

Luke Rosedahl

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Education

- University of California, Santa Barbara** Santa Barbara, CA
Doctor of Philosophy, Dynamical Neuroscience September, 2021
Dissertation: Difficulty in Procedural Categorization Tasks
Committee: Greg Ashby, Miguel Eckstein, Barry Giesbrecht, Craig Abbey
- University of Minnesota, Twin Cities** Minneapolis, MN
BS, *Magna Cum Laude*, Biomedical Engineering: Neural Engineering May, 2015

Research Experience

- Brown University** Providence, RI
Postdoctoral Researcher; Supervisor Takeo Watanabe 2021-Present
- Investigate the components of category learning that facilitate transfer of visual perceptual learning
 - Develop an integrated model of Category Learning and Visual Perceptual Learning
- University of California, Santa Barbara** Santa Barbara, CA
Graduate Researcher; Advisors: Greg Ashby and Miguel Eckstein 2015–2021
- Developed a biologically relevant difficulty measure for procedural categorization
 - Designed and implemented experiments utilizing eye tracking and virtual reality
 - Created computational models of the neural systems underlying category learning
- University of Amsterdam** Amsterdam, NL
NSF GROW Scholar 2019
- Investigated the role of conscious awareness in category learning using Continuous Flash Suppression
- University of Minnesota, Twin Cities** Minneapolis, MN
Undergraduate Researcher; Advisor: Matthew Johnson 2013-2015
- Developed an electronically controlled 3D printed micro-drive system for cortical micro-electrode insertion
 - Analyzed phase-amplitude coupling as a diagnostic tool for Parkinson's using MEG
- Center for the Neural Basis of Cognition** Pittsburgh, PA
NIH-Sponsored Undergraduate Researcher; Advisor: Andrew Schwartz 2014
- Developed a system for Local Field Potential-based idle detection during neural control of a robotic arm

Publications

Rosedahl, L. A., Serota, R. & Ashby, F. G. (In Press). When instructions don't help: Knowing the optimal strategy facilitates rule-based but not information-integration category learning. *Journal of Experimental Psychology: Human Perception and Performance*.

Rosedahl, L. A., & Ashby, F. G. (2021). Linear separability, irrelevant variability, and categorization difficulty. *Journal of Experimental Psychology: Learning, Memory, & Cognition*.

Ashby, F. G., Smith, J.D, & **Rosedahl, L.** (2020). Dissociations between Rule-Based and Information-Integration Categorization are Not Caused by Differences in Task Difficulty. *Memory & Cognition*

Rosedahl, L. & Ashby, F. G. (2019) A Difficulty Predictor for Perceptual Category Learning. *Journal of Vision*

Rosedahl, L., Eckstein, M.P., & Ashby, F.G. (2018) Retinal-Specific Category Learning. *Nature Human Behavior*

Rosedahl, L., & Ashby, F.G. (2018) A New Stimulus Set for Cognitive Research. *PsyArXiv*

Ashby, F.G., & **Rosedahl, L.** (2017) A Neural Interpretation of Exemplar Theory. *Psychological Review*

Conference Talks

Rosedahl, L. & Ashby, F.G. *A Neural Interpretation of Exemplar Theory*. Presented at: Math Psych. July 21st- 24th, 2018. Madison, WI

Rosedahl, L. Grado, L. Johnson, M. *Open Source System for Controlling Microelectrode Depth Within Subcortical Brain Structures*. Presented at: BMES Annual Meeting. October 7th-10th, 2015. Tampa, FL.

Posters

Rosedahl, L., Ashby, F.G., & Stein, T. Categorization without Conscious Perception. Accepted for presentation at: VSS 2020. May 18th, 2020. Tampa, Florida. Canceled due to COVID-19

Rosedahl, L., Eckstein, M.P., & Ashby, F.G. Visual-Field Specific Category Learning. Presented at: Cognitive Neuroscience Society Annual Meeting; March 25th-28th, 2017; San Francisco, CA

Rosedahl L., Johnson M. *Open-Source System for Independent Control of Microelectrodes within the Brain*. Presented at: Minnesota Neuromodulation Symposium; April 17th, 2015. Minneapolis, MN

Rosedahl L. *Neurosurgical Planning Software with Multi-Electrode Mapping Capabilities*. Presented at: Institute for Engineering in Medicine Retreat; September 22nd, 2014. Minneapolis, MN.

Selected Grants and Honors

National Science Foundation (NSF) Graduate Research Fellowship 2017–2021
University of California, Santa Barbara

NSF Graduate Research Opportunities Worldwide Grant 2019
University of Amsterdam

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University of California Santa Barbara Regent's Fellowship
University of California, Santa Barbara

2016–2017

Sage Center for the Study of the Mind Fellowship
University of California, Santa Barbara

2015–2016

Teaching and Instructional Design Experience

University of California, Santa Barbara

Instructor of Record: PSY 123 Cognitive Neuroscience

Summer 2021

- Designed and taught Cognitive Neuroscience online (38 students)

Instructor of Record: PSY 130 Perception Vision

Summer 2021

- Designed and taught Perception: Vision online (73 students)

Instructional Design Assist

2020-2021

- Provided technical support for Gauchospace (Moodle)
- Assisted UCSB faculty with course design through workshops, email, and zoom consultation

Remote Instruction Administrative Teaching Assistant

2020-2021

- Assisted Psychological and Brain Sciences faculty with online course design
- Held workshops on online course technology and provided one-on-one consultations

Teaching Assistant: PSY 113L Complex Systems in Brain Sciences

Winter 2020

- Designed lab section lectures
- Led weekly lab sections analyzing complex networks in Mathematica

Mentoring Experience

University of California, Santa Barbara

Undergraduate Research Advisor: Raina Serota, Albert Yang, Alyssa Campbell, Thalie Timsit, Sharon Su, Matt Swiacki, Brooke Renard, and Erica Carnohan

2016-2021

- Sharon Su is now a PhD student in Theoretical Neuroscience at Columbia
- Brooke Renard is now an M.D. student at California University of Science and Medicine
- Matt Swiacki got a job using the programming skills he learned through his research
- Raina Serota is an author on Rosedahl, Serota, and Ashby 2021 and is applying for medical school
- Alyssa Campbell is applying to Masters programs in Global Medicine

Undergraduate Honors Thesis Advisor: Erin Kim

2019-2020

- Thesis: The effect of working memory load on Explicit Category Learning
- Erin is currently applying for medical school

Luke Rosedahl

Research Mentor: Summer Institute in Mathematics and Science

2016, 2017

- Mentored two groups of four incoming UCSB freshmen on 2-week research projects

Research Mentor: Condor Techs

2016

- Mentored a group of four local community college students on a 2-week research project

Service

Dedicated Answerer, Scienceline

University of California, Santa Barbara

Santa Barbara, CA

2016-2021

Vice President of Budget and Finance, Graduate Student Association

University of California, Santa Barbara

Santa Barbara, CA

2016-2020

Member, Academic Senate Council on Planning and Budget

University of California, Santa Barbara

Santa Barbara, CA

2017-2019