
Seth Haney, Ph. D.

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University of California
Department of Medicine

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EDUCATION:

Sept. 2004 - June 2010 **Ph.D. in Computational and Applied Mathematics**
University of California, Irvine
Thesis Topic: *A Mathematical Approach to Signaling, Specificity and Growth in Yeast Cell Mating.*
Advisor: Qing Nie

Sept. 2000 - June 2004 **B.A. in Mathematics and Integrated Science**
Northwestern University

ACADEMIC POSITIONS:

Apr. 2016 - Present **University of California, San Diego**
Postdoctoral Scholar

Jan. 2014 - March 2016 **University of California, Riverside**
Postdoctoral Scholar

Sept. 2011 - Dec. 2013 **University of San Diego**
Visiting Professor

May 2012 - Aug. 2012,
Jan. - May 2011 **San Diego State University**
Part-time Faculty, Instructor

Jan. - May 2011 **Miramar Community College**
Part-time Faculty, Instructor

PUBLICATIONS:

1. Finelli LA, **Haney S**, Bazhenov M, Stopfer M, Sejnowski TJ (2008) Synaptic learning rules and sparse coding in a model sensory system. *PLoS Comput Biol.* 4:4.
2. **Haney S**, Bardwell L, Nie Q (2010) Ultrasensitive responses and specificity in cell signaling. *BMC Sys Biol.* 4:119.
3. **Haney S**, Cattivera M, Siepielski A (2015) Temporal variation in niches and the ecological equivalence of species. *Theo. Ecol.* DOI: 10.1007/s12080-015-0267-7.
4. **Haney S**, Reya T, Bazhenov M (2016) Delayed Onset of Symptoms Through Feedback Interference in Chronic Cancers. *Convergent Science Physical Oncology.* 2:4; 045002.
5. **Haney S**, Siepielski A (2016) Resource scarcity and surplus have long-lasting effects on community structure. *submitted to American Naturalist.*
6. **Haney S**, Saha D, Raman B, Bazhenov M (2016) Differential Effects of Adaptation on Odor Discrimination *submitted to NEURON.*

RESEARCH INTERESTS:

mathematical biology; neuroscience; cancer; ecology; stochastic and nonlinear systems; machine learning.

GRANTS:

- 2009 UCI CCBS(Center for Complex Biological Studies) Opportunity Award (\$500)
- 2013 NIMBioS Undergraduate Conference at the Interface Between Biology and Mathematics. Travel award for myself, Matt Cattivera, Ryan DeMuse. (\$1500).

HONORS AND AWARDS

- Best Poster. \$100 prize. Resource scarcity and surplus have long-lasting effects on community structure. UCSD Postdoctoral Association Research Symposium. 2016.

INVITED TALKS

- **Moore T**, **Haney S**, Yi TM, Nie Q. *Noise Attenuation in Yeast Mating via Lipid Rafts.* Center for Computational Biological Systems Annual Retreat, University of California, Irvine. 2010.
- **Haney S**, Bardwell L, Nie Q. *Specificity, Ultrasensitivity and Polarization in Yeast: A Mathematical Approach.* University of San Diego. 2011.
- **Haney S**. Cattivera M., Siepielski S. *Stochastic Models in Ecology.* Bazhenov Lab. UC Riverside. 2013.

- **Haney S**, Cattivera M., Siepielski S. *Stochastic Models in Ecology and Protein Network Evolution*. Gutenkunst Lab. Univ. of Arizona. 2013.

CONTRIBUTED TALKS AND POSTER SESSIONS:

