

Michael Vaiana

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Education

University at Buffalo

PhD in Computational Data-Enabled Science and Engineering, 3.9/4.0

2014–present

University at Buffalo

Masters in Mathematics, 3.9/4.0

2012–2014

SUNY Geneseo

B.A. Mathematics, 3.9/4.0

2010–2012

Experience

Sandia National Laboratory

Intern

Livermore, CA

2017 Summer

Princeton University

Neurotechnologies for Analysis of Neural Dynamics Fellow

Princeton, NJ

2016 Summer

Languages

MATLAB

Python

SQL

Publications

2018: Topological Methods for Automatic Segmentation in Calcium Images *in preparation*

2018: DASCAN: Density Adaptive Spatial Clustering, *in preparation*

2018: Multilayer Resolution Limit, *in preparation*

2017: Multilayer Brain Networks, *Journal of Nonlinear Science*

Service

2014–2015: *Mathematics Graduate Student Association (GSA) President*

2014–2015: *Founder and Organizer, Graduate Student Lecture Series, University at Buffalo, Department of Mathematics*

2013–2015: *Cofounder and Organizer, Qualifying Exam Study Group*

2012–2014: *Mathematics GSA Vice President*

2010–present: creator of youtube.com/rootmath - free university level mathematics tutorials

Memberships

American Mathematical Society

Mathematical Association of America

Society for Industrial and Applied Mathematics

Awards and Honors

- 2017:** Computational Data Science and Engineering Graduate Fellowship
- 2016:** 2nd Place Poster: UB Neuroscience Research Day
- 2016:** Princeton University Neurotechnologies for Analysis of Neural Dynamics Fellow
- 2015:** Computational Data Science and Engineering Graduate Fellowship
- 2012:** Geneseo College Excellence in Mathematics Award
- 2012:** Phi Beta Kappa
- 2012:** Pi Mu Epsilon

Talks

- 2017:** *Multilayer Networks with Application in Neuroscience*, University at Buffalo Networks Research Seminar
- 2016:** *Topological Data Analysis with Applications to Neuroscience*, University at Buffalo Graduate Lecture Series
- 2015:** *Modular Reductions for Symmetric Group Representations*, Temple University Graduate Conference in Algebra and Topology
- 2015:** *Representation of the Symmetric Group and Related Objects*, University at Buffalo Graduate Lecture Series
- 2014:** *Modern Approach to Exterior Powers of Irreducible $\mathbb{C}S_n$ -modules*, Binghamton University Graduate Conference in Algebra and Topology
- 2012:** *Geometric Algebra: A Unifying Mathematical Language*, G.R.E.A.T. Day, State College of New York at Geneseo

Posters

- 2017:** *Real-Time, Automatic Calcium Image Segmentation via Topology*, Society for Neuroscience Annual Meeting
- 2017:** *Using Persistent Homology for Automatic Neuron Detection in Calcium Imaging Data*, UB Neuroscience Research Day
- 2016:** *Quantifying Network Structure During State Changes in Functional Brain Networks*, Society for Neuroscience Annual Meeting
- 2016:** *Quantifying Network Structure During State Changes in Functional Brain Networks*, UB Neuroscience Research Day

Teaching

Instructor.....

- 2016:** *Calculus II for Non-Majors*
- 2015:** *Calculus II*
- 2014:** *Calculus III*

Teaching Assistant.....

- 2017:** *Numerical Analysis II*
- 2016:** *Numerical Analysis I*
- 2016:** *Advanced Linear Algebra*
- 2016:** *Linear Algebra*
- 2015:** *Advanced Linear Algebra*
- 2015:** *Calculus II*
- 2015:** *Calculus I for Non-Majors*

2014: *Abstract Algebra*
2014: *Calculus II for Non-Majors*
2013: *Calculus I*
2013: *Calculus III*
2013: *Calculus I for Non-Majors*
2012: *Calculus I for Non-Majors*

Workshops and Conferences

Workshops.....

2016: *Algebraic and Topological Methods for Biological Networks*, University of Pennsylvania
2014: *New directions in Lie Theory*, Center for Mathematical Research, University of Montreal

Conferences.....

2017: *Society for Neuroscience Annual Meeting*, District of Columbia
2016: *Union College Mathematics Conference*, Union College
2016: *UB Neuroscience Research Day*, University at Buffalo
2016: *Society for Neuroscience Annual Meeting*, San Diego
2015: *UB Neuroscience Research Day*, University at Buffalo, Medical Campus
2014: *AMS Sectional Meeting*, Eu Claire, Wisconsin
2013: *Binghamton University Graduate Conference in Algebra and Topology*, Binghamton University
2013: *New York State Regional Graduate Mathematics Conference*, Syracuse University