nanovision Biosciences)

Soon-Jong Kim, PhD (2009-2010; on sabbatical in our lab)
Professor of Chemistry, Pohang University, South Korea

Su-Yong Eun, MD, PhD (2009; on sabbatical in our lab)
Professor of Physiology,, Jeju National University College of Medicine, South Korea

Postdoctoral and clinical fellows

Katayoun Seyedmadani, PhD (Postdoctoral Fellow, 2014)
Massoud L. Khraiche, PhD (Postdoctoral Fellow, 2009 to 2013; Project Scientist, 2013 to present)
Jianxia Cui, PhD (Postdoctoral Fellow, 2009-2012)
Diana Yu, PhD (Postdoctoral Fellow, 2008)
Korak Sarkar MD (Clinical Fellow, 2008)

Doctoral (PhD) students (thesis advisor)

Pamela Bhattacharya, Bioengineering (20011 to present)
Bruno Maranhao, Bioengineering (MD/PhD student; 2010 to present)
Helen Saad, Bioengineering (2008-2013)
Jay Blumling, Bioengineering (2007-2012)
Christopher MacDonald, Bioengineering (2007-2011)
Marius Buibas, Bioengineering (2006-2011)
Krystal Chaio, Neurosciences Graduate Program (MD/PhD student; 2007-2010)
Diana Yu, Bioengineering (2004-2008)
Smita Pathak, Materials Science and Engineering Program (2004-2008)

Masters (MS) students (thesis advisor)

Vivek George, Bioengineering (2014 to present)
Pamela Bhattacharya, Bioengineering (2010 to 2011)
Kim Nguyen, Bioengineering (2008 to present)
Brian Sprouse, Bioengineering (2008-2010)
Siu Kei Chow, Bioengineering (2007-2008)
Christopher MacDonald, Bioengineering (2006-2007)
Nathan Shepard, Bioengineering (2006-2007)
David Kupec, Bioengineering (2006-2007)
Marius Buibas, Bioengineering (2005-2006)
Joanna Zanmiller, Materials Science Program (2004-2005)
Bradley Culp, Bioengineering (2004-2005)
Julie Schallhorn, Bioengineering (2004-2005)

Mai Ho, Bioengineering (2004-2005)

PhD rotation students

Cameron Evans, University of Western Australia (2010)
Tyler Steed (MD/PhD student), Bioengineering (2010)
Espoir Kyubwa (MD/PhD student), Bioengineering (2010)
Aaron Simon (MD/PhD student), Bioengineering (2009)
Ben Hu (MD/PhD student), Neurosciences Graduate Program (2008)
Alex Hui (MD/PhD student), Neurosciences Graduate Program (2008)
Adam Colhoun, Neurosciences Graduate Program (2007)
Vanessa Lacey, Division of Biological Sciences (2007)
Emily Gunthier, Department of Bioengineering (2007)
Stephan Larson, Computational Neurobiology Program (2006)
Jennifer Park, Department of Bioengineering (2005)
Katherine Amhann, Department of Bioengineering (2005)
Nicolas Wall, Neurosciences Graduate Program (2005)

MD clinical rotation students

Omar Ozgur, University of Vermont (2009)
Christopher Cheng, University of California, Riverside (2008)
Julie E. Nissimov, University of California, Irvine (2007)
Korak Sarkar, University of California, San Diego (2006)
Dustin Hayward, University of California, San Diego (2005)

Bachelors to Masters transition program students

Carson Fuller, Bioengineering (2008 to 2009)
Lorenzo D'Amico, Bioengineering (2008 to 2009)
Siu Kei Chow, Bioengineering (2006-2007)
James Clancy, Bioengineering (2004-2005)

Undergraduate students (research advisor)

Suriel Lee, University, Hangzhou, China (2014)
Megan Freidlander, Bioengineering (2014-present)
Elisabeth Rebboah, Bioengineering (2014-present)
Jos Bsaibes, Bioengineering (2014-present)
Nikhar Abhas, Bioengineering (2014-present)
Arjun Bhungal, Bioengineering (2013-present)
Rachel Patron, Chemical Engineering (2014)
Joe Bsaibes, Political Sciences Premed (2013)
Melissa Yunting Tang, Bioengineering (2012-2013)
Kevin Chang, Bioengineering (2012-2013)
Hema Sulkar, Bioengineering (2012-2013)
Nithya Kubendran, University of Southern California (2012)
Siu Kit Cheng, Bioengineering (2012)
Neil Gandhi, Bioengineering (2011-2013)
Samantha Reiss, Bioengineering (2011-2013)