- **Haney S**, Bardwell L, Nie Q. *Ultrasensitive responses and specificity in cell signaling*. International Conference on Systems Biology Poster Session. 2010.
- **Haney S**, Cattivera M, Siepielski A. *Mean Exit Time as a Metric of Ecological Stability in Stochastic Lotka-Volterra Models*. Joint Math Meetings. 2012.
- **Haney S**. *Mean Exit Time in Ecological Models of Competition*. Society of Mathematical Biology annual meeting. 2013
- **Cattivera M**, Haney S, and Siepielski A. *A Perturbation Approach to Approximate Extinction Time in Ecological Systems Due to Harsh Conditions*. NIMBioS Research Conference at the Interface of Biology and Mathematics. 2013.
- **DeMuse R** and Haney S. *A Modified Goodwin Model of Biological Oscillators*. NIMBioS Research Conference at the Interface of Biology and Mathematics. 2013.
- **Haney S**, Cattivera M, and Siepielski, A . *Effects of Stochastic Variation in Resource Availability in Ecological Community Structure*. Joint Math Meetings. 2014.
- **Haney S**, Saha D, Raman B, Bazhenov M. *A Model of Background invariant odor recognition*. Society For Neuroscience annual meetings. Poster Session. 2014.
- Haney S, Reya T, **Bazhenov M**. *Delayed Onset of Symptoms Through Feedback Interference in Chronic Cancers*. Q-Bio Winter Conference. 2015.
- **Haney S**, Saha D, Raman B, Bazhenov M. *A Model of Background invariant odor recognition*. 22nd Annual Joint Symposium on Neural Computation. Poster Session. 2015.
- **Haney S**, Saha D, Raman B, Bazhenov M. *Differential effects of adaptation on odor discrimination*. Collaborative Research in Computational Neuroscience. Poster Session. 2015.
- **Haney S**, Reya T, Bazhenov M. *Model of Enhanced Self Renewal in Chronic Myeloid Leukemia*. Q-Bio Winter Conference. Poster Session. 2016.
- **Haney S**, Reya T, Bazhenov M. *Model of Enhanced Self Renewal in Chronic Myeloid Leukemia*. Workshop on Mathematical Oncology VI. 2016.
- **Haney S**, Siepielski A. *Resource scarcity and surplus have long-lasting effects on community structure*. UCSD Postdoctoral Association Research Symposium. 2016.
Awarded Best Poster SLAM Presentation
- **Haney S**, Saha D, Raman B, Bazhenov M. *Mechanisms and functions of the off-set response in insect olfaction*. Society For Neuroscience annual meeting. Poster Session. 2016
- **Haney S**, Konen J, Marcus AI, Bazhenov M. *Exploiting the Tumor Ecosystem*. Q-Bio Winter Conference. Poster Session. 2017.

TECHNICAL SKILLS: Programming and Software skills:

- FORTRAN, C/C++, Java
- MATLAB and other mathematics software
- GPGPU computing with CUDA and OpenCL
- Machine Learning

REVIEWED FOR:

The Journal of Neuroscience, Neuron, Nature Communications, Journal of Physiology, PLoS Computational Biology, Journal of Neurophysiology

TEACHING EXPERIENCE:**University of San Diego**

Calculus I	Fall 2011, Spring 2012, Fall 2012
Calculus II	Spring 2012, Fall 2012
Applied Mathematics for Science and Engineering	Spring 2013
College Algebra	Spring 2013, Fall 2013

San Diego State University

Applied Mathematics for Science and Engineering	Spring 2011, Summer 2012
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Miramar Community College

Intermediate Algebra	Spring 2011
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SERVICE

Goldwater Scholarship Committee Member USD Fall 2012	Participated in campus-wide selection for candidates and shepherded individual applications for the scholarship.
Math Modeling Club Advisor USD Fall 2012	Organized meetings to prepare students for COMAP international contest in mathematical modeling.

MENTORING

1. **Erica Nederend.** Senior honors thesis advisor. *Model of Serotonin Production and Regulation.* 2012 - 2013. Current position: Technology account manager at Oracle.
2. **Matt Cattivera.** Advisor for undergraduate research project: *A Perturbation Approach to Calculating Extinction Time of Ecologically Equivalent Species.* 2012 - 2014. Current position: FC Lending Consultant at Bank of America.
3. **Ryan DeMuse.** Advisor for undergraduate research project: *An Inducible Switch in Coupled Biological Oscillators.* 2012 - 2013. Current position: Graduate student in the Department of Mathematics at University of Denver.

4. **Jacob Garrett.** Advisor for graduate rotation project: *Heterogeneity in ORN Dynamics Affects Offset Response in Insect Olfaction*. 2016. Current position: Graduate student in Department of Neuroscience at UCSD.

REFERENCES:**Maxim Bazhenov**

Postdoctoral Advisor
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Division of Pulmonary, Critical Care & Sleep Medicine
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