Cornell University

The College of Arts&Sciences

Department of **Mathematics**

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Steven Strogatz

Jacob Gould Schurman Professor of Applied Mathematics, Stephen H. Weiss Presidential Fellow

Research Focus

Dynamical systems applied to physics, biology, and social science.

I have broad interests in applied mathematics. At the beginning of my career I was fascinated by mathematical biology and worked on a variety of problems, including the geometry of supercoiled DNA, the dynamics of the human sleep-wake cycle, the topology of three-dimensional chemical waves, and the collective behavior of biological oscillators, such as swarms of synchronously flashing fireflies. In the 1990's, my work focused on nonlinear dynamics and chaos applied to physics, engineering, and biology. Several of these projects dealt with coupled oscillators, such as lasers, superconducting Josephson junctions, and crickets that chirp in unison. In each case, the research involved close collaborations with experimentalists. I also love branching out into new areas, often with students taking the lead. In the past few years, this has led us into such topics as: mathematical explorations of the small-world phenomenon in social networks (popularly known as "six degrees of separation"), and its generalization to other complex networks in nature and technology; the role of crowd synchronization in the wobbling of London's Millennium Bridge on its opening day; and the dynamics of structural balance in social systems.

I'm also passionate about communicating mathematics to the public. For example, I wrote a weekly column on mathematics for the New York Times in the spring of 2010 and the fall of 2012. My most recent books, The Joy of x and Infinite Powers, are aimed at general readers curious about our beautiful subject. And my podcast for Quanta Magazine, called The Joy of Why, takes listeners into some of the biggest unanswered questions in math and science today.

Publications

- Infinite Powers: How Calculus Reveals the Secrets of the Universe, Houghton Mifflin Harcourt, 2019.
- Nonlinear Dynamics and Chaos: With Applications to Physics, Biology, Chemistry, and Engineering, 2nd edition, Westview Press, 2014.
- Collective dynamics of 'small-world' networks (with D. J. Watts), Nature 393 (1998), 440–442.
- Sync: The Emerging Science of Spontaneous Order, Hyperion, 2003.
- Synchronization of pulse-coupled biological oscillators (with R. E. Mirollo), SIAM Journal on

533 Malott Hall
shs7@cornell.edu

Education

- Ph.D. (1986) Harvard University

Departments and programs

- Carl Sagan Institute
- Mathematics
- Physics

Academic interests

- Applied Mathematics
- Analysis

Links

- Primary Web Page

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steven strogatz

Jacob Gould Schurman Professor of Applied Mathematics | Cornell University

What can math reveal about our world and ourselves?

Steven Strogatz is an applied mathematician who works in the areas of nonlinear dynamics and complex systems, often on topics inspired by the curiosities of everyday life. He loves finding math in places where you'd least expect it—and then using it to illuminate life's mysteries, big and small. For example: Why is it so hard to fall asleep a few hours before your regular bedtime? When you start chatting with a stranger on a plane, why is it so common to find that you have a mutual acquaintance? What can twisting a rubber band teach us about our DNA? An award-winning researcher, teacher, and communicator, Strogatz enjoys sharing the beauty of math though his books, essays, public lectures, podcasts, and radio and television appearances. Bio for Steven Strogatz →

Curriculum Vitae | Cornell University Page | Google Scholar

Latest Book

Infinite Powers: How Calculus Reveals the Secrets of the Universe

NEW YORK TIMES BESTSELLER

Calculus is not about complexity; it's about simplicity. It harnesses an unreal number—infinity—to tackle real-world problems, breaking them down into easier ones and then reassembling the answers into solutions that feel miraculous. *Infinite Powers* recounts the history of calculus and

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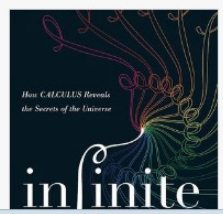press
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How a Mathematician Spends His Sundays

Everywhere Steven Strogatz goes in the city, he sees math.

— *New York Times*

Ph.D. Students Supervised at Cornell

- Duncan Watts (Theoretical and Applied Mechanics, 1997)
- M.K. Stephen Yeung (Theoretical and Applied Mechanics, 1999)
- Duncan Callaway (Theoretical and Applied Mechanics, 2001)
- Joel Ariaratnam (Applied Mathematics, 2002)
- Michelle Girvan (Physics, 2003)
- Daniel Wiley (Applied Mathematics, 2006)
- Danny Abrams (Theoretical and Applied Mechanics, 2006)
- Sam Arbesman (Computational Biology, 2008)
- Erik Martens (Theoretical and Applied Mechanics, 2009)
- Lauren Childs (Applied Mathematics, 2010)
- Seth Marvel (Applied Mathematics, 2011)
- Tim Novikoff (Applied Mathematics, 2012)
- Kathryn Montovan (Applied Mathematics, 2013)
- Danielle Toupo (Applied Mathematics, 2016)
- Isabel Kloumann (Applied Mathematics, 2016)
- Kevin O'Keeffe (Applied Mathematics, 2017)
- Ian Lizarraga (Applied Mathematics, 2017)
- Bertrand Ottino-Loffler (Applied Mathematics, 2018)
- Irena Papst (Applied Mathematics, 2021)
- Ekaterina Landgren (Applied Mathematics, 2022)
- Stephen Cowpar (Applied Mathematics, 2022)
- David Hathcock (Physics, 2022)
- Max Lipton (Mathematics, 2023)

Masters Students Supervised

- John Weisenfeld (Theoretical and Applied Mechanics, 1997)

The Science of Sync

How things in nature tend to sync up

recent activities

Zero to Infinity

Discover how the concepts of zero and infinity revolutionized mathematics.

— NOVA, PBS
November 16, 2022

Ph.D. Students Supervised at Cornell

- Duncan Watts (Theoretical and Applied Mechanics, 1997)

- M.K. Stephen Yeung (Theoretical and Applied Mechanics, 1999)

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John ∨

networks

Girvan Networks Lab

Michelle Girvan is a Professor in the Department of Physics and the Institute for Physical Science and Technology at the University of Maryland, College Park (UMD). Her research focuses on applications of network science to biological, social, and technological systems.

CONTACT INFO

Email: girvan@umd.edu

Phone: 301.405.1610

Campus Office: 3341 A.V. Williams

Mailing Address:

University of Maryland

Energy Research Facility, Bldg # 223

8279 Paint Branch Drive

College Park, MD 20742

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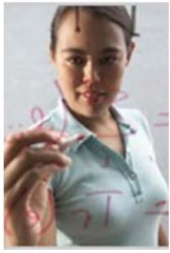View the live page ›
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UNIVERSITY OF MARYLAND

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A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Girvan, Michelle

Professor
girvan@umd.edu
3341 A.V. Williams Building
301.405.1610
Personal Website
Curriculum Vitae

Biography | Research | Teaching | News

Michelle Girvan received her B.S. in 1999 from the Massachusetts Institute of Technology and her Ph.D. in 2003 from Cornell University. Her research combines methods from statistical mechanics, dynamical systems, and graph theory to address interdisciplinary, network-related problems. She is interested in both broad theoretical approaches to complex networks as well as specific applications, especially to information cascades, epidemiology, and genetic regulatory networks.

In a 2019 podcast, she discussed her work in chaos and artificial intelligence.

- All
- Faculty
  - Current
  - Emeritus
  - Adjunct
  - Affiliate
  - Research Professors
- Research Scientists
- Postdocs
- Staff
- Lecturers
- Visitors
- Graduate Students

Curriculum Vitae

I. Personal Information

I.A. UID: , Girvan, Michelle

    Bldg 223, Paint Branch Dr
    College Park, MD 20742

I.B. Academic Appointments at UMD

    University of Maryland, Associate Professor, July 2013 - Present
        Joint appointment between the Department of Physics (50%) and the Institute for Physical Science and Technology (50%).

    University of Maryland, Assistant Professor, January 2007 - June 2013

I.D. Other Employment

    Institute for Advanced Study, Member, September 2008 - July 2009

    Santa Fe Institute, Postdoctoral Fellow, September 2003 - December 2006

I.E. Educational Background

    Ph.D. in Physics, Cornell University (Ithaca, NY), January 2004. Dissertation title: The Structure and Dynamics of Complex Networks: A Statistical Physics and Dynamical Systems Approach.

    B.S. in Physics and B.S. in Mathematics with a minor in Political Science, Massachusetts Institute of Technology, (Cambridge, MA), June 1999.

II. Research, Scholarly and Creative Activities

II.C. Articles in Refereed Journals

Full citation, inclusive of all authors in the order of publication and page numbers. Review articles and

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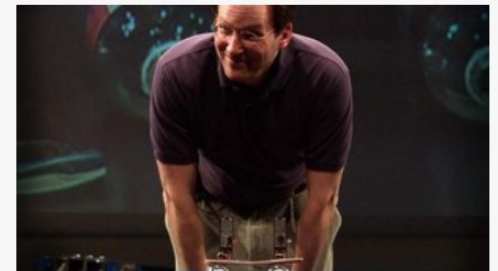
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- Duncan Watts (Theoretical and Applied Mechanics, 1997)

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- Joel Ariaratnam (Applied Mathematics, 2002)

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- Daniel Wiley (Applied Mathematics, 2006)

- Danny Abrams (Theoretical and Applied Mechanics, 2006)

- Sam Arbesman (Computational Biology, 2008)

- Erik Martens (Theoretical and Applied Mechanics, 2009)

- Lauren Childs (Applied Mathematics, 2010)

- Seth Marvel (Applied Mathematics, 2011)

- Tim Novikoff (Applied Mathematics, 2012)

TED talk

The Science of Sync

How things in nature tend to sync up

recent activities

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FACULTY PROFILES

College of Arts and Sciences — Mathematics

Stephen Yeung
ASSOCIATE PROFESSOR

Math 110, Calculus II
Phys 371, Mathematical Physics
Dynamical systems theory including coupled oscillators, Josephson junction arrays, injection lasers, sigma-delta data converters, and algorithmic analysis of microarray data

↩ BACK

CONTACT INFORMATION

TEL: (415) 422-2187

syeung3@usfca.edu

University of San Francisco
2130 Fulton Street
HR 212 Mathematics
San Francisco, CA 94117-1045

FULL TIME

Office Hours
T 3:30-4:15pm
R 3:30-5:15pm

Teaching

- Math 110, Calculus II
- Phys 371, Mathematical Physics

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University of San Francisco
2130 Fulton Street
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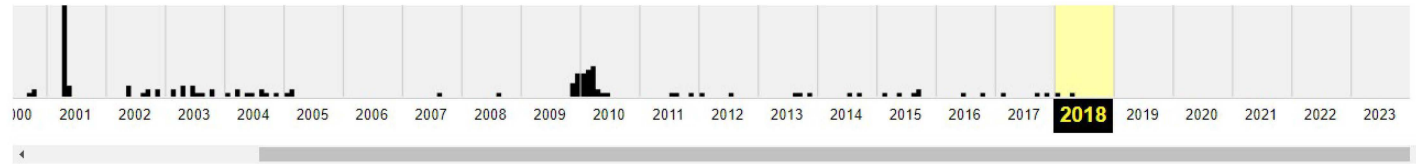Directions   Contact USF   Web Feedback   About This Site

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USF RESPONSE TO TEAM REPORT 2019

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College of Arts and Sciences Academic Program Review Schedule »

Click the links below for APR documents for the College of Arts & Sciences. The College is broken down into three areas: Arts & Humanities, Math & Sciences, and Social Sciences. Minors and non-degree programs are also included below.