Sarika Tandon, Bioengineering (2011-2013)
Amir Bolandpar, Bioengineering (2011)
Phuong Nguyen, Bioengineering (2011-2013)
Charlie Park, Bioengineering (2011)
Tracey Hong, Vanderbilt University (2011)
Tiffany Dai, Molecular Biology (2011)
Kim Macias, Bioengineering (2011)
Cory Steven, Bioengineering (2009 to 2011)
Samir Damle, Bioengineering (2009-2013)
Brian Wong, Departments of Chemistry/Biochemistry and Neuroscience (2007-2011)
Carlos Salcedo, Bioengineering (2010-2011)
Nishant Munugala, Bioengineering (2010-2011)
Audris Fan, Bioengineering (2010)
Diane Yi, Cell Biology (2010-2011)
Paul Hart, Vanderbilt University (2010)
Vikram Chauhan, Bioengineering (2010)
Antonio Pinto-Duarte, Bioengineering (2009)
Glendon MacDuff, Bioengineering (2009)
Nicole Medina, Bioengineering (2009)
Ryan Cloke, Gonzaga University (2009)
Piyush Goyal, Bioengineering (2009)
Kenneth Sugerman, Bioengineering (2009)
Andrew Islip, Bioengineering (2009)
Amir Taat, Bioengineering (2009)
Israel Morales, Bioengineering (2008-2009)
Matthew Adams, Bioengineering (2008)
Saisindhu Narala, Bioengineering (2008)
Venkatakaushik Voleti, Bioengineering (2008-2010)
Carson Fuller, Bioengineering (2008)
Melanie Das, Bioengineering (2008)
Sean Takal, Bioengineering (2008)
Eva Situ, Bioengineering (2008)
Nicolas Floresta, Bioengineering (2008)
Michael Olivera, Bioengineering, University of California, Merced (2008)
Ali Hadian, Bioengineering (2007-2010)
Kim Thanh Nguyen, Bioengineering (2007-2008)
Lorenzo Damico, Bioengineering (2007-2008)
Chris Ross, Bioengineering (2007-2008)
Joshua Wong, Bioengineering (2007-2008)
Matthew Li, Bioengineering (2007-2008)
Conrad Pascual, Bioengineering (2007-2008)
Peng Zhang, Bioengineering (2007-2008)
Wilbert Copeland, Bioengineering (2007-2008)
Tanya Ed, Bioengineering (2007-2008)
Thomas Nunn, Bioengineering (2007-2008)

Esmond Ai, Bioengineering (2007-2008)
Doug Cohen, Bioengineering (2007-2008)
Zak Singer, Bioengineering (2007-2008)
Amul Shah, Bioengineering (2007)
Rosa Tolentino, New Jersey Institute of Technology (2007)
Ian Lee, Bioengineering 2006-2008)
John Miller, Bioengineering (2006-2007)
Mahboubeh Hashemi, Bioengineering (2006-2007)
Andrea Chan, Bioengineering (2005-2006)
Craig Sharp, Bioengineering (2005-2007)
Harry Khanna, Bioengineering (2005-2007)
Mathew Borzage, Bioengineering (2005-2006)
Siu Kei Chow, Bioengineering (2005-2006)
Puneet Gupta, Bioengineering (2005)
Raquel Orozco, University of California, Berkeley (2005)
Albert Kao, Harvard University (2005)
Tabitha Williamson, Biology (2005)
Barry Cordero, Bioengineering (2004-2006)
Yvette Valenzuela, Bioengineering (2004-2005)
Danni Wang, Bioengineering (2004-2005)
Harsimran Sabharwal, Bioengineering (2004-2005)
Elizabeth Cao, Bioengineering (2004)
Jonathan Chiang, Bioengineering (2004)

Graduate thesis committees

Jia Guo (PhD) Department of Bioengineering
Advisor: Dr. Eric Wong, Department of Radiology

