

KATHLEEN CHAMPION

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EDUCATION

UNIVERSITY OF WASHINGTON

Ph.D., Applied Mathematics

Seattle, WA

August 2019

M.S., Applied Mathematics

December 2015

- *Advisors:* Nathan Kutz & Steve Brunton
- *Thesis:* From data to dynamics: discovering governing equations from data

DARTMOUTH COLLEGE

Hanover, NH

B.A., Mathematics with High Honors

June 2011

- *Advisors:* Alex Barnett & Amy Gladfelter
- *Honors Thesis:* Markov Chain Monte Carlo for Automated Tracking of Genealogy in Microscopy Videos

AWARDS & HONORS

National Science Foundation Graduate Research Fellow	2016-2019
Boeing Service Award, UW Applied Mathematics	2019
Rising Stars in Computational & Data Sciences workshop participant	2019
Achievement Rewards for College Scientists (ARCS) Foundation Fellowship	2014-2017
Best Poster Award, 2017 International Conference on Mathematical Neuroscience	2017
Computational Neuroscience Training Grant	2015-2016
Boeing Fellowship	2014-2015

PUBLICATIONS

Kathleen Champion, Peng Zheng, Aleksandr Y. Aravkin, Steven L. Brunton, and J. Nathan Kutz. *A unified sparse optimization framework to learn parsimonious physics-informed models from data.* arXiv:1906.10612 (preprint). 2019.

Kathleen Champion, Bethany Lusch, J. Nathan Kutz, and Steven L. Brunton. *Data-driven discovery of coordinates and governing equations.* arXiv:1904.02107 (preprint). 2019.

Kathleen P. Champion, Steven L. Brunton, and J. Nathan Kutz. *Discovery of Nonlinear Multiscale Systems: Sampling Strategies and Embeddings.* SIAM Journal on Applied Dynamical Systems 18(1):312-333. 2019.

PROFESSIONAL EXPERIENCE

HERE TECHNOLOGIES

Data Science Intern

Seattle, WA

Summer 2017

JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LABORATORY

Associate Professional Staff

Laurel, MD

2011-2014

JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LABORATORY

Technical Intern

Laurel, MD

Summer 2010

SELECTED PRESENTATIONS

Simultaneous discovery of coordinates and parsimonious dynamics using autoencoders

International Congress on Industrial and Applied Mathematics, Valencia, Spain, *July 19, 2019*

Machine learning for the discovery of governing dynamical models

Applied Mathematics: The Next 50 Years, Seattle, WA, *June 21, 2019*

Simultaneous discovery of coordinates and parsimonious dynamics

Physics Informed Machine Learning Workshop, Seattle, WA, *June 6, 2019*

Simultaneous discovery of coordinates and parsimonious dynamics

Rising Stars in Computational & Data Sciences Workshop, Austin, TX, *April 9, 2019*

Data-driven discovery of nonlinear dynamics

SIAM Conference on Computational Science and Engineering, Spokane, WA, *February 27, 2019*

Whole-cortex imaging and analysis: interpreting neural activity across the mouse cortex

Allen Institute Showcase, Seattle, WA, *December 14, 2017*

Inferring brain-wide dynamics from wide-field calcium imaging data

Neural Computation and Engineering Connection, Seattle, WA, *January 19, 2017*

Determining the dimensionality of brain-wide activity from calcium imaging data

SAMSI Workshop on Optical Imaging Data Analysis, Research Triangle Park, NC, *February 2, 2016*

TEACHING & OUTREACH

<i>Committee member</i> , UW Applied Mathematics Diversity Committee	2017-2019
<i>Mentor & co-founder</i> , Women in Applied Math Mentorship Program	Spring 2018
<i>President</i> , Society for Industrial and Applied Mathematics UW Student Chapter	2016-2017
<i>Outreach Chair</i> , Society for Industrial and Applied Mathematics UW Student Chapter	2015-2016
<i>Co-organizer/instructor</i> , Women in Science and Engineering (WiSE) UP Summer Bridge Program computational neuroscience mini-course	June 2016
<i>Panelist</i> , Bellevue School District STEM Career Fair	May 2016
<i>Teaching Assistant</i> , UW Neurobiology 450: Current Research Literature in Neurobiology	Fall 2015
<i>Teaching Assistant</i> , UW AMath 383: Introduction to Continuous Mathematical Modeling	Spring 2015

WORKSHOPS & SUMMER COURSES

Machine Learning for Physics and the Physics of Learning. Institute for Pure and Applied Mathematics, Los Angeles, CA	September-December 2019
Workshop on Operator Theoretic Methods in Dynamic Data Analysis and Control. Institute for Pure and Applied Mathematics, Los Angeles, CA	February 2019
Methods in Computational Neuroscience. Marine Biological Laboratory, Woods Hole, MA	August 2016