Arts & Humanities

Art + Architecture (Architecture, Arts History & Museum Studies, Design, and Fine Arts) ⌄

Asia Pacific Studies - MA/MBA ⌄

Asian Studies - BA ⌄

Comparative Literature & Culture - BA (Archive) ⌄

English - BA ⌄

History - BA ⌄

Languages, Literatures, & Cultures - BA ⌄

Migration Studies - MA ⌄

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Environmental Management - MS/MBA ⌄

Environmental Science - BS ⌄

Kinesiology - BS ⌄

Mathematics & Statistics - BS ⌃

2016 - 2017

- [MATH: 2016-17 Executive Summary](#)
- [MATH: 2016-17 Self Study](#)

2003 - 2004

- [MATH: 2003-04 Executive Summary](#)
- [MATH: 2003-04 Self Study](#)

Physics & Astronomy - BS ⌄

Social Sciences

Advertising - BA ⌄

Communication Studies - BA ⌄

Self Study Academic Program Review, Spring 2017

Mathematics and Statistics Department
University of San Francisco

February 21, 2017
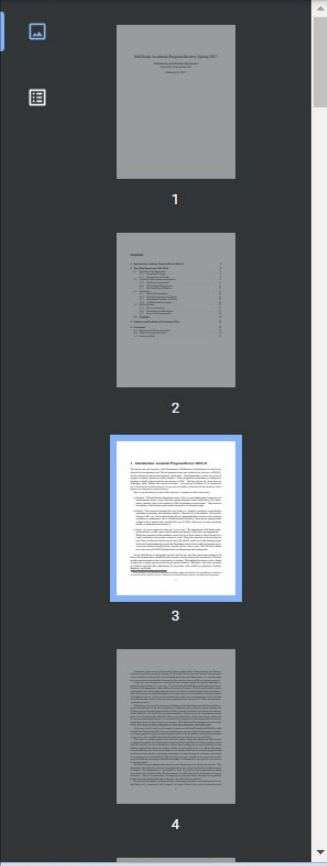
1 Introduction: Academic Program Review 2010–11

The current state and trajectory of the Department of Mathematics and Statistics can only be understood by considering its past. The last program review was conducted six years ago, in 2010/11, and the external reviewers were laudatory at that time: "[the Department] consists at its core of engaged, scholarly, productive faculty members. Their exceptional commitment to excellence in teaching is clearly aligned with the core mission of USF..." But they did not shy away from our challenges, either. Indeed, they zeroed in on three: "*the principal challenges to the department are to increase the numbers of majors, to increase the number of full-time faculty members, and to improve the department's physical space.*"

Here, in greater detail, are some of the reviewers' comments on these three issues:

- Students: "We find that the department faculty offers a sound mathematical experience for undergraduate majors, on par with many strong programs in the United States. It is unfortunate, therefore, that so few students at USF are partaking of this treasure." The reviewers nevertheless found student morale within the major to be extremely high.

- Faculty: The reviewers described the core faculty as "engaged, productive in scholarship, superlative in teaching, and strikingly collegial." However, as to our numbers, "For an institution of USF's size, and considering that this is a department that is meant to cover statistics in addition to mathematics, this is a small number [of faculty]. There are pre-eminent small colleges with a student body one-third the size of USF's with twice as many permanent faculty of mathematics and statistics."

- Space: As it was written six years ago, so is it now: "The department's Self Study underscored the lack of office space, both in quality and quantity. They were not exaggerating. ... While the concerned faculty members seem to be good sports about it, their tolerance of a small, windowless environment is bound to wane." Hope was expressed at the time that the new Center for Science and Innovation (aka CSI, aka LS, which was in the planning stages at the time) might ultimately provide the Department with at least a dedicated meeting space, if not new windowed faculty offices, but this did *not* come to pass. The CSI does contain two *classrooms* [LS 209/210] dedicated to our Department, but nothing more.
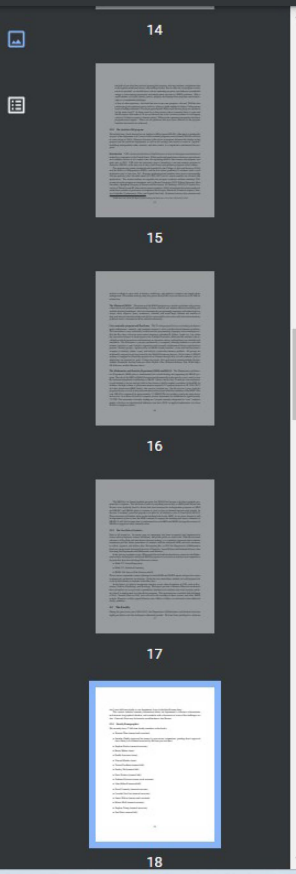
2.3.1 Faculty Demographics

We currently have 17 full-time faculty members on the books:

- Xuemei Chen (tenure-track assistant)

- Jennifer Chubb (approved for tenure by peer-review committees; pending dean's approval she is likely to be tenured associate by the time you read this)

- Stephen Devlin (tenured associate)

- Renée Hubert (term)

- Emille Lawrence (term)

- Vincent Matsko (term)

- Tristan Needham (tenured full)

- Stanley Nel (tenured full)

- Peter Pacheco (tenured full)

- Nathaniel Stevens (tenure-track assistant)

- John Stillwell (tenured full)

- David Uminsky (tenured associate)

- Cornelia Van Cott (tenured associate)

- James Wilson (tenure-track assistant)

- Robert Wolf (tenured assistant)

- Stephen Yeung (tenured associate)

- Paul Zeitz (tenured full)
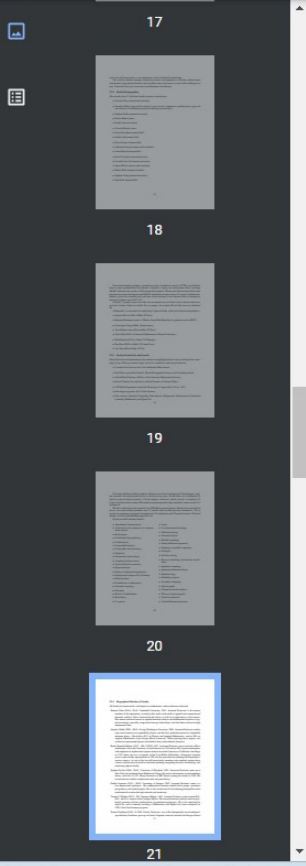
2.3.3 Biographical Sketches of Faculty

All faculty are tenure-track, with degrees in mathematics, unless otherwise indicated.

Xuemei Chen (2016–, Ph.D., Vanderbilt University, 2012, Assistant Professor) is the newest member of the department, an analyst that works in the field of applied and computational harmonic analysis. She is interested in the theory, as well as its application to data science. Her current research focuses on applied harmonic analysis and mathematical aspects of signal processing, especially compressed sensing, frame theory, and fast linear solvers for high dimensional data.

Jennifer Chubb (2009–, Ph.D., George Washington University, 2009, Assistant Professor) studies logic and recursion (or computability) theory, and she has a particular interest in computable structure theory. She holds a B.S. in Physics and Applied Mathematics, and an M.S. in Applied Mathematics from George Mason University. While pursuing those degrees, she worked in experimental physics and studied chaos and nonlinear dynamics.

Renée Brunelle Hubert (1997–, MA, UCSD, 1997, Assistant Professor, term) received a BS in mathematics from the University of San Francisco in 1994 and an MA in pure mathematics with emphases in algebra and complex analysis from the University of California, San Diego in 1997 where she was a recipient of the Cota Robles Fellowship. During her nineteen years of term faculty appointments at USF, she has specialized in teaching the Department's service courses. As one of the few full-time faculty members who regularly teaches these courses, she has been involved in curricular planning, integrating the use of technology, and mentoring adjunct faculty.

Stephen Devlin (2004–, Ph.D., University of Maryland, 2001, Associate Professor) grew up in New York and graduated from Manhattan College. He wrote a dissertation on representation theory, and was a C.L.E. Moore Instructor at MIT before joining the faculty at USF. His recent interests include complex networks and game theory.

Emille Lawrence (2011–, Ph.D., University of Georgia, 2007, Assistant Professor, term) is a low-dimensional topologist. Her mathematical interests include braid groups, geometric group theory, and spatial graphs. She is also an advocate for broadening participation in the mathematical sciences through outreach and mentoring.

Vincent J. Matsko (2015–, DA, Carnegie Mellon, 1993, Assistant Professor, term) earned B.S., M.S., and D.A. degrees from Carnegie Mellon. His research interests include classical polyhedral geometry and the combinatorics of permutation polytopes. He is also interested in digital art, and is currently teaching a Mathematics and Digital Art course designed for USF's First-Year Seminar program.

Tristan Needham (1989–, D. Phil, Oxford, Professor), son of the distinguished social anthropol-

hedral geometry and the combinatorics of permutation polytopes. He is also interested in digital art, and is currently teaching a Mathematics and Digital Art course designed for USF's First-Year Seminar program.

Tristan Needham (1989–, D. Phil, Oxford, Professor), son of the distinguished social anthropologist Rodney Needham, grew up in Oxford, England, where he attended the Dragon School

(with Stephen Wolfram and Hugh Laurie). He studied physics at Merton College, Oxford, before moving to the Mathematical Institute, where he enjoyed the great privilege of studying black holes under the supervision of Sir Roger Penrose. His current focus is Differential Geometry, but Complex Analysis, General Relativity, and the history of science are abiding loves. His continuing mission is to seek out new intuitive forms of understanding, and new visualizations.

His book *Visual Complex Analysis* won first prize in the National Jesuit Book Award Competition. An earlier paper received the Mathematical Association of America's Carl B. Allendoerfer Award. He is currently writing a new book, *Visual Differential Geometry*.

Stanley D. Nel (1983–, Professor) grew up in South Africa, and studied Cosmology under George Ellis at the University of Cape Town, where he earned a Ph.D. in Applied Mathematics. As a Rhodes Scholar at Balliol College, Oxford, he performed research as a member of Roger Penrose's Relativity Group at the Mathematical Institute. His papers have focused on the observational foundations of cosmology, and on techniques for obtaining solutions of Einstein's field equations in General Relativity. After teaching in the mathematics department, he moved to administration, and served as Dean of the College of Arts and Sciences 1990–2003. He is currently the Vice President for International Relations at the University of San Francisco, working from Bangkok and Beijing.

Peter Pacheco (1989–, PhD., Florida State University, 1983, Professor) was originally trained in topology, but currently his main research interest is parallel computing. He's been involved
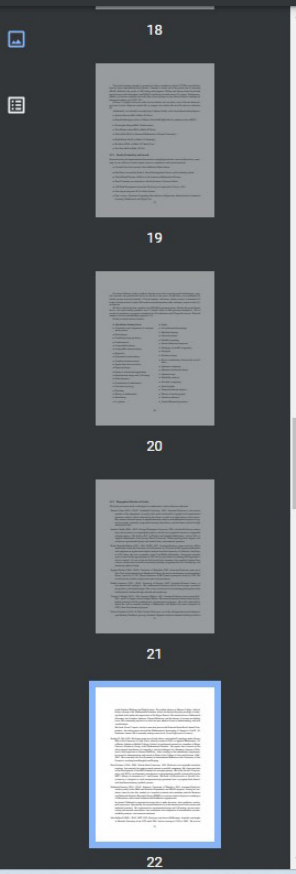
he moved to administration, and served as Dean of the College of Arts and Sciences 1990–2003. He is currently the Vice President for International Relations at the University of San Francisco, working from Bangkok and Beijing.