Jason Dang (PhD) Department of Bioengineering
Advisor: Dr. Tariq Rana, Department of Pediatrics

Espoir Kyubwa (MD/PhD) Department of Bioengineering
Advisor: Dr. Edward Callaway, Salk Institute for Biological Studies

Abraham Akinin (PhD) Department of Bioengineering
Advisor: Dr. Gert Cauwenberghs, Department of Bioengineering

Sohmyung Ha (PhD) Department of Bioengineering
Advisor: Dr. Gert Cauwenberghs, Department of Bioengineering

Corey Stevens (PhD) Department of Bioengineering
Advisor: Dr. David Gough, Department of Bioengineering

Jia Guo (PhD) Department of Bioengineering
Advisor: Dr. Eric Wong, Department of Radiology

Jangir Selimkhanov (PhD) Division of Biology
Advisor: Dr. Jeff Hasty, Division of Biology and Department of Bioengineering

Hamid Ehsani-Nia (MS) Division of Biology
Advisor: Dr. Tony L. Yaksh, Department of Anesthesiology

Robert DeConde (MD/PhD) Department of Bioengineering
Advisor: Dr. Trey Idekar, Departments of Medicine and Bioengineering

Mithun Diwakar (MD/PhD) Materials Science and Engineering Graduate Program
Advisor: Dr. Tom Liu, Department of Radiology

Valerie Griffith (MD/PhD) Materials Science and Engineering Graduate Program
Advisor: Dr. Tom Liu, Department of Radiology

Karla Brenner (PhD) Department of Bioengineering
Advisor: Dr. Sungho Jin, Department of Mechanical and Aerospace Engineering and Materials Science

Garrett Smith (PhD), Department of Bioengineering
Advisor: Dr. Sungho Jin, Department of Mechanical and Aerospace Engineering and Materials Science

Lisa Fung (MS), Department of Bioengineering
Advisor: Dr. Mark Ellisman, Department of Neurosciences

Mark Kostuk (PhD), Department of Physics
Advisor: Dr. Henry Abarbanel, Department of Physics and Scripps Institution of Oceanography

Bryan Toth (PhD), Department of Physics
Advisor: Dr. Henry Abarbanel, Department of Physics and Scripps Institution of Oceanography

Daniel Nunez (PhD), Department of Bioengineering
Advisors: Drs. Gaudenz Danuser and Sandra Schmid, The Scripps Research Institute

Kevin Chung (MS), Department of Bioengineering
Advisor: Dr. Karen Christman, Department of Bioenginereing

Tyler Seibert (MD/PhD), Department of Bioengineering
Advisor: Dr. James Brewer, Department of Radiology

Alex Perez (MS), Department of Bioengineering
Advisor: Dr. Mark Ellisman, Department of Neuroscience

Gene Hsiao (PhD), Department of Bioengineering
Advisor: Dr. Shankar Subramaniam, Department of Bioengineering

Anna Leigh Rack-Gomer (PhD), Department of Bioengineering
Advisor: Dr. Tom Liu, Department of Radiology

Ji Ho Park (PhD), Materials Science and Engineering
Advisor: Dr. Michael Sailor, Department of Chemistry

Sahar Soleymani (MS), Department of Bioengineering
Advisor: Dr. Wayne Giles, Department of Bioengineering

Adam Wright (PhD), Department of Bioengineering
Advisor: Dr. Andrew McCulloch, Departments of Bioengineering and Cardiology

Betty Hu (MS), Department of Bioengineering
Advisor: Dr. Wayne Giles, Department of Bioengineering

Linda Chang (PhD), Department of Bioengineering
Advisor: Dr. Nick Spitzer, Division of Biological Sciences

Loni Canepa (MS), Department of Bioengineering
Advisor: Dr. Mark Tuszynski, Department of Neuroscience

Kanika Chawla (PhD), Department of Bioengineering A
dvisor: Dr. Robert Sah, Department of Bioengineering

Lee Landeen (PhD), Department of Bioengineering
Advisor: Dr. Wayne Giles, Department of Bioengineering

Justin Kinney (PhD), Department of Bioengineering
Advisor: Dr. Terrance Sejnowski, Division of Neurobiology and Salk Institute for Biological Sciences

