

Daniel Benjamin Aharoni

5645 Walnut Ridge Dr • Agoura Hills, CA 91301 • DBAharoni@gmail.com • (818) 640-2127

RELEVANT SKILLS

DESIGN

Circuit Design & Layout
3D CAD & CAM
Imaging & Optical
Data Acquisition Systems

PROGAMMING

Processing & Analysis (MATLAB)
Firmware (8-32bit MCU, ARM)
Software (C++, Python)

PRODUCTION

Validation & Testing
Rapid Prototyping
PCB Fabrication & Assembly
CNC Machining & Injection Molding

EDUCATION

Ph.D. in Physics

University of California, Los Angeles

2013

B.S. in Physics

University of California, Los Angeles

2006

EXPERIENCE

Postdoctoral Fellow – Golshani, Silva, Khakh Lab. *University of California, Los Angeles* **Oct 2013 – Present**

Primary developer of a miniature fluorescence microscope for imaging neural activity in freely behaving animals. My work is focused both on creating an affordable microscopy system for the neuroscience community as well as innovating the technology for the next generation of neuroscience research. This system is currently being adopted by research labs across the globe investigating neurological disorders and fundamental questions in neuroscience.

- Designed and implemented all optical | electrical | mechanical systems, data acquisition software | firmware, and high-speed data | communication protocols
- Developed a suite of processing and analysis tools for in vivo imaging including a novel, fully automated cell segmentation algorithm
- Organized and participated in training workshops for visiting researchers. Our hands-on workshops are on track to teach over 100 labs how to use our system by the end of the year.
- Built the project's open-source community resource, miniscope.org, which has gained over 300 registered users in the first month of operation

Co-Founder – Lumoto LLC. *Los Angeles, CA*

Jun 2013 – Present

Creator of Spinpod – a slim motion control unit for taking seamless panoramas and motion time-lapse videos

- Responsible for feature development, circuit | mechanical | firmware design, manufacturing, product fulfillment, and customer support
- Ran a highly successful and profitable Kickstarter campaign with continued sales through thespinpod.com
- Shipped over 2,000 Spinpods and Spinpod accessories in 2014 to customers in over 40 countries

Graduate Student Researcher – Arisaka, Mehta Lab. *University of California, Los Angeles* **Jul 2009 – Sep 2013**

Tool developer for spatial and cognitive map studies in rodents

- Devised and implemented the first ever multimodal virtual reality system for rodents to investigate the role of sensory modalities on the formation and use of cognitive maps
- Created an analysis toolbox for studying neural and behavioral activity of rats performing navigational tasks in real and virtual environments
- Developed a CNC surgical platform for semi-automated surgeries and cannula implantations

Graduate Student Researcher – Arisaka, Otis Lab. *University of California, Los Angeles* **Feb 2009 – Sep 2013**

Designed and implemented high-speed bio-imaging devices for applications in single molecule tracking, fluorescence correlation spectroscopy, and neural imaging

- Designed the optics, electronics, and synchronization systems of a first-of-its-kind multifocal fluorescence microscope used for fast optical recording of neuronal action potentials
- Developed test and validation systems for the characterization of hybrid photodetector prototypes

RECENT AWARDS & FUNDING

U01 BRAIN Initiative Co-Investigator

Sep 2015 – Present

Neural Microcircuits Training Grant Fellow

Jan 2015 – Dec 2015

Neurobehavioral Genetics Training Grant Fellow

Jan 2014 – Dec 2015

SELECTED PUBLICATIONS

Multifocal Fluorescence Microscope for Fast Optical Recordings of Neuronal Action Potentials - M.

Shtrahman, D. Aharoni, N. F. Hardy, D. V. Buonomano, K. Arisaka, T. S. Otis

- *Biophysical Journal*, Volume 108, Issue 3, February 2015

Rats in Virtual Space: The development and implementation of a multimodal virtual reality system for small animals - D. Aharoni

- *Graduate Thesis*, September 2013

Multisensory control of multimodal behavior - J.D. Cushman*, D. Aharoni*, B. Willers, P. Ravassard, A. Kees, C. Vuong, B. Popeney, K. Arisaka, M.R. Mehta

- *PLoS ONE*, Volume 8, Issue 11, June 2013

Multisensory Control of Hippocampal Spatiotemporal Selectivity - P. Ravassard*, B. Willers*, A. Kees*, D.

Ho, D. Aharoni, J.D. Cushman, M.R. Mehta.

- *Science*, Volume 240, Issue 6138, May 2013

Development of new photon-counting detectors for single-molecule fluorescence microscopy - X. Michalet,

R. A. Colyer, G. Scalia, A. Ingargiola, R. Lin, J. E. Millaud, S. Weiss, Oswald H. W. Siegmund, Anton S. Tremsin, John V. Vallerga, A. Cheng, M. Levi, D. Aharoni, K. Arisaka, F. Villa, F. Guerrieri, F. Panzeri, I. Rech, A. Gulinatti, F. Zappa, M. Ghioni, S. Cova

- *Philosophical Transactions of the Royal Society B*, Volume 368, Issue 1611, February 2012

Characterization of the Quartz Photon Intensifying Detector (QUPID) for noble liquid detectors - A.

Teymourian, D. Aharoni, L. Baudis, P. Beltrame, E. Brown, D. Cline, A.D. Ferella, A. Fukasawa, C.W. Lam, T. Lim, Y. Meng, S. Muramatsu, E. Pantic, M. Suyama, H. Wang, K. Arisaka

- *Nuclear Instruments and Methods in Physics Research Section A*, Volume 654, Issue 1, October 2011

High-throughput single-molecule fluorescence spectroscopy using parallel detection - X. Michalet, R.A.

Colyer, G. Scalia, T. Kim, M. Levi, D. Aharoni, A. Cheng, F. Guerrieri, K. Arisaka, J. Millaud, I. Rech, D. Resnati, S. Marangoni, A. Gulinatti, M. Chioni, S. Tisa, F. Zappa, S. Cova, S. Weiss

- *Proc. SPIE*, Volume 7608, January 2010

XAX: a multi-ton, multi-target detection system for dark matter, double beta decay, and pp solar neutrinos

- K. Arisaka, H. Wang, P.F. Smith, D. Cline, A. Teymourian, E. Brown, W. Ooi, D. Aharoni, C.W. Lam, K. Lung, S. Davies, M. Price

- *Astroparticle Physics*, Volume 31, Issue 2, March 2009