Peter Pacheco (1989–, PhD., Florida State University, 1983, Professor) was originally trained in topology, but currently his main research interest is parallel computing. He's been involved in the development of the MPI Standard for message-passing. His book *Parallel Programming with MPI* is an elementary introduction to programming parallel systems that use the MPI 1 library of extensions to C and Fortran. His book *An Introduction to Parallel Programming* is designed to teach inexperienced programmers how to program both shared- and distributed-memory parallel systems.

Nathaniel Stevens (2015–, Ph.D., Statistics, University of Waterloo, 2015, Assistant Professor) teaches jointly in the Math and Statistics Department and MSAN program. During his academic career he has also worked as a research assistant and consultant with the Business and Industrial Statistics Research Group (BISRG) on various statistical projects resulting in collaborations with several industrial and healthcare organizations.

In general, Nathaniel is interested in using data to make decisions, solve problems, and improve processes. Specifically, his research interests lie at the intersection of data science and industrial statistics. He is interested in experimental design and $A|B$ testing, process monitoring and network surveillance, the assessment and comparison of measurement systems, reliability analysis, and variation reduction.

John Stillwell (2002–, Ph.D., MIT, 1970, Professor) was born in Melbourne, Australia, and taught at Monash University from 1970 until 2001, before moving to USF in 2002. He was an

invited speaker at the International Congress of Mathematicians in 1994, and his mathemat-

invited speaker at the International Congress of Mathematicians in 1994, and his mathematical writing has been honored with the Chauvenet Prize of the Mathematical Association of America in 2005 and the book award of the Association of Jesuit Colleges and Universities in 2009. He was made a Fellow of the American Mathematical Society in 2012. Among his best-known books are *Mathematics and Its History* (3rd edition, 2010) and *Yearning for the Impossible* (winner of the AJCU book award in 2009).

David Uminsky (2012–, Ph.D., Boston University, 2009, Associate Professor) received a B.S. in Mathematics from Harvey Mudd College. He is currently the director of the MSAN program and was the founding director of the BSDS program. His research interests are in applied mathematics; specifically, unsupervised machine learning, data clustering, algebraic signal processing, as well as pattern formation, dynamical systems and fluids. David was selected in 2015 by the National Academy of Sciences (NAS) as a Kavli Frontiers of Science Fellow. Each year, 100 researchers under the age of 45 are selected by the academy, and the 20% of the current NAS were previous Kavli Fellows. Before joining USF, he was a combined National Science Foundation and UC President's Fellow at UCLA, where he was awarded the Chancellor's Award for post-doctoral research. This award is given to approximately top 20 postdocs out of over a thousand who qualify for consideration.

Cornelia Van Cott (2008–, Ph.D., Indiana University, 2008, Assistant Professor) received her undergraduate degree from Wheaton College (Wheaton, Illinois), where she majored in mathematics and minored in music. She did her graduate studies in math at Indiana University, getting a Ph.D. in 2008. She joined USF in the fall of 2008. Her research is in geometric topology with a focus on knot theory. She founded the USF Math Department Colloquium Series together with Steve Devlin in 2009, and she is active as the faculty advisor for the USF Women in Science Club. Outside of USF, she enjoys speaking at math circles for children and undergraduate math colloquia both in the Bay Area and around the country.

James Wilson (2015–, Ph.D. ,Statistics and Operations Research, University of North Carolina, 2015, Assistant Professor) received an M.S. in Mathematical Sciences from Clemson University (2010). His dissertation work was entitled "Statistical Analysis of Relational Data: Mining and Modeling Complex Networks." Through his research, James brings together techniques from machine learning, statistical inference, and random graph theory to model, analyze, and explore relational (network) data structures. His interdisciplinary work has led to collaborations with researchers from genetics, infectious disease, political science, and managerial science. Currently in San Francisco, James also works with data science teams such as researchers from the AT &T Big Data team, as well as from Airbnb, to solve exciting statistical and network analysis problems. His hope is to understand and motivate the interplay between statistics and application.

Robert Alan Wolf (1968–, Ph.D., UC Berkeley, 1968, Assistant Professor) graduated from the

ing statistical and network analysis problems. His hope is to understand and motivate the interplay between statistics and application.

Robert Alan Wolf (1968–, Ph.D., UC Berkeley, 1968, Assistant Professor) graduated from the Massachusetts Institute of Technology in 1962 with an SB degree in mathematics and received a master's degree in 1964 from the University of California at Berkeley. He received

an MS degree in physics from San Francisco State University in 1990. He is interested in the mathematical and physical sciences.

Stephen Yeung (2006–, Associate Professor) received his B.Sc. from the Chinese University of Hong Kong and his Ph.D. from Cornell University. He has diverse research interests, having worked on dynamical systems theory including coupled oscillators, Josephson junction arrays, injection lasers, and sigma-delta data converters, on which he is a co-inventor on two patents. He has also developed algorithms to analyze microarray data to reconstruct gene regulatory networks efficiently.

Paul Zeitz (1992–, Ph.D, UC Berkeley, 1992, Professor) majored in History at Harvard and studied ergodic theory in graduate school. Between college and graduate school, he taught high school mathematics in San Francisco and Colorado Springs for six years.

One of his greatest interests is mathematical problem solving. He won the USA Mathematical Olympiad (USAMO) and was a member of the first American team to participate in the International Mathematical Olympiad (IMO) in 1974. Since 1985, he has composed and edited problems for several national math contests, including the USAMO. He has helped train several American IMO teams, most notably the 1994 team which, for the first—and only—time in in history, achieved a perfect score. This work, and his experiences teaching at USF led him to write *The Art and Craft of Problem Solving* (Wiley, 1999, currently in its third edition). He has also been very active in local events for high school students.

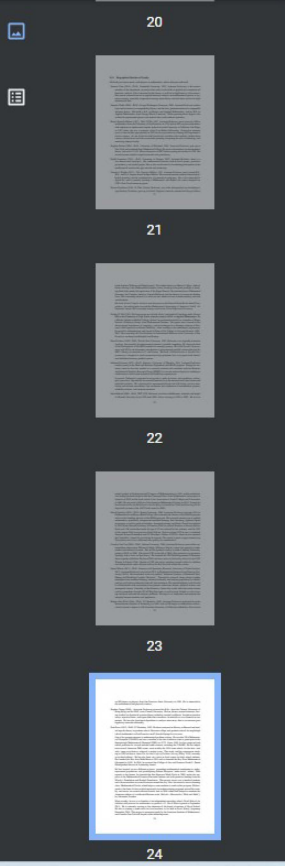they ... time in its history, achieved a perfect score on their work, and his experience teaching at USF led him to write *The Art and Craft of Problem Solving* (Wiley, 1999, currently in its third edition). He has also been very active in local events for high school students. He founded the Bay Area Math Meet in 1994 and co-founded the Bay Area Mathematical Olympiad in 1999. In 2016, he received the College of Arts and Sciences Frank L. Beach Distinguished Service & Leadership Award.

He has focused on two different projects: expanding mathematical enrichment to under-represented populations, and promulgating Eastern European "math circles" culture. With regards to the former, he founded the San Francisco Math Circle in 2005, under the auspices of the Mathematical Sciences Research Institute and with generous funding from the Moody's Foundation and Bechtel Foundation. This project serves over a hundred students and a dozen teachers in several locations around the city. Also, he created a service-learning class, Mathematical Circles, which helps to train students to teach in this program. With regards to the latter, he has worked extensively in teacher-training programs around the country, and serves on several editorial boards, and in 2010 edited and helped to translate the American edition of a celebrated Russian work, *Malyshi i Matematika* ("Kids and Math"), by Alexander Zvonkin.

Most recently, he was a co-founder of an independent secondary school, Proof School, for children with passion for mathematics in grades 6–12. Proof School opened in September 2015. He is currently serving as the chairman of the board of trustees of Proof School. He also is starting a math circle for local teachers, to be held at Proof School, beginning December 2016. This project is sponsored partly by the American Institute of Mathematics, and Cornelia Van Cott will be part of the leadership team.

2.3.4 Problems Faced by Faculty

The most significant issue facing our faculty is office space. The department has grown substantially since the last Program Review, and we are feeling the crunch. One faculty member who

UNIVERSITY OF SAN FRANCISCO | College of Arts and Sciences

EXECUTIVE SUMMARY
Academic Program Review
College of Arts and Sciences

DEPARTMENT/PROGRAM
Mathematic and Statistics

EXTERNAL REVIEWERS
Ali Arab, Associate Professor, Georgetown University
Solomon Friedberg, James P. McIntyre Professor, Boston College
Ami Radumskaya, Professor, Pomona College

CAMPUS VISIT
May 8th – 10th 2017

The review team read the *Self Study* written by the faculty in USF's Mathematic and Statistics Department, reviewed the curriculum, course syllabi and evaluations; interviewed faculty, students and staff; and met with the Dean, Associate Deans, Vice Provost of Diversity and Community Engagement, and other relevant members of the campus community. Prior to their visit, the reviewers were provided with USF's Vision, Mission, Values Statement, the program's self-study and other university materials.

1. How did the external review committee rate the quality of the program – excellent, very good, good, adequate, or poor? How does the program compare with benchmark top-tier programs nationally? Please provide a brief rationale for the external review committee's rating.

The committee gave the Mathematics and Statistics Department an overall rating between **Adequate and Good**.

"The Department of Mathematics and Statistics at USF has made some astonishing strides in the past few years. It has seen a strong increase in the number of majors and minors, and has introduced a new program in Data Science that has attracted even more majors. The faculty are dedicated to teaching and active in research and in the broader mathematics community. We have identified some areas of concern, many of them due to the rapid growth of the department and to the needs of the new MSAN program."

2. What are the most important general issues that emerged from the external review process?

The committee provided reported the following **strengths**:

Faculty
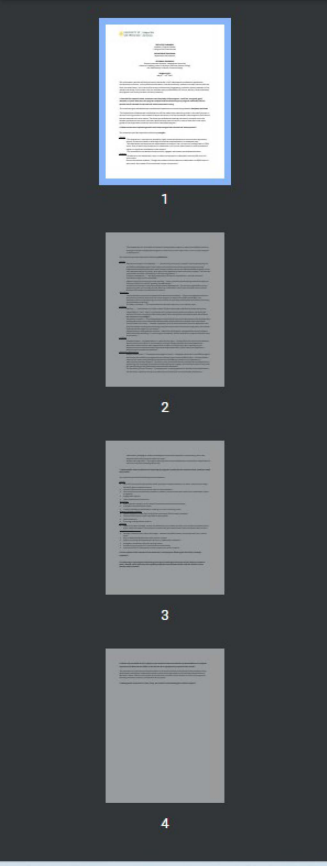
Self-Study and Preliminary Development Plan

Mathematics Department, University of San Francisco

April 7, 2004

Contents

COLLEGE OF ARTS AND SCIENCES

EXECUTIVE SUMMARY
Academic Program Review
Mathematics

1. How did the external review committee rate the quality of the program- excellent, very good, good, adequate, or poor? How does the program compare with benchmark top-tier programs nationally? Please provide a brief rationale for the external review committee's rating.

The external reviewers, in sum, gave the department a VERY GOOD rating. It would be difficult to compare the Mathematics Department to top-tier programs because of the severe impediments they see for this department. These will be delineated below, with other details.

