

Kevin L Briggman

Contact Information

Max Planck Institute for Medical Research
Dept. of Biomedical Optics
Jahnstrasse 29
69120 Heidelberg, Germany
phone: +49-6221/486149
e-mail: briggman@mpimf-heidelberg.mpg.de

Research Interests

Development of large-scale circuit reconstruction techniques, population recordings with single neuron resolution, analysis of nonlinear dynamics in the nervous system.

Education

2005 Ph.D. Computational Neurobiology, *University of California, San Diego*
2000 B.S. Electrical Engineering, *Case Western Reserve University*

Research Experience

2005- Postdoc with Winfried Denk, *Max Planck Institute for Medical Research*
Development of serial block-face scanning electron microscopy for volume reconstruction of neural circuits

2000-2005 Graduate Student, Kristan Lab, *University of California, San Diego*
Used electrophysiology and voltage-sensitive dyes to examine and analyze the activity of large populations of cells during behavioral choice in the leech nervous system.

1999-2000 Undergrad Student, Chiel Lab, *Case Western Reserve University*
Constructed a hybrid neural network simulator interfacing diverse types of neuronal models.

Teaching

2003 & 2004 Neural Systems & Behavior Course Teaching Assistant
Marine Biological Laboratory, Woods Hole, MA

Professional Experience

05/99-12/99 Intel Corporation, Analog Design Engineer, Folsom, CA
01/98-08/98 Intel Corporation, Digital Design Engineer, Folsom, CA

Awards

- 2006 Capranica Foundation Award in Neuroethology
2005 Grass Fellowship
Marine Biological Laboratory, Woods Hole, MA
2004 Best Student Poster Award
7th International Congress on Neuroethology – Nyborg, Denmark
2002-04 La Jolla Interfaces in Science Graduate Research Fellowship
Burroughs Wellcome Fund

Methods Experience

Serial block-face scanning electron microscopy
Optical recording techniques (voltage-sensitive, calcium-sensitive dyes)
Design of optical systems (rapid emission wavelength switching)
Electrophysiology including sharp electrode, loose and whole-cell patch, and extracellular recordings
Data analysis techniques (PCA, ICA, MDS)
Histological methods, antibody labeling, and EM tissue preparation

Journal Publications

- Briggman KL, Kristan WB Jr. (2006) Imaging dedicated and multifunctional neural circuits generating distinct behaviors. *J Neurosci.* 26(42):10925-33.
Briggman KL, Abarbanel HDI, Kristan WB Jr. (2005) Optical imaging of neuronal populations during decision-making. *Science.* 307(5711):896-901.

Review Articles

- Briggman KL, Kristan WB Jr. (2008) Multifunctional pattern generating circuits. *Ann. Rev. Neurosci.* In press.
Briggman KL, Denk W. (2006) Towards neural circuit reconstruction with volume electron microscopy techniques. *Curr Opin Neurobiol.* 16(5):562-70.
Briggman KL, Abarbanel HDI, Kristan WB Jr. (2006) From crawling to cognition: analyzing the dynamical interactions among populations of neurons. *Curr Opin Neurobiol.* 16(2):135-44.