Joseph Russo (PhD), Department of Bioengineering
Advisor: Dr. Jeff Price, Signal Transduction Research Group, Burnham Institute

Rick Guilly (MS), Department of Bioengineering
Advisor: Dr. Mark Ellisman, Department of Neurosciences

Lee Pang (PhD), Department of Bioengineering
Advisor: Dr. Jeff Hasty, Department of Bioengineering

Sachin Talati (PhD), Department of Physics
Advisor: Dr. Henry Abarbanel, Department of Physics

Joy Liau (MD/PhD), Department of Bioengineering
Advisor: Dr. Tom Liu, Department of Radiology

Tom Gros (PhD), Deprtment of Bioengineering
Advisor: Dr. Mark Tuszynski, Department of Neuroscience

Tom Pisanic (PhD), Department of Bioengineering
Advisor: Dr. Sungho Jin, Department of Mechanical and Aerospace Engineering and Materials Science

Rita Fiones (PhD), Materials Science and Engineering Program
Advisor: Dr. Sungho Jin, Department of Mechanical and Aerospace Engineering and Materials Science

Jason Nathanson (PhD), Department of Bioengineering
Advisor: Dr. Fred Gage, Salk Institute for Biological Sciences

Sandy Klein PhD, Department of Neurosciences (CIRM Scholar advising committee)
Advisor: Dr. Binghai Zhang, Department of Neurosciences

Awards received by students

All students are or were postdocs, graduate, medical, or undergraduate students in our lab at UC San Diego.

Seibel Scholars Award (2012)
Helen Saad, Bioengineering

Eugene Mead Memorial Best Senior Design Project Award (2012)
Samir Damle, Phuong Nguyen, Samantha Reiss, Sarika Tandon, Bioengineering

Amgen Scholarship (2012)
Nithya Kubendran, University of Southern California

Gordon Scholarship (2011)
Helen Saad, Bioengineering

Amgen Scholarship (2011)
Charlie Park, Bioengineering

Initiative for Maximizing Student Diversity (IMSD) scholarship (2011)
Kim Macias, Bioengineering

Howard Hughes Medical Institute (HHMI) Gilliam Fellowship (2010)
Espoir Kyubwa, MD/PhD Medical Scientist Training Program (MSTP) and Bioengineering

Jacobs MD/PhD Training Fellowship (2010)
Bruno Maranhao, MD/PhD Medical Scientist Training Program (MSTP) and Bioengineering,

Seibel Scholars Award (2010)
Christopher MacDonald, Bioengineering

Gordon Conference on Neural Micro-circulation Best Poster Award (2010)
Krystal Nizar, MD/PhD Medical Scientist Training Program (MSTP) and Neurosciences Graduate Program,

Beyond Brain Machine Interface Workshop travel award (2010)
Masoud Khraiche, PhD, Bioengineering

Hughes Research Scholar (2010)
Brian Wong, Bioengineering

NSF Research Experience for Undergraduates (2010)
Paul Hart, Vanderbilt University

Initiative for Maximizing Student Diversity (IMSD) Fellowship (2010)
Carlos Salcedo, Bioengineering

Interfaces Graduate Fellowship (2009)
Helen Saad, Bioengineering

Interfaces Graduate Fellowship (2009)
Christopher MacDonald, Bioengineering

Reagents Scholar Research Initiative fellowship (2009)
Glendon MacDuff, Bioengineering,

Research Experience for Undergraduates fellowship (2009)
Ryan Cloke, Gonzaga University

Fullbright International Scholarship (2008)
Helen Saad, Bioengineering

University of California, San Diego Chancellor's Interdisciplinary Collaboratories Fellowship (2008)
Krystal Chaio, Neurosciences Graduate Program

University of California, San Diego Chancellor's Interdisciplinary Collaboratories Fellowship (2008)
Jay Blumling, Bioengineering

National Science Foundation (NSF) East Asia and Pacific Summer Institutes for U.S. Graduate Students (EAPSI) fellowship (2008)
Christopher MacDonald, Bioengineering

University of California Leadership Excellence through Advanced Degrees (LEADS) Program scholarship (2008)
Michael Oliveira, University of California, Merced

Best Overall Poster Award, Undergraduate Research Day (2008)
Kim Nguyen, Bioengineering