2. What are the most important general issues that emerged from the external review process?

   a. *Facilities*
   There is currently inadequate space for faculty and for faculty-student meetings. The reviewers believed that the faculty offices in Mathematics were so small as to be factually inadequate; in many cases, the spaces are too small to accommodate even one student visitor.

   b. *Service courses*
   The reviewers were astounded by the service teaching load of Mathematics (approximately 85% of their total offerings, according to the review). They believe the department is underappreciated on this front.

   c. *Full-time Faculty*
   The reviewers repeatedly state that the Department should hire two new tenure track positions to replace the part-time staffing that the department habitually employs. They believe this would bolster the department's curricular offerings and be just compensation for the service courses delivered.

3. What specific recommendations for improving the program's quality has the external review committee made to the Dean? (Please number each recommendation and ensure that the scope of each recommendation is clear when multiple curricula are covered in the report).

Addendum to file, Degree Evidence 5; dated February 5, 2023.

The following print to PDF files were created on the date supra. These were not archived with Perma.cc, because they were primarily LinkedIn profiles, and required my personal login to access – Perma.cc does not allow for archival of webpages requiring a login. The pages following, provide evidence as to the manner in which the doctoral students supervised by Dr. Steven Strogatz at Cornell University listed on the primary website of Dr. Strogatz, stevenstrogatz.com, absent Dr. Stephen Yeung, self-represented their academic credentials to the public as of this date. While perhaps not dispositive, *I find* the evidence very strong as to my interpretation of the intent of Dr. Strogatz respecting the information presented on his website in such connection.

Note that all 23 doctoral students, of Cornell University, listed on stevenstrogatz.com as of January 23, 2023, absent Dr. Yeung, are represented in the pages following: thus, twenty-two Cornell University doctorates total. These pages are in the order of persons, as I found listed, on stevenstrgatz.com/teaching.

Duncan Watts · 2nd

Stevens University Professor at University of Pennsylvania

- University of Pennsylvania
- Cornell University

New York, New York, United States · **Contact info**

447 connections

Andrea Bartoli is a mutual connection

[👤+ Connect]   [+ Follow]   [More]

Activity

656 followers

Duncan hasn't posted lately

Duncan's recent posts and comments will be displayed here.

Show all activity →

Experience

Stevens University Professor
University of Pennsylvania
Jul 2019 - Present · 3 yrs 8 mos
Greater Philadelphia Area

I am a computational social scientist, and a PIK Professor at the University of Pennsylvania with appointments in the School of Engineering and Applied Science (Computer and Information Science), the Annenberg School of Communication, and the Wharton School (Operations, Information, and Decisions).   ...see more

Principal Researcher
Microsoft
Apr 2012 - Present · 10 yrs 11 mos

Principal Research Scientist
Yahoo!
Aug 2007 - Apr 2012 · 4 yrs 9 mos

Professor
Columbia University in the City of New York
Jul 2000 - Jun 2007 · 7 yrs

Education

Cornell University
Doctor of Philosophy (PhD), Theoretical and Applied Mechanics

1993 - 1997

UNSW
Bachelor of Science (B.Sc.), Physics
1988 - 1991

Skills

Research

Statistics

Data Analysis

Show all 8 skills →

Recommendations

Received   Given

Nothing to see for now
Recommendations that Duncan receives will appear here.

Interests

Companies   Groups   Schools

Untangling the Web
298 followers

\+ Follow

Microsoft
18,908,823 followers

\+ Follow

Show all 5 companies →

People also viewed

Emily Hannum • 3rd
Professor at University of Pennsylvania

🔒 Message

Michael Kearns • 3rd
Professor at University of Pennsylvania

Duncan Callaway · 3rd

Associate Professor of Energy and Resources at UC Berkeley

- UC Berkeley
- Cornell University

Berkeley, California, United States · **Contact info**

500+ connections

🔒 Message   + Follow   More

Activity

886 followers

Duncan hasn't posted lately

Duncan's recent posts and comments will be displayed here.

Show all activity →

Experience

UC Berkeley
13 yrs 8 mos

- **Associate Professor of Energy and Resources**
  Jun 2016 - Present · 6 yrs 9 mos

- **Assistant Professor of Energy and Resources**
  Jul 2009 - Jun 2016 · 7 yrs

University of Michigan
3 yrs

- **Assistant Research Scientist**
  Aug 2008 - Jul 2009 · 1 yr

- **Research Investigator**
  Aug 2006 - Jul 2008 · 2 yrs

Senior Engineer
Davis Energy Group
2002 - 2005 · 3 yrs

Education

Cornell University
Doctor of Philosophy (PhD), Theoretical and Applied Mechanics

University of Rochester
BS, Mechanical Engineering

Recommendations

Received   Given

Nothing to see for now
Recommendations that Duncan receives will appear here.

Interests

Companies   Groups   Schools

Cornell University
586,525 followers

+ Follow

University of Rochester
112,042 followers

+ Follow

Show all 4 companies →

People also viewed

Scott Moura • 2nd
PATH Faculty Director

👤+ Connect

Meredith Fowlie • 3rd
Associate Professor at UC Berkeley

🔒 Message

David Anthoff • 3rd
Associate Professor at UC Berkeley. I very rarely check LinkedIn, please use email to contact me.

🔒 Message

Joel Ariaratnam

Editor at St. Martin's Press

• 🔴 Cornell University

New York, New York, United States · **Contact info**

22 connections

👤+ Connect   **🔒 Message**   More

Activity

23 followers

Joel hasn't posted lately

Joel's recent posts and comments will be displayed here.

Show all activity →

Experience

Editor
St. Martin's Press
Oct 2007 - Jan 2009 · 1 yr 4 mos

Editor
Thomas Dunne Books/ St. Martin's Press
Oct 2007 - Jan 2009 · 1 yr 4 mos

Assistant Editor
The New Press
Mar 2004 - Oct 2007 · 3 yrs 8 mos

Education

Cornell University
Ph.D., Applied Mathematics
1995 - 2002

Interests

Companies   Schools

Cornell University
586,525 followers

\+ Follow

People also viewed

Emily Anderson • 3rd
Editorial Assistant at St. Martin's Essentials

🔒 Message

Social Worker Equity Campaign 📢 **Equity, Unity and Action** • 2nd
Addressing systemic issues threatening SOCIAL WORK profession | Twitter
@swkrequity | #SWEC | By #SocialWorkers for #SocialWork ⏪

👤+ Connect

People you may know

Bo de Lange
Attorney At Law (US) bij Conway Advocaten & Attorneys-at-law

Connect

Sean McGee
Attorney

Connect

Sue Holland
Employment Law Attorney Boutin Jones Inc.

Connect

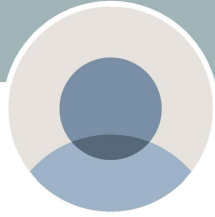**Judy Silber**
Radio Producer/Reporter

Connect

Maria Dinzeo
Legal Journalist at Law.com

Connect

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in LEARNING

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Michelle Girvan · 3rd

Assistant Professor at University of Maryland, College Park

- University of Maryland, College Park
- Cornell University

Santa Fe, New Mexico, United States · **Contact info**

275 connections

🔒 Message ＋ Follow More

Activity

284 followers

Michelle hasn't posted lately

Michelle's recent posts and comments will be displayed here.

Show all activity →

Experience

Assistant Professor
University of Maryland, College Park
Jan 2007 - Present · 16 yrs 2 mos

Postdoctoral Fellow
Santa Fe Institute
2004 - 2007 · 3 yrs

Education

Cornell University
Ph.D., Physics
1999 - 2003

Massachusetts Institute of Technology
1995 - 1999

Interests

Companies   Schools

Cornell University
586,526 followers

🔍 **SEARCH**

(https://ep.jhu.edu/search/)

Daniel Wiley

CONTACT

dwiley5@jhu.edu

PROGRAM

APPLIED AND COMPUTATIONAL MATHEMATICS

Daniel Wiley holds BS degrees in Mathematics and Physics from Portland State University and a PhD in Applied Mathematics from Cornell University. He specialized in complex systems and worked for two summers as an instructor at the Mathematical and Theoretical Biology Institute. Dr. Wiley held academic positions at Howard University, the Mathematical Sciences Research Institute, and the University of Maryland, College Park. Dr. Wiley currently reviews potential publications for the journal CHAOS. He is presently employed as a mathematician for the U.S. Government.

Education History

- B.S. Physics, Portland State University

- Ph.D. Applied Mathematics, Cornell University

Work Experience

Mathematician, U.S. Government

Publications

Daniel Abrams, Rennie Mirollo, Steven Strogatz, and Daniel Wiley, "Solvable Model for Chimera States of Coupled Oscillators," Phys. Rev. Lett. 101, 084103 (2008)

Daniel Wiley, Steven Strogatz, and Michelle Girvan, "The Size of the Sync Basin," CHAOS 16, 015103 (March 2006)

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Baltimore, MD 21218

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Daniel Abrams · 3rd

Associate Professor at Northwestern University

N Northwestern University

🔴 Cornell University

Evanston, Illinois, United States · **Contact info**

112 connections

🔒 Message   + Follow   More

Activity

116 followers

Daniel hasn't posted lately

Daniel's recent posts and comments will be displayed here.

Show all activity →

Experience

N **Northwestern University**
13 yrs 6 mos

Associate Professor
Sep 2015 - Present · 7 yrs 6 mos

Assistant Professor
Sep 2009 - Aug 2015 · 6 yrs

Fulbright Commission Scholar for Peru
Fulbright Commission
Apr 2010 - Aug 2010 · 5 mos
Universidad Nacional de San Antonio Abad del Cusco

Postdoctoral research fellow
Massachusetts Institute of Technology
Sep 2006 - Oct 2009 · 3 yrs 2 mos

East Asia and Pacific Summer Institute Fellow
Seoul National University
Jun 2006 - Aug 2006 · 3 mos

Graduate Student
Cornell University
2001 - 2006 · 5 yrs

Education

Cornell University
PhD, Theoretical and Applied Mechanics
2001 - 2006

Caltech
BS, Applied Physics
1996 - 2000

Activities and societies: Ruddock House

Skills

Mathematical Modeling

Endorsed by Erik Andreas Martens who is highly skilled at this

Endorsed by 2 colleagues at Cornell University

4 endorsements

Physics

3 endorsements

Matlab

Erik Andreas Martens has given an endorsement for this skill

3 endorsements

Interests

Companies   Groups   Schools

Cornell University
586,528 followers

+ Follow

Caltech
144,819 followers

+ Follow

People also viewed

Samuel Arbesman · 2nd

Scientist in Residence at Lux Capital

- Lux Capital
- Cornell University

Kansas City, Missouri, United States · **Contact info**

500+ connections

Connect   **Message**   More

About

I'm a complexity scientist and am currently Scientist in Residence at Lux Capital.

I explore the nature and impact of scientific and technological change, informed by a background and expertise in complex systems. My training is in complexity science, computational biology, and applied mathematics. My scientific research has been cited widely and has appeared in numerous peer-reviewed journals including the

Activity

1,559 followers

Samuel hasn't posted lately

Samuel's recent posts and comments will be displayed here.

Show all activity →

Experience

Scientist in Residence
Lux Capital
2015 - Present · 8 yrs 2 mos

Connective tissue for ideas and people. I explore the landscape of science and technology, and work with Lux portfolio companies operating at the frontier of the possible.

