

RESEARCH INTERESTS	Theoretical neuroscience, applied mathematics, mathematical biology, dynamical systems, calcium dynamics, and stochastic processes	
EDUCATION	University of Utah 2013-2019 Ph.D. in Mathematics Advisor: Alla Borisjuk University of Michigan 2011-2012 M.S. in Electrical Engineering-Systems University of Maryland Baltimore County 2007-2011 B.S. in Mathematics Minor in computer science <i>Summa Cum Laude</i> , Meyerhoff Scholar, President's List, Nominated for Valedictorian	
POSITIONS	Postdoctoral Associate (Doiron Research Group) 2020-Present University of Chicago , Departments of Neurobiology and Statistics Grossman Center for Quantitative Biology and Human Behavior Postdoctoral Associate (Doiron Research Group) 2019-2020 University of Pittsburgh , Department of Mathematics Center for the Neural Basis of Cognition	
PUBLICATIONS AND PREPRINTS	(*co-first authors) 2021 10. G Handy , SD Lawley. Revising Berg-Purcell for finite receptor kinetics. <i>Biophys. J.</i> , 120 (11), 2021. 9. DA Aponte, G Handy , AM Kline, H Tsukano, B Doiron, HK Kato. Recurrent network dynamics shape direction selectivity in primary auditory cortex. <i>Nat. Commun.</i> , 12 (314), 2021. 2019 8. G Handy , SD Lawley, A Borisjuk. Role of trap recharge time on the statistics of captured particles. <i>Phys. Rev. E</i> , 99, 2019. 2018 7. G Handy , SD Lawley, A Borisjuk. Receptor recharge time drastically reduces the number of captured particles. <i>PLOS Comput. Biol.</i> , 14(3), 2018. 2017 6. M Taheri*, G Handy* , A Borisjuk, JA White. Diversity of evoked astrocyte Ca^{2+} dynamics quantified through experimental measurements and mathematical modeling. <i>Front. Syst. Neurosci.</i> , 11, 2017. 5. G Handy* , M Taheri*, JA White, A Borisjuk. Mathematical investigation of IP_3 -dependent calcium dynamics in astrocytes. <i>J. Comput. Neurosci.</i> , 42(3), 2017. 2016 4. G Blanchard, M Flaska, G Handy , S Pozzi, C Scott. Classification with asymmetric label noise: Consistency and maximal denoising. <i>Electron. J. Stat.</i> , 10(2), 2016. 2013 3. C Scott, G Blanchard, G Handy . Classification with asymmetric label noise: Consistency and maximal denoising. <i>Proceedings of the 26th Annual Conference on Learning Theory, PMLR</i> , 30, 2013. 2012 2. G Handy , BE Peercy. Extending the IP_3 receptor model to include competition with partial agonists. <i>J. Theor. Biol.</i> , 310, 2012. 2009 1. WD Potter, E Drucker, P Bettinger, F Maier, M Martin, D Luper, M Watkinson, G Handy , and C Hayes. Diagnosis configuration, planning and path finding: Experiments in nature-inspired optimization. In <i>Natural Intelligence for Scheduling, Planning and Packing Problems</i> , edited by R. Chiong. Studies in Computational Intelligence, vol 250. Springer, Berlin, Heidelberg, 2009.	

INVITED TALKS
AND CONFERENCE
PRESENTATIONS

<i>Division of labor among interneurons enables rich cortical computations</i> (poster)	February 2021
Cosyne	
Virtual	
<i>Digging through DiRT: Investigating how trap recharge time influences the statistics of particle diffusion</i>	
New Jersey Institute of Technology Applied Mathematics Seminar	September 2020
Virtual	
<i>Division of labor among interneurons enables rich cortical computations</i>	
Allen Institute Modeling Workshop	August 2020
Virtual	
<i>Interneuron Subpopulations Enable Direction Selectivity in A1</i>	
SIAM Life Sciences minisymposium	June 2020
Virtual	
<i>Influence of astrocytes in neural network synchrony</i> (poster)	
Cosyne	March 2020
Denver, Colorado	
<i>Measurement and Mathematical Modeling of Calcium Signaling in Astrocytes</i>	
NeuroNex Workshop	October 2018
Houston, Texas	
<i>Influence of Trap Recharge on the Statistics of Captured Particles</i> (poster)	
SIAM Conference on the Life Sciences	August 2018
Minneapolis, Minnesota	
<i>Investigation of Calcium Dynamics in Astrocytes via Bifurcation Analysis</i>	
MAA MathFest	August 2018
Denver, Colorado	
<i>Influence of Trap Recharge on the Statistics of Captured Particles</i> (poster)	
Society for Mathematical Biology Annual Meeting	July 2018
Sydney, Australia	
<i>Particle Diffusion and Competitive Receptor Binding</i> (poster)	
Society for Mathematical Biology Annual Meeting	July 2017
Salt Lake City, UT	
<i>Mathematical Investigation of Ion Dynamics in Astrocytes and the Extracellular Space</i>	
SIAM Conference on Applications of Dynamical System	May 2017
Snowbird, UT	
<i>The Role of SOC Channels and Other Calcium Fluxes in Astrocyte Calcium Signaling Investigated through Mathematical Modeling</i> (poster)	
Society for Neuroscience Annual Meeting	November 2016
San Diego, CA	
<i>Investigating Experimental Variations in Astrocytes with a Mathematical Model of Calcium Dynamics</i> (poster)	
SIAM Conference on the Life Sciences	July 2016
Boston, MA	
<i>Measurement and Mathematical Modeling of Calcium Signaling in Astrocytes</i> (poster)	
Gordon Research Seminar and Conference on Calcium Signaling	June 2015
Newry, ME	
<i>Identifying the Role of Store-Operated Calcium Channels in Astrocytes via an Open-Cell Model</i> (poster)	
SIAM Conference on Applications of Dynamical Systems	May 2015
Snowbird, UT	

