

# Daniel Zavitz

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Department of Mathematics, University of Utah  
155 South 1400 East Room 233  
Salt Lake City, Utah 84112-0090  
zavitz@math.utah.edu  
www.danielzavitz.com

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<b>RESEARCH INTERESTS</b>	Computational neuroscience, neuronal networks, high-dimensional data analysis, olfaction
<b>EDUCATION</b>	<b>University of Utah</b> , Salt Lake City, UT 2014-present <i>Ph.D. in Mathematics (expected Fall 2020)</i> Advisor: Alla Borisyuk
	<b>Colorado State University</b> , Fort Collins, CO 2010-2014 B.S. in Physics, Mathematics Honors in Mathematics, University Honors
<b>PUBLICATIONS</b>	<b>D. Zavitz</b> , I. Youngstrom, A. Borisyuk, M. Wachowiak. Effect of interglomerular inhibitory networks on olfactory bulb odor representations” <i>J. Neurosci.</i> 40 (31). <b>D. Zavitz</b> , E. Amematsro, A. Borisyuk, S. Caron. Connectivity motifs in largely unstructured networks enable unique functions. <i>In Preparation.</i> <b>D. Zavitz</b> , I. Youngstrom, M. Wachowiak, A. Borisyuk. A Multiscale Model of Connectivity Between Functional Units. <i>In preparation.</i> <b>D. Zavitz</b> , A. Borisyuk. Refractory Dynamics on Networks: Role of Network Structure. <i>In preparation.</i>
<b>TALKS &amp; POSTERS</b>	<i>Effect of Interglomerular inhibitory networks on olfactory bulb odor representations</i> CNS Annual Computational Neuroscience Meeting, Poster Session July 2020 Online <i>Refractory Dynamics on Networks: Role of Network Structure</i> SIAM Conference on Applications of Dynamical Systems, Poster session May 2019 Snowbird, UT <i>A Multi-Scale, Data-Based Network Model of Lateral Inhibition in the Olfactory Bulb</i> CNS Annual Computational Neuroscience Meeting, Poster Session July 2018 Seattle, WA <i>Lateral Inhibition Networks in Rodent Olfactory Bulb</i> SIAM Conference on Applications of Dynamical Systems, Poster session May 2017 Snowbird, UT. <i>Community Structure in Complex Networks</i> GSAC Colloquium, University of Utah March 2016 Salt Lake City, Utah <i>The Spread of Activity with Refractory Periods Over Directed Networks</i> SIAM Conference on Applications of Dynamical Systems, Poster session May 2015 Snowbird, UT

**FUNDING**

*NIH/NINDS 1R01NS109979-01* 2019-2020  
Using functionally-defined glomeruli to probe circuit function in the mammalian olfactory bulb  
PI: Matt Wachowiak, Co-Investigator: Alla Borisyyuk

*NIH/NINDS 1R01NS107970-01* Summer 2019  
Biased randomness: a fundamental connectivity mechanism for associative brain centers  
PI: Sophie Caron

*NSF RTG Fellow (RTG-1148230), University of Utah* 2014-2015  
Research Training in Mathematical and Computational Biology  
Approximately three to eight awards are given in the department in an academic year.

**WORKSHOPS**

*Summer Research Course: Neurophysics of Sensory Navigation* August 2018  
Participant  
Kavli Institute for Theoretical Physics, UC Santa Barbara

*Berkeley Summer Course In Mining and Modeling of Neuroscience Data* July 2016  
Participant  
Redwood Center for Theoretical Neuroscience, UC Berkeley

**TEACHING**

**Full Instructor**, Department of Mathematics, University of Utah  
Math 3140: Vector Calculus and Partial Differential Equations Spring 2019  
Math 1030: Intro to Quantitative Reasoning Fall 2018  
Math 3140: Vector Calculus and Partial Differential Equations Summer 2018  
Math 3140: Vector Calculus and Partial Differential Equations Spring 2018  
Math 2280: Intro to Differential Equations Fall 2017  
Math 3150: Partial Differential Equations Summer 2017  
Math 1030: Intro to Quantitative Reasoning Spring 2016  
Math 1030: Intro to Quantitative Reasoning Fall 2016

**Lab Instructor**, Department of Mathematics, University of Utah  
Math 3140: Vector Calculus and Partial Differential Equations Spring 2017  
Math 2250: Differential Equations and Linear Equation Fall 2015

**Mentorship**

Jacob Jones (University of Utah, Class of 2021) Summer 2020  
Mentored a summer project on relationship between network structure and olfactory coding space using a discrete time model of neuronal activity

Adam Lee (University of Utah, Class of 2019) Summer 2018  
Mentored a summer REU project on relationship between network structure and olfactory coding space using a discrete time model of neuronal activity

**SERVICE**

*Co-chair, GSAC Recruitment Committee* 2018  
Organized a committee of current mathematics graduate students to recruit prospective graduate students. Coordinated prospective graduate student visiting weekend by arranging transportation, faculty lectures, interviews, and social activities.

*Member, GSAC Recruitment Committee* 2017  
Coordinated prospective graduate student visiting weekend by arranging transportation, faculty lectures, interviews, and social activities.

*Member, Graduate Student Life Committee* 2015  
Arranged recreational activities for mathematics graduate students as well as other students in the College of Science.