Research Fellow
The Long Now Foundation
2014 - Present · 9 yrs 2 mos

Mentor
Techstars
2017 - Present · 6 yrs 2 mos
Kansas City, Missouri Area

Senior Fellow at Silicon Flatirons Center for Law, Technology, and Entrepreneurship
University of Colorado Boulder
Jan 2015 - Present · 8 yrs 2 mos

Advisor
Somatic Labs
2017 - 2019 · 2 yrs

Show all 12 experiences →

Education

Cornell University
PhD, Computational Biology
2004 - 2008

Activities and societies: Mathematical Sciences Seminar

NSF IGERT Fellow in Nonlinear Systems: studying complex systems, 2004-2006.

Brandeis University
BA, Computer Science, Biology
2000 - 2004

Activities and societies: Phi Beta Kappa

Skills

Complex Systems

Venture Capital

Start-ups

Show all 17 skills →

Publications

Overcomplicated: Technology at the Limits of Comprehension
Current/Penguin · Jul 19, 2016

Show publication 🗗

OVERCOMPLICATED is about the forces that make systems more complicated and more incomprehensible over time, despite our desire for this to be otherwise. This book examines how to meet our technologies halfway, building a framework and orientation for dealing with our complex technologies.

Get under the hood: Computers are so easy that we've forgotten how to create
Aeon · Mar 1, 2015

Show publication 🗗

I argue that we have become too detached from our computers and increasingly need gateways to our machines.

It's complicated: Human ingenuity has created a world that the mind cannot master. Have we finally reached our limits?
Aeon · Jan 1, 2014

Show publication 🗗

An exploration of the increasing complexity—and incomprehensibility—of the technology that we build

Show all 4 publications →

Honors & awards

Thorpe Menn Literary Excellence Award
Jan 2013

Awarded to the The Half-Life of Facts.

The Best Writing on Mathematics 2010
Issued by Princeton University Press · Jan 2010

An essay included in a collection of the best writing related to mathematics

---

National Science Foundation IGERT Fellowship in Nonlinear Systems
Issued by Cornell University · Jan 2004

A two-year fellowship for the study of complex and dynamical systems

Show all 5 honors & awards →

Interests

Top Voices   Companies   Groups   Schools

DJ Patil in · 2nd
Former U.S Chief Data Scientist
757,977 followers

+ Follow

Dr. John Maeda in · 2nd
LinkedIn Top US Influencers / DESIGN × ARTIFICIAL INTELLIGENCE / Author,
How To Speak Machine: Gentle Intro to AI+ML
466,316 followers

+ Follow

People also viewed

Peter Hebert • 3rd
Managing Partner of Lux Capital

🔒 Message

Will McCreadie • 3rd in
Lux Capital

🔒 Message
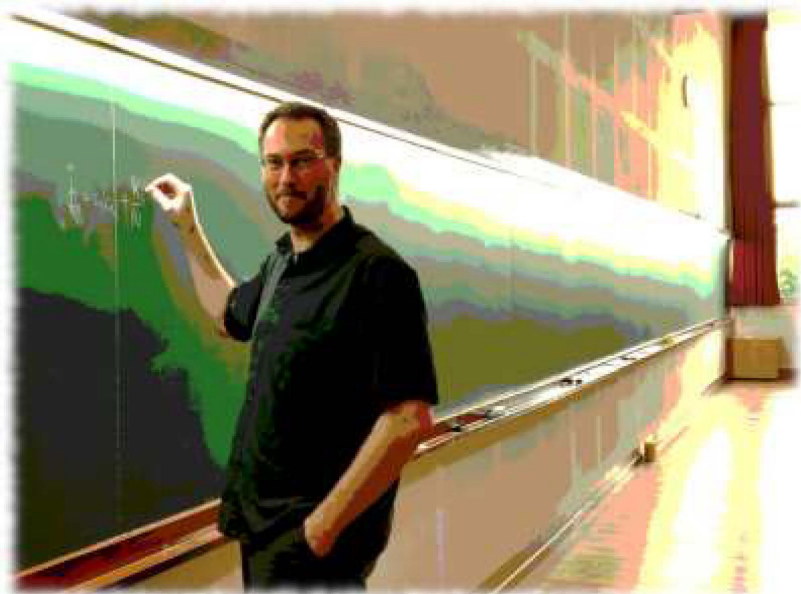

Danny Crichton • 2nd
Head of Editorial at Lux Capital

Erik Andreas Martens

$$\frac{d\theta_i^\sigma}{dt} = \omega + \sum_{\sigma'=1}^{N} K_{\sigma\sigma'} \sum_{i=1}^{N_\sigma} \sin\left(\theta_j^\sigma - \theta_i^\sigma - \alpha\right)$$

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Projects/Jobs   **Teaching/Students**   **Links**

Welcome!

Erik Andreas Martens

Senior Lecturer (Associate Professor)
Centre for Mathematical Sciences
Lund University, Sweden

Visiting Researcher
Centre for Translational Neuromedicine
Copenhagen University, Denmark

Contact

e-mail:
erik.martens@math.lth.se

twitter:
@math_martens

00014788
visitors

2010 Erik (technique by Sven)

Erik Andreas Martens

$$\frac{d\theta_i^\sigma}{dt} = \omega + \sum_{\sigma'=1}^{N} K_{\sigma\sigma'} \sum_{i=1}^{N_\sigma} \sin\left(\theta_j^\sigma - \theta_i^\sigma - \alpha\right)$$

$K_{\sigma\sigma'}$ $e^{-\kappa|\sigma-\sigma'|}$

CV

Curriculum Vitae

A detailed CV is available on request.

Academic Background

- **Ph.D., Cornell University** (May 2009), USA

  Major: Theoretical and Applied Mechanics
  Minor: Applied Mathematics
  Advisors: Prof. Steven H. Strogatz (main), Prof. Richard H. Rand and Prof. Paul H. Steen

- **M.Sc. ETH, ETH Zürich** (2004), Switzerland

  Major: Theoretical Physics
  Advisors: Prof. Tomas Bohr (DTU / NBI) and Prof. Thomas Maurice Rice (ETH)

- Mathematics Genalogy Project

Professional Experience

- **Senior Lecturer in Applied Mathematics (Associate Professor)** (2021-present)
  Centre for Mathematical sciences
  Lund University, Sweden

- **Guest Editor** (2021/2022)
  Frontiers in Applied Mathematics and Statistics
  Research Topic: Dynamical Systems, PDEs and Networks for Biomedical Applications: Mathematical Modeling, Analysis and Simulations
  With André Erhardt (Weierstrass Institute for Applied Math and Stochastics, Berlin, DE), Krasimira Tsaneva-Atanasova (U. Exeter, UK), Glenn Terje Linnes (Simula Research Laboratory, Norway)

- **Visiting Researcher** (2019-present)
  Nedergaard Lab, Centre of Translational Neuromedicine

- **Senior Research Scholar** (Oct 2020-Mar 2021)
  Chair for Network Dynamics, Center for Advancing Electronics Dresden (cfaed)

and Inst. for Threoretical Physics, TU Dresden, Germany

- **Chief Section Editor, DS Web Magazine, Section for Software** (2017-present)
  DS Web Magazine -- Web journal of the SIAM Dynamical Systems Activity Group

- **Associate Professor** (2017-2020)
  Dept. of Applied Mathematics and Computer Science (DTU Compute)
  Technical University of Denmark

- **Visiting Researcher** (2017-present)
  Dept. of Biomedical Sciences and Dept. of Mathematical Sciences

- **Assistant Professor** (2013-2016)
  Dynamical Systems Interdisciplinary Network
  Dept. of Biomedical Sciences
  University of Copenhagen, Denmark

- **Visiting Researcher** (2012-2016)
  Max Planck Institute for Dynamics and Self-Organization, Germany

- **Postdoctoral Researcher** (2012-2013)
  Centre for Ocean Life & Institute for Aquatic Ressources
  Technical University of Denmark (DTU Aqua)

- **Postdoctoral Research Fellow, Max Planck Society** (2009-2012)
  Group for Biophysics and Evolutionary Dynamics
  Max Planck Institute for Dynamics and Self-Organization, Germany

- **Research Assistant** (2004-2008)
  Cornell University, USA

2010 Erik (technique by Sven)

Lauren M. Childs

Assistant Professor of Mathematics at Virginia Tech

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- **Math-Bio Seminar**

Contact Info

Lauren M. Childs
Cliff and Agnes Lilly Faculty Fellow
Assistant Professor
Department of Mathematics
Virginia Tech
Blacksburg, VA 24061

Office: 436 McBryde Hall, 311-C Steger Hall
Email: lchilds [at] vt [dot] edu
Phone: 540-231-8265

Professional Experience

- **Associate Professor, Department of Mathematics, Virginia Tech**
  - August 2022 - present
- **Assistant Professor, Department of Mathematics, Virginia Tech**
  - August 2016 - August 2022
- **Research Scientist, Department of Epidemiology, Center for Communicable Disease Dynamics, Harvard Chan School of Public Health**
  - November 2015 - August 2016

- **Visiting Assistant Professor, Department of Mathematics and Statistics, Williams College**
  - January 2016 - June 2016
- **MIDAS Postdoctoral Fellow, Department of Epidemiology, Center for Communicable Disease Dynamics, Harvard Chan School of Public Health**
  - November 2012 - November 2015
- **Postdoctoral Fellow, School of Mathematics and School of Biology, Georgia Tech**
  - September 2010 - October 2012

Education

- Ph.D. in Applied Mathematics, Cornell University, May 2010
- Masters in Applied Mathematics, Cornell University, May 2007
- B.S. in Mathematics and Chemistry, Duke University, May 2004

Conferences of Interest

- **AMS Mathematics Research Community, Early Career Program:**

  - **Dynamics of Infectious Diseases: Ecological Models Across Multiple Scales**
  - May 30 - June 5, 2021 ~~Originally May 31 - June 6, 2020~~

- **MORE - Mathematics - Opportunities in Research and Education Conference:**

  - **STRIVE for MORE 2021** held virtually on September 25, 2021
  - **STRIVE for MORE 2020** held virtually on September 26, 2020
  - **MORE 2019** held at Virginia Tech on October 26-27, 2019

Press and Annoucements

- College of Science Instagram Highlight on NSF CAREER Award
  - June 8, 2022
- VTx News article on Promotions and Tenure
  - June 7, 2022
- VTx News article on NSF CAREER Award
  - April 19, 2022
- VTx News article on Teaching about COVID
  - February 1, 2022
- VTx News article on EEID Grant
  - September 27, 2021
- VT News article on Outstanding Undergraduate Research including Lizzi Duncan
  - May 24, 2021
- AMS News article on MRC on Infectious Disease Dynamics
  - May 4, 2021
- VT News article on work in PLOS Pathogens on malaria transmission with multiple mosquito blood feeds
  - February 23, 2021