Reagents Scholar Research Initiative fellowship (2008)
Venkatakaushik Voleti, Bioengineering

Initiative for Maximizing Student Diversity (IMSD) fellowship (2008)
Nicolas Floresta, Bioengineering

Howard Hughes scholar (2007)
Matthew Li, Bioengineering

Reagents Scholar Research Initiative fellowship (2007)
Amul Shah, Bioengineering

Medical Student Training in Aging Research fellowship (2007)
Julie E. Nissimov, University of California, Irvine

University of California Chancellors Research fellowship (2007)
Zachary Singer, Bioengineering

Biomedical Engineering Society travel fellowship (2007)
Smita Pathak, Materials Science Graduate Program

Biomedical Engineering Society travel fellowship (2007)
Diana Yu, Bioengineering,

Biomedical Engineering Society travel fellowship (2007)
Marius Buibas, Bioengineering

Summer Training Academy for Research in the Sciences (STARS) fellowship (2007)
Rosa Tolentino, New Jersey Institute of Technology

US Grants Undergraduate Scholastic Grant (2007)
Siu Kei Chow, Bioengineering

US Grants Undergraduate Scholastic Grant (2007)
Ian Lee, Bioengineering

Howard Hughes Medical Institute (HHMI) Med into Grad Fellowship (2006)
Smita Pathak, Materials Science and Engineering Program

Best Undergraduate Bioengineering Researcher Award (2006)
Siu Kei Chow, Bioengineering,

University of California Chancellors Research Scholarship (2006)
Craig Sharp, Bioengineering

Pacific Rim Undergraduate Experience (PRIME) fellowship (2006)
Mahboubeh Hashemi, Bioengineering

US Grants Undergraduate Scholastic Grant (2005)
Siu Kei Chow, Bioengineering

US Grants Undergraduate Scholastic Grant (2005)
Puneet Gupta, Bioengineering

Faculty for Neuroscience/ Society for Neuroscience Travel Award (2005)
Barry Cordero, Department of Bioengineering, University of California, San Diego

Best Undergraduate Bioengineering Researcher Award (2005)
Barry Cordero, Bioengineering

Amylin Scholarship (2005)
Barry Cordero, Bioengineering

Harvard University Herchel Smith Research Fellowship (2005)
Albert Kao, Harvard University

BIOCOM Best Poster Award, UCSD Jacobs School of Engineering Research Expo (2005)
Diana Yu, Bioengineering

Sigma Xi Scientific Research Honor Society (2005)
Barry Cordero, Bioengineering

Society of Hispanic Professional Engineers (2005)
Yvette Valenzuela, Bioengineering

Next Generation of Public Servants Award, United States Department of Energy (2004)
Yvette Valenzuela, Bioengineering

US Grants Undergraduate Scholastic Grant (2004)
Elizabeth Cao, Bioengineering

University of California Leadership Excellence through Advanced Degrees (LEADS) Program Scholarship (2004)
Yvette Valenzuela, Bioengineering

Chancellors Award for Excellence (2004)
Elizabeth Cao, Bioengineeirng

Bridges to the Future Program Fellowship (2004)
Barry Cordero, Bioengineering

Doctoral Candidate, Department of Mathematics and Computer Science, Information Systems WSK&I. Emailg.l.cantanhede.da.silva@tue.nl. Overview. Courses (1). If you made any changes in Pure these will be visible here soon. Courses. Data analytics for engineers. 1/09/17 â† â€¦ Gabriel Silva, MSc, PhD. Associate Professor Jacobs Faculty Fellows Professor of Bioengineering Secondary Appointments: Associate Professor of Ophthalmology.Â M Buibas, D Yu, and GA Silva (2009) A framework for simulating and estimating the state and functional topology of complex dynamic geometric networks. ArXiv e-print (article ID 0908.3934v1). C MacDonald, D Yu, Buibas, M. and GA Silva (2008) Diffusion modeling of ATP signaling suggests a partially regenerative mechanism underlies astrocyte intercellular calcium waves. Frontiers in Neuroengineering 1:1-13. GA Silva (2006) Neuroscience nanotechnology: Progress, challenges, and opportunities. Nature Reviews Neuroscience 7:65-74.