<i>Algorithms for Reconstructing Images from Helical CT Scans</i> (poster)	
CIC Summer Research Opportunity Program Conference	July 2010
Columbus, OH	

HONORS AND SUPPORT	Swartz Foundation Fellow for Theory in Neuroscience	2020-2022
	BioFire Scholar	2018
	SMB Landahl Grant	2018
	Outstanding Graduate Student Award (University of Utah)	2017
	STEM Ambassador Program's 2017 cohort	2017
	SIAM-LS16 Poster Prize Winner (Graduate Student Category)	2016
	RTG Fellowship Recipient (University of Utah)	2013-2014, 2015-2016, 2017
	Rackham Merit Fellowship Recipient (University of Michigan)	2011-2012
	Pi Mu Epsilon	2011
	Outstanding Graduating Senior in the Mathematics Department (UMBC)	2011
	Phi Beta Kappa Honor Society (Fall Inductee)	2010
	Outstanding Teaching Assistant in the Statistics Department (UMBC)	2010
	The Honor Society of Phi Kappa Phi	2010
	Golden Key International Honor Society	2009
	Meyerhoff scholar (UMBC)	2007-2011

TEACHING	Courses	
	<i>Differential Equations</i> , University of Pittsburgh	Spring 2020
	<i>Mathematics in Medicine</i> , University of Utah	Spring 2018
	<i>Differential Equations and Linear Algebra</i> , University of Utah	Fall 2017
	<i>Mathematical Biology Journal Club</i> , University of Utah	Spring 2017
	<i>Differential Equations and Linear Algebra</i> , University of Utah	Fall 2016
	<i>Mathematics in Medicine (Lab Instructor)</i> , University of Utah	Spring 2016
	<i>The Role of Mathematics in Medicine (Teaching Assistant)</i> , University of Utah	Fall 2015
	<i>College Algebra</i> , University of Utah	Spring 2015
	<i>Intermediate Algebra (Teaching Assistant)</i> , University of Utah	Fall 2014
	<i>Introduction to Probability and Statistics (Teaching Assistant)</i> , UMBC	Fall 2009
	<i>Introductory Physics (Learning Assistant)</i> , UMBC	Spring 2009
	<i>Precalculus Mathematics (Teaching Assistant)</i> , UMBC	Fall 2008

Summer schools and tutorials

Cosyne tutorial teaching assistant	February 2021
Helped created and led students through online exercises that accompanied Kanaka Rajan's tutorial on recurrent neural networks (RNN) for neuroscience. Topics included linearization of a non-linear system of differential equations stability analysis, principal component analysis, and random matrix theory.	

Neuromatch academy	July 2020
Led students through daily tutorial covering topics including dimensional reduction, Wilson-Cowan equations, and deep learning, while also mentoring two projects investigating datasets collected in Stringer et al., 2019.	

Mentorship

Emma Fine (University of Utah, class of 2019)	Fall 2017
Mentored a project exploring the expected number and variability of binding events with non-instantaneous recharge rates.	

Daniel Griffin (Utah State University, class of 2017)	Summer 2016
Mentored a summer REU project extending a single compartment calcium model to include effects from the extracellular space and additional ionic fluxes.	
Olivia Dennis (Skyline High School, class of 2015)	Spring 2015
Mentored a reading group on the textbook “Mathematical Physiology” by Dr. James Keener and Dr. James Sneyd.	

Other teaching experience

Led summer qualifying exam preparatory courses for first and second year graduate students for Differential Equations (Summer 2016) and Functional Analysis (Summer 2017).

SERVICE AND EXTRACURRICULAR ACTIVITIES	Poster presenter at the Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS) Conference in Salt Lake City	October, 2017
	STEM Ambassador Program’s 2017 cohort	2017
	<ul style="list-style-type: none"> • STEMAP is a research and public engagement training program funded by the National Science Foundation. • Attended training workshops and held engagement events, and gained experience talking about mathematics with non-scientist. • Worked with Splore, a non-profit organization that specializes in leading accessible outdoor adventures. Participated in cross-country skiing and rock climbing trips during which I discussed the mathematical concepts that can be found in each activity, as well as my current research in mathematical neuroscience. 	
	Graduate Student Advisory Committee, active member	
	<ul style="list-style-type: none"> • Chair of Recruitment Committee 	2016-2017
	Coordinated prospective graduate recruitment scheduling and activities.	
	<ul style="list-style-type: none"> • Retention, Promotion, and Tenure Committee 	2016-2017
	Reviewed teaching evaluations for faculty promotions.	
	Poster presenter at Science Day (University of Utah)	November, 2015
	<ul style="list-style-type: none"> • Science day consists of interactive workshops providing high school students with a great look at laboratory research and career opportunities in science, math and engineering. 	
PROFESSIONAL MEMBERSHIPS	Society for Industrial and Applied Mathematics Society for Mathematical Biology Mathematical Association of America Association for Women in Mathematics	
TECHNOLOGIES	C · MATLAB · Python · Julia · Mathematica · Maple · XPPAUT · Java · RStudio · Excel	