- [BugBitten Blog on work in PLOS Pathogens on malaria transmission with multiple mosquito blood feeds](#)
  - January 22, 2021
- [Science Daily article on work in PLOS Pathogens on malaria transmission with multiple mosquito blood feeds](#)
  - December 31, 2020
- [NPR article on work on COVID on College Campuses](#)
  - October 26, 2020
- [Cliff and Agnes Lilly Faculty Fellowship Announcement](#)
  - October 25, 2020
- [College of Science Annual Magazine story on COVID response.](#)
  - September 21, 2020
- [VT News article on COVID-19 Modeling Taskforce.](#)
  - August 31, 2020
- [VT News article on group to tackle infectious disease.](#)
  - August 27, 2020
- [VT News article on NSF RAPID grant related to testing for COVID-19.](#)
  - July 27, 2020
- [WRADradio interview on work in the Lancet Infectious Diseases and SIAM News on COVID-19 interventions](#)
  - July 6, 2020
- [Moderator for *Predictive Analytics Meets Pandemic* Webinar](#)
  - June 24, 2020
- [NPR article on work in the Lancet Infectious Diseases and SIAM News on COVID-19 interventions](#)
  - June 10, 2020
- [WSLS article on work in the Lancet Infectious Diseases and SIAM News on COVID-19 interventions](#)
  - May 14, 2020
- [Southwest Times article on work in the Lancet Infectious Diseases and SIAM News on COVID-19 interventions](#)
  - May 13, 2020
- [Highlighted in the State of the College Address](#)
  - September 20, 2019
- [VT News article on work in Nature on using anti-malarials in mosquitoes](#)
  - March 8, 2019
- [Forbes article on work in Nature on using anti-malarials in mosquitoes](#)
  - February 27, 2019
- [NPR article on work in Nature on using anti-malarials in mosquitoes](#)
  - February 27, 2019
- [Telegraph article on work in Nature on using anti-malarials in mosquitoes](#)
  - February 27, 2019
- [VT Seed grant for transdisciplinary work](#)
  - November 29, 2018
- [Steven Strogatz in J. Mark Sowers Distinguished Lecture Series](#)
  - October 30-31, 2018
- [ICSB Conference](#)
  - August 6-12, 2017
- [VT Press Release on work in PLoS Pathogens on novel mosquito control](#)
  - January 18, 2017
- [Featured publication in PLoS Pathogens - Harvard Press Release](#)
  - December 16, 2016
- [Appointment in Mathematics Department - VT News Feature](#)
  - November 7, 2016

- [Contact info](#)
- [Experience](#)

- [Education](#)
- [CV](#)
- [Press](#)

-
  Affiliations:
  • [Mathematics](#)
  • [Fralin Life Sciences Institute](#)
  • [CeZAP: Center for Emerging and Zoonotic Pathogens](#)
  • [Vector-Borne disease](#)
  • [GBCB](#)
  • [Systems Biology](#)

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Seth Marvel · 3rd

Technical Advisor, Mathematical & Medical Research

- ▪ Entrepreneurial endeavors
- 🔴 Cornell University

Greater Boston · **Contact info**

114 connections

[🔒 Message] [+ Follow] [More]

About

I am an applied mathematician with a focus in dynamical systems, networks, and algorithms. I apply methods and models from these and other areas of applied math to problems in healthcare, medicine, biology, ecology, sociology, engineering, linguistics, and philosophy.

Activity

114 followers

Seth hasn't posted lately

Seth's recent posts and comments will be displayed here.

Show all activity →

Experience

Technical Advisor, Mathematical & Medical Research
Entrepreneurial endeavors
Aug 2017 - Present · 5 yrs 7 mos
Greater Boston Area

Research Associate, Department of Philosophy
Harvard University
Sep 2020 - Sep 2021 · 1 yr 1 mo
Cambridge, MA

Visiting Scholar, Center for the Study of Complex Systems
University of Michigan
Sep 2015 - May 2019 · 3 yrs 9 mos
Ann Arbor, MI

Research Fellow, Michigan Society of Fellows
University of Michigan
Sep 2014 - May 2015 · 9 mos
Ann Arbor, MI

T.H. Hildebrandt Research Assistant Professor, Department of Mathematics
University of Michigan
Sep 2011 - May 2014 · 2 yrs 9 mos
Ann Arbor, MI

Show all 12 experiences →

Education

Cornell University
Ph.D. and M.S. in Applied Mathematics
2006 - 2011

Advisor: Steven Strogatz
Dissertation: Simple mathematical models of social behavior

Rice University
B.S. in Chemical Physics, and fulfilled all degree requirements for a B.A. in Mathematics
2002 - 2005

Honors: Highest GPA in Rice Class of 2005

Skills

Mathematical Modeling

Endorsed by Erik Andreas Martens and 1 other who is highly skilled at this

Endorsed by 2 colleagues at Cornell University

5 endorsements

Scientific Computing

Endorsed by Erik Andreas Martens who is highly skilled at this

3 endorsements

Applied Mathematics

Endorsed by Diarmuid Cahalane who is highly skilled at this

3 endorsements

Show all 9 skills →

Publications

Continuous-time model of structural balance
Proceedings of the National Academy of Sciences USA · Feb 1, 2011

Show publication ⧉

Other authors

Patents

Method for ranking items from pairwise preferences
US 62100985 · Filed Jan 8, 2015

(Provisional application)

Honors & awards

(selected)

> Editors' Suggestion Distinction, Physical Review Letters (2012)
> Junior Fellowship, Michigan Society of Fellows (2011–2014)
> NSF-IGERT Fellowship in Nonlinear Systems (2006–2008)
> Tom W. Bonner Book Prize in Physics (2005)

Interests

Companies   Schools

University of Michigan
663,947 followers

+ Follow

Cornell University
586,531 followers

+ Follow

Show all 4 companies →

People you may know

Bo de Lange
Attorney At Law (US) bij Conway Advocaten & Attorneys-at-law

Connect

Sean McGee
Attorney

Connect

Sue Holland
Employment Law Attorney Boutin Jones Inc.

Connect

Judy Silber
Radio Producer/Reporter

Connect

Tim Novikoff · 3rd

CEO of Perceptron Technologies

- Perceptron Technologies
- Cornell University

New York, New York, United States · **Contact info**

500+ connections

🔒 Message   + Follow   More

About

Proud father, teacher and dreamer

Activity

1,656 followers

Tim Novikoff commented on a post • 1mo

When I ran Google Colab I was definitely on Team IPYNB. These days I recommend Hex instead. Best of all worlds.

1,422   77 comments

Tim Novikoff posted this • 2mo

Congrats to **Aaron** and **Nnamdi** and the whole 645 Ventures team! They've been with me from the beginning, going back to the Fly Labs days. Really happy to ...show more

645 Raises $347M Fund IV and Select Fund I
645ventures.com • 8 min read

16

Tim Novikoff commented on a post • 2mo

Congrats!!! Exciting move!

200   54 comments

Show all activity →

Experience

CEO
Perceptron Technologies · Full-time
Jun 2021 - Present · 1 yr 9 mos

Get unlimited private tutoring for $10/month for children ages 3-7. Any subject: reading, math, art, poetry, geography, social-emotional skills. All for

$10/month. Coming soon.

Google Research - Lead Product Manager
Google
Jun 2018 - Jan 2021 · 2 yrs 8 mos
Mountain View, CA

Worked on new product innovation and managed Google Colab.

Google Photos – Product Manager
Google
2015 - 2017 · 2 yrs
Mountain View, CA

Led Assistant, Editing and Sharing teams. Managed the incorporation of
computer vision breakthroughs from Google Research, working with
perception technologies such as face grouping, gaze estimation, object
recognition, emotion detection, image segmentation and action recognition
to create delightful and useful user experiences.   ...see more

Founder/CEO
Fly Labs Inc.
2012 - Nov 2015 · 3 yrs 11 mos
NYC, NY

Led company from inception through acquisition: formulated product vision,
secured multiple financings, ensured execution, and negotiated sale to
Google.

Cornell University
8 yrs 2 mos
Ithaca, NY

- **Lecturer**

  Sep 2012 - Oct 2015 · 3 yrs 2 mos

  Created two courses for the CS department at Cornell University in Ithaca.
  Adapted and taught both courses for Cornell Tech in NYC. The courses have
  become regular course offerings both at Cornell and at Cornell T ...see more

- **PhD Candidate**

  Sep 2007 - Jan 2013 · 5 yrs 5 mos

  Performed research in algorithmic education theory under the guidance of
  Steve Strogatz and Jon Kleinberg. Received PhD in January 2013.

Show all 8 experiences →

Education

Cornell University
PhD, Applied Mathematics
2007 - 2012

City College of New York
MA, Secondary Mathematics Education
2003 - 2007

New York University
BFA, Mathematics, Theater
1998 - 2003

Skills

Entrepreneurship

Endorsed by Elisa Miller-Out and 6 others who are highly skilled at this

Endorsed by 4 colleagues at Google

63 endorsements

Start-ups

Endorsed by Aaron Christopher Cohen and 2 others who are highly skilled at
this

G   Endorsed by 3 colleagues at Google

46 endorsements

Teaching

Endorsed by Daniel J. and 1 other who is highly skilled at this

G   Endorsed by 3 colleagues at Google

27 endorsements

Show all 12 skills →

Recommendations

Received   Given

Nothing to see for now

Recommendations that Tim receives will appear here.

Languages

English

French

Objective-C

Interests

Companies   Schools

Grist Labs
248 followers

+ Follow

New York University
954,720 followers

+ Follow

Show all 12 companies →

Promoted   •••

$1 per Week
MW   New Year Sale: Unlimited Access   ⟩

Attorney Needed ASAP
We need attorneys to help our legal   ⟩
clients. Free trial to view cases.

Get a Student Membership
WSJ   Back to School Sale: Less Than 50¢ per   ⟩
week

People also viewed

Kathryn (Sullivan) Montovan · 3rd

Associate Dean of Advising at Bennington College

- **B** Bennington College
- 🔴 Cornell University

United States · **Contact info**

207 connections

🔒 Message | + Follow | More

Activity

207 followers

Kathryn hasn't posted lately

Kathryn's recent posts and comments will be displayed here.

Show all activity →

Experience

B **Bennington College**
9 yrs 8 mos

● **Faculty Member, Mathematics**
Jul 2013 - Present · 9 yrs 8 mos
Bennington, Vermont, United States

● **Associate Dean of Advising**
Jan 2018 - Jun 2020 · 2 yrs 6 mos
Bennington, VT

🔴 **Graduate Student**
Cornell University
Aug 2007 - Jul 2013 · 6 yrs

Lab Technician
Smithsonian Environmental Research Center
Jan 2005 - Jul 2007 · 2 yrs 7 mos

Student
University of Minnesota Morris
Sep 2001 - May 2005 · 3 yrs 9 mos
Morris, MN

Math and Art student involved with GLBT student group, women's resource center, math club, and swim team.

Education

Cornell University
Doctor of Philosophy (PhD) ABD, Applied Mathematics
2007 - 2012

University of Minnesota-Morris
Bachelor of Arts (B.A.), Mathematics
2001 - 2005

University of Minnesota-Morris
Bachelor's degree, Mathematics
2001 - 2005

Skills

Mathematical Modeling

Endorsed by Diarmuid Cahalane and 3 others who are highly skilled at this

Endorsed by 4 colleagues at Cornell University

5 endorsements

Matlab

Endorsed by 3 colleagues at Cornell University

4 endorsements

Mathematica

Endorsed by Diarmuid Cahalane who is highly skilled at this

Endorsed by 2 colleagues at Cornell University

3 endorsements

Show all 19 skills →

Organizations

MAA

Interests

Companies   Groups   Schools

Cornell University
586,531 followers

＋ Follow

U-Thrive Educational Services
1,032 followers

＋ Follow

Show all 4 companies →

Causes

Education • Environment

Danielle Toupo Delima, PhD · 3rd

Data scientist and technology enthusiast | Real estate investor |
Generational wealth building enthusiast | Mentor

- intel Intel Corporation

- 🔴 Cornell University

Greater Phoenix Area · **Contact info**

500+ connections

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About

Business minded data scientist with demonstrated ability to deliver valuable technical
and business insights and ability to translate complex business requirements into
technical and technology solutions. Experience developing company wide data
science strategy and roadmap and working with regional and global teams. Proven
track record influencing and leading people across cultures and backgrounds at a
senior level

Activity

702 followers

Danielle hasn't posted lately

Danielle's recent posts and comments will be displayed here.

Show all activity →

Experience

Intel Corporation
6 yrs 8 mos

- **Data Scientist, Data and AI Group**
  Aug 2018 - Present · 4 yrs 7 mos

- **Data Scientist, Corporate Data Office**
  Mar 2018 - Aug 2019 · 1 yr 6 mos

- **Solutions Engineer**
  Jul 2016 - Mar 2018 · 1 yr 9 mos
  Chandler, AZ

  IOT Solutions Engineer, Venture Leadership Program

Managing Partner
Arise Capital Group
Nov 2020 - Present · 2 yrs 4 mos

Building generational wealth through real estate investing. Always looking for partners and collaborators. Always happy to talk and hear about wealth building strategies.
Skills: Real Estate Financing · Investment Properties · Residential Real Estate

Real Estate Investment Company | Arise Capital Group
A REAL ESTATE INVESTMENT COMPANY
Enjoy the benefits of passive real estate investing. We d...

Cornell University
4 yrs 9 mos

Research Assistant
Sep 2011 - May 2016 · 4 yrs 9 mos

Advisors: Steven Strogatz (Dynamical Systems, Bifurcation Theory, Chaos), David Bindel (Computational Science and Engineering), Richard Rand (Perturbation Theory)

Graduate Research and Teaching Assistant
Sep 2012 - Dec 2014 · 2 yrs 4 mos

Math Modeling Intern | Data Analyst
National Institutes of Health
Feb 2015 - Aug 2015 · 7 mos

Principal Investigator: Kevin D. Hall

Math Modeling Intern
Yale University | Human Cooperation Laboratory
May 2014 - Aug 2014 · 4 mos

Summer Advisor: David Rand

Show all 9 experiences →

Education

Cornell University
Doctor of Philosophy (Ph.D.), Applied Mathematics| Computational Science and Engineering (minor)
2011 - 2016

Cornell University
Master's Degree, Applied Mathematics
2011 - 2014

University of Delaware
BS, Mathematical Biology

Volunteering

Volunteer
Feed My Starving Children
Disaster and Humanitarian Relief

Skills

Mathematical Modeling

Endorsed by Richard Braun and 4 others who are highly skilled at this

Endorsed by 7 colleagues at Cornell University

15 endorsements

Matlab

Endorsed by 2 colleagues at Intel Corporation

13 endorsements

Science

Endorsed by Diarmuid Cahalane who is highly skilled at this

Endorsed by 3 colleagues at Cornell University

10 endorsements

Show all 41 skills →

Recommendations

Received   Given

Nothing to see for now
Recommendations that Danielle receives will appear here.

Publications

Evolutionary Game Dynamics of Controlled and Automatic Decision-Making
Chaos

Show publication ⬈

Accepted

Other authors

Limit Cycles Sparked by Mutation in the Repeated Prisoner's Dilemma
International Journal of Bifurcation and Chaos

Show publication ⬈

Other authors

Nonlinear Dynamics of the Rock-Paper-Scissors Game with Mutations
Physical Review E

Show publication ⬈

Other authors

Languages

English
Native or bilingual proficiency

French
Native or bilingual proficiency

Interests

Top Voices   Companies   Groups   Schools

Lex Fridman in · 2nd
Research Scientist, MIT
755,583 followers

+ Follow

Causes

Education • Health • Human Rights

People also viewed

Sharanya Kanagal · 3rd
Data Scientist at Intel Corporation

🔒 Message

Mohit Gandhi · 3rd
Data Scientist at Intel Corporation

🔒 Message

Prabhneet Arora · 3rd
Data Scientist at Intel Corporation

🔒 Message

Wayne Chen · 3rd
Data Scientist at Intel | Content Creator

🔒 Message

Prince Shiva Chaudhary · 3rd
Data Scientist at Intel Corporation

🔒 Message

Show more ⌄

People you may know

Bo de Lange
Attorney At Law (US) bij Conway Advocaten & Attorneys-at-law

in   🔍

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Isabel Kloumann · 3rd

Head of Engineering for Responsible AI Fairness; Research Science
Manager at Meta

- ∞ Meta
- 🔴 Cornell University

New York, New York, United States · **Contact info**

500+ connections

🔒 Message   + Follow   More

Activity

1,070 followers

Isabel hasn't posted lately

Isabel's recent posts and comments will be displayed here.

Show all activity →

Experience

∞ **Head of Engineering for Responsible AI Fairness; Research
Science Manager**
Meta · Full-time
Apr 2018 - Present · 4 yrs 11 mos
Burlington, Vermont, United States

I am the engineering and research lead supporting Responsible AI Fairness
work at Meta.

FB **Data Scientist**
Facebook
Jul 2016 - Present · 6 yrs 8 mos
Menlo Park, CA

🔴 **Cornell University**
4 yrs 10 mos
Ithaca, New York Area

- **Research Assistant**
Aug 2012 - May 2016 · 3 yrs 10 mos

Advisors: Steven Strogatz and Jon Kleinberg (math & computer science).
Game theory. Dynamical systems. Community detection.

- **Research Assistant**
May 2012 - May 2013 · 1 yr 1 mo

Advisor: James Sethna (physics). Model reduction and visualization of high dimensional systems.

Teaching Assistant
Aug 2011 - May 2012 · 10 mos

Data Scientist Intern
Facebook
May 2014 - Aug 2014 · 4 mos
Menlo Park, CA

Advisors: Shaomei Wu and Lada Adamic

Research Assistant
University of Vermont
Sep 2007 - Aug 2011 · 4 yrs
Burlington, VT

Show all 8 experiences →

Education

Cornell University
Doctor of Philosophy (PhD), Applied Mathematics
2011 - 2016

University of Vermont
B.A., Physics and Applied Mathematics
2007 - 2011

Summa cum laude

Recommendations

Received   Given

Nothing to see for now
Recommendations that Isabel receives will appear here.

Honors & awards

Graduate Research Fellowship
Issued by National Science Foundation · May 2012

Associated with Cornell University

Provides three years of full support for graduate research.

Barry M. Goldwater Scholarship
Issued by Barry M. Goldwater Foundation · Jan 2010

Associated with University of Vermont

Interests

Top Voices   Companies   Schools

Kevin O'Keeffe · 3rd

Applied research scientist at Apple

- ● Apple
- ● Cornell University

Seattle, Washington, United States · **Contact info**

500+ connections

🔒 Message | ＋ Follow | More

Activity

618 followers

Kevin hasn't posted lately

Kevin's recent posts and comments will be displayed here.

Show all activity →

Experience

Research Scientist
Apple · Full-time
Aug 2020 - Present · 2 yrs 7 mos
Seattle, Washington, United States

Machine learning.

Postdoctoral Fellow
MIT Senseable City Lab
Aug 2017 - Aug 2020 · 3 yrs 1 mo
Greater Boston Area

Applied Math PhD candidate
Cornell University
Aug 2012 - Aug 2017 · 5 yrs 1 mo

Undergraduate Lab Assistant
University College Cork, Ireland (UCC)
Sep 2011 - May 2012 · 9 mos
Ireland

Undergraduate Researcher in the Quantum Optics Group
Tyndall National Institute
May 2011 - Sep 2011 · 5 mos
Ireland

Secured a competitively awarded undergraduate bursary in the UREKA
program.

Show all 7 experiences →

Investigated the theoretical behaviour of light in microresonators of various

Education

Cornell University
Doctor of Philosophy (PhD), Applied Mathematics
2012 - 2017

MSc Applied mathematics
MSc Theoretical physics

University College Cork
Bachelor of Science (BSc), Physics and Applied Mathematics
2008 - 2012

Grade: First Class Honours

Graduated top of class

Christian Brothers College
2002 - 2008

Skills

Physics

Endorsed by Oleg Kogan and 2 others who are highly skilled at this

Endorsed by 7 colleagues at Cornell University

16 endorsements

Mathematica

Endorsed by Oleg Kogan who is highly skilled at this

Endorsed by 4 colleagues at Cornell University

13 endorsements

Matlab

Endorsed by Oleg Kogan and 3 others who are highly skilled at this

Endorsed by 6 colleagues at Cornell University

10 endorsements

Show all 19 skills →

Publications

Oscillators that sync and swarm
Nature Communications · Nov 15, 2017

Show publication ☒

Synchronization occurs in many natural and technological systems, from cardiac
pacemaker cells to coupled lasers. In the synchronized state, the individual cells or
lasers coordinate the timing of their oscillations, but they do not move through
space. A complementary form of self-organization occurs among swarming insects,
flocking birds, or schooling fish; now the individuals move through space, but
without conspicuously altering their internal states. Here we explore systems in which
both synchronization and swarming occur together. Specifically, we consider
oscillators whose phase dynamics and spatial dynamics are coupled. We call them
swarmalators, to highlight their dual character. A case study of a generalized

React or advect: theory of advection-driven long range biotic transport
Physical review E · Aug 29, 2017

Show publication ☒

We study the coupling of a Fisher-Kolmogorov–Petrovsky-Piskunov (FKPP) equation
to a separate, advection-only transport process. We find that an infinitesimal
coupling can cause a finite change in the speed and shape of the reaction front,
indicating the fragility of the FKPP model with respect to such a perturbation. The

front dynamics can be mapped to an effective FKPP equation only at sufficiently fast
diffusion or large coupling strength. We also uncover conditions when the front
finite size scaling, and dynamic fluctuations
speed becomes independent of the coupling. At zero diffusion in
our mean-field description, the downwind front speed goes to a finite value as the
coupling goes to zero.

Correlated disorder in the Kuramoto model: Effects on phase coherence,
Chaos · Oct 10, 2019

[Show publication ⧉]

We consider a mean-field model of coupled phase oscillators with quenched disorder
in the natural frequencies and coupling strengths. A fraction p of oscillators are
positively coupled, attracting all others, while the remaining fraction 1−p are
negatively coupled, repelling all others. The frequencies and couplings are
deterministically chosen in a manner which correlates them, thereby correlating the

Show all 8 publications →

Honors & awards

Physics 1102 Distinguished Graduate TA Award
Issued by Cornell University · May 2013

Awarded for Excellence in Teaching

First Place in Class '12
Issued by University College Cork, School of Engineering, Science and Food Science ·
Mar 2013

UCC Associated with University College Cork

Received for achieving highest grades in Physics & Applied Mathematics degree
programme.

Top Ranked German Student
Issued by German Teachers' Association Ireland · Nov 2012

Associated with Christian Brothers College

Awarded for the highest mark achieved nationally in the German Leaving Certificate
Examination.

Show all 8 honors & awards →

Languages

English
Native or bilingual proficiency

French
Elementary proficiency

German
Limited working proficiency

Show all 4 languages →

Interests

Companies   Groups   Schools

UCC **University College Cork**
138,360 followers

[+ Follow]

Cornell University
586,532 followers

[+ Follow]

Show all 9 companies →

Ian Lizarraga

Coordinates:

489 Carslaw Building
School of Mathematics and Statistics
University of Sydney

Email: ian.lizarraga 'at' sydney 'dot' edu 'dot' au

Welcome! I'm a postdoctoral fellow working with Robby Marangell and Martin Wechselberger at the University of Sydney. I work on multiple-timescale dynamical systems.

I was a PhD student at Cornell University, advised by John Guckenheimer and Steven Strogatz.

My citation count (and other statistics) can be viewed on my ResearchGate profile.

Education and Work

2018 - 2023: Postdoctoral Fellow in Dynamical Systems, University of Sydney
2017 - 2018: Visiting Assistant Professor, Cornell Math Department
2011 - 2017: PhD, Applied Mathematics, Cornell University
2008 - 2011: BA, Physics with Honors, Mathematics, Northwestern University

Publications and preprints

13. T. Kaper, **I.M.L.**, R. Marangell, and T. Vo
    Geometric construction of trigger waves in reaction-diffusion systems
    In progress.
12. **I.M.L.** and M. Wechselberger
    Delayed and singular Hopf bifurcations in nonstandard slow-fast systems
    In progress.
11. Bronwyn Bradshaw-Hajek, **I.M.L.**, R. Marangell, and M. Wechselberger
    A geometric singular perturbation analysis of generalised shock selection rules in reaction-nonlinear diffusion models
    In prep. (2023)
10. **I.M.L.** and R. Marangell
    Nonlinear stability of shock-fronted travelling waves under nonlocal regularization
    Submitted (2022), 26 pages. [arXiv]

9. **I.M.L.** and R. Marangell
Slow eigenvalue problems and the spectral stability of shock-fronted travelling waves under viscous relaxation
Submitted (2022), 70 pages. [arXiv]

8. Bronwyn Bradshaw-Hajek, **I.M.L.**, R. Marangell, and M. Wechselberger
A geometric singular perturbation analysis of regularised reaction-nonlinear diffusion models including shocks
Proceedings of 47th Sapporo Symposium on Partial Differential Equations (2022), pp. 53--64.

7. **I.M.L.**, B. Rink, and M. Wechselberger
Multiple timescales and the parametrisation method in geometric singular perturbation theory
Nonlinearity 34 4163 (2021). [arXiv]

6. **I.M.L.**, R. Marangell, and M. Wechselberger
Slow unfoldings of contact singularities in singularly perturbed systems beyond the standard form
J Nonlinear Sci 30, 3161--3198 (2020). [arXiv]

5. **I.M.L.** and M. Wechselberger
Computational singular perturbation method for nonstandard slow-fast systems
SIADS 19(2), 994–1028 (2020). [arXiv]

4. **I.M.L.**
Tangency bifurcation of invariant manifolds in a slow-fast system
Chaos (accepted pending minor revisions). [Preprint].

3. J. Guckenheimer and **I.M.L.**
Shilnikov homoclinic bifurcation of mixed-mode oscillations
SIADS 14(2), 764-786 (2015) [arXiv]

2. I.M. Kloumann, **I.M.L.**, and S.H. Strogatz
Phase diagram for the Kuramoto model with van Hemmen interactions
Physical Review E 89, 012904 (2014) [arXiv]

1. J. Teyssandier, S. Naoz, **I.M.L.**, and F. Rasio
Extreme orbital evolution from hierarchical secular coupling of two giant planets
ApJ 779 166 (2013) [arXiv]

Talks

2023 May: SIAM Conference on Dynamical Systems, Portland, Oregon, USA
2022 Dec: AustMS Special Session on Dynamical Systems and Ergodic Theory, UNSW, Australia
2022 Nov: Sydney Dynamics Group Workshop, New Zealand
2022 Aug: SIAM Conference on Nonlinear Waves and Coherent Structures, Germany
2022 Apr: Dynamics Seminar, Boston University
2021 May: SIAM Conference on Dynamical Systems, Online
2021 May: Applied Maths Seminar, UNSW, Australia
2020 Dec: AustMS, Dynamical systems special session
2020 Mar: VIC-ANZIAM Lecture, University of Melbourne, Australia
2020 Mar: Applied Maths Seminar, Monash University, Melbourne, Australia
2020 Feb: ANZIAM, Hunter Valley, Australia
2019 Dec: Applied Maths Seminar, University of New South Wales, Sydney, Australia
2019 Nov: Sydney Dynamics Group Workshop, Margaret River, Australia
2019 Jul: Equadiff, Universiteit Leiden, Netherlands
2019 Jul: Slow-Fast-Ival Workshop, University of Edinburgh, UK
2019 May: SIAM Conference on Dynamical Systems, Snowbird, UT, USA
2019 Feb: ANZIAM, Nelson, New Zealand
2018 Nov: Sydney Dynamics Group Workshop, Blackheath, Australia
2018 Oct: Sydney Dynamics Group Seminar, Sydney, Australia
2017 Aug: Cornell Applied Math Seminar, Ithaca, NY, USA
2015 May: SIAM Conference on Dynamical Systems, Snowbird, UT, USA
2015 Mar: Cornell Dynamical Systems Seminar, Ithaca, NY, USA
2014 July: SIAM Annual Meeting, Chicago, IL, USA
2013 Nov: Cornell Scientific Computing and Numerics Seminar, Ithaca, NY, USA

Refereeing

I have served as a referee for the following journals:

- Nonlinearity
- CHAOS
- Physica D
- DCDS-B
- SIADS
- SIAP
- Proceedings of the Royal Society A

Teaching

- 21Sem2, Math 3888: Projects in Mathematics (Instructor, 50 students, USyd)
- 20Sem2, Math 3888: Projects in Mathematics (Project Supervisor, 50 students, USyd)
- 20Sem1, Math 3063: Differential Equations with Applications to Biology (Instructor, 120 Students, USyd)

- 19Sem1, Math 3063: Differential Equations with Applications to Biology (Instructor, 120 Students, USyd)
- 18Sp, Math 1110: Calculus I (Instructor, 60 students, Cornell)
- 17Fa, Math 1120: Calculus II (Instructor, 60 students, Cornell)
- 17Sp, Math 2210: Multivariable Calculus (TA, Cornell)
- 16Fa, Math 2940: Linear Algebra for Engineers (Head TA, Cornell)
- 16Su, Math 1110: Calculus I (TA, Cornell)
- 16Sp, Math 1106: Calculus for the Life and Social Sciences (TA, Cornell)
- 15Fa, Math 2210: Linear Algebra (TA, Cornell)
- 15Sp, Math 2940: Linear Algebra for Engineers (TA, Cornell)
- 14Fa, Math 4200: Differential Equations and Dynamical Systems (TA, Cornell)
- 13Sp, MAE 5730: Nonlinear Dynamics and Chaos (TA, Cornell)
- 12Fa, Math 1910: Single-Variable Calculus for Engineers (TA, Cornell)

CV

Available here.

Last updated: February 2023

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                 Home   My Network   Jobs   Messaging   Notifications   Me ▾   Work ▾   Fr

Bertrand Ottino-Loffler · 3rd
Physics Fellow at Rockefeller University

- 　 Rockefeller University
- 　 Cornell University

Ithaca, New York, United States · **Contact info**

27 connections

👤⁺ Connect   🔒 Message   More

Activity

27 followers

Bertrand hasn't posted lately
Bertrand's recent posts and comments will be displayed here.

Show all activity →

Experience

Physics Fellow
Rockefeller University · Full-time
Aug 2021 - Present · 1 yr 7 mos
New York, New York, United States

Postdoctoral Researcher
MIT · Full-time
Aug 2018 - Jun 2021 · 2 yrs 11 mos
Cambridge, Massachusetts, United States

Graduate Student
Cornell University · Full-time
Aug 2014 - Jun 2018 · 3 yrs 11 mos

Education

Cornell University
Doctor of Philosophy - PhD, Applied Mathematics
2014 - 2018

Caltech
Bachelor of Science - BS, Mathematics, Physics
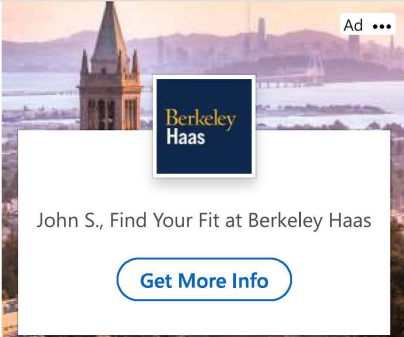Aug 2010 - Jun 2014

Interests

Companies   Schools

Cornell University
586,533 followers

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Caltech
144,820 followers

＋ Follow

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Mike Stieff • 3rd
Vice Provost for Faculty Affairs, University of Illinois Chicago

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Thomas Weber • 3rd+
Assistant Professor at Stanford University

👤＋ Connect

KaiGe（Johnne）Chen • 3rd
R&D Department & Director

🔒 Message

Yuliya Kuznetsova • 3rd
Software Engineer at Facebook

👤＋ Connect

Alicia Loffler • 3rd
Associate Provost/ Associate VP/ Executive Director of Innovation and New
Ventures Office at Northwestern University

🔒 Message

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People you may know

Bo de Lange
Attorney At Law (US) bij Conway Advocaten & Attorneys-at-law

Irena Papst
papsti

Senior Scientist **@phac-nml-phrsd**

🔗 papsti.github.io

🐦 @irenapapst

👥 **5** followers · **4** following

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Achievements

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Pinned

📓 mac-theobio/**McMasterPandemic** (Public)

SEIR+ model

🔴 HTML   ⭐ 18   🍴 4

📓 **talks** (Public)

Slides for various talks. Talks are on the gh-pages branch and can be viewed at papsti.github.io/talks/[FILENAME].html.

📓 **covid-age** (Public)

Data and code accompanying Papst et al. 2021 (https://doi.org/10.1186/s12889-021-10611-4)

🔵 R

📖 **felixthoemmes/rddapp** (Public)

rddapp: Regression Discontinuity Design Application

🔴 HTML   ⭐ 8   🍴 4

746 contributions in the last year

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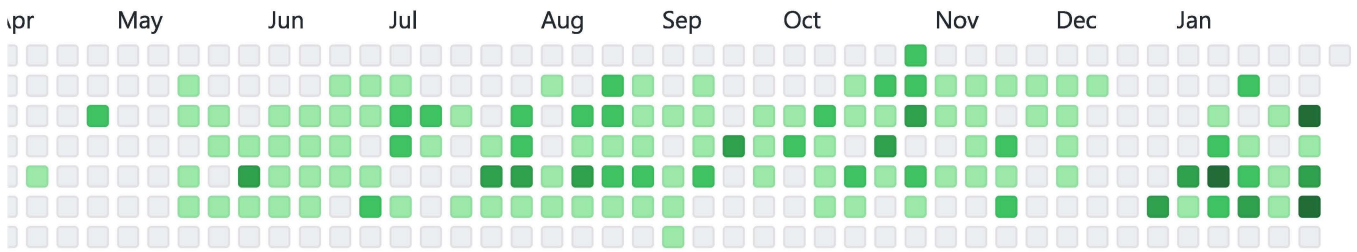
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Contribution activity

February 2023

🔒 44 contributions in private repositories   Feb 1 – Feb 3

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irena papst, phd 👩‍💻🔀🦠
@irenapapst

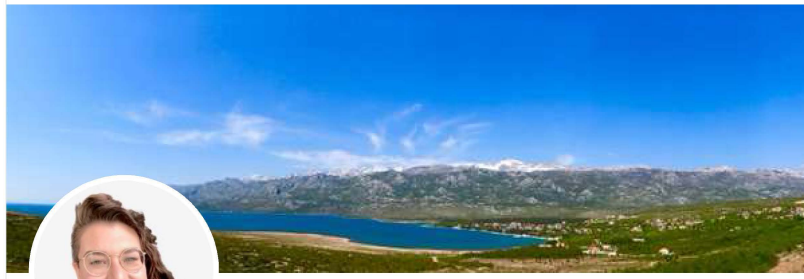applied mathematician modelling infectious disease spread @GovCanHealth. PhD applied math @Cornell. BIPOC lives matter. views my own. en/fr/hr.

📍 she/elle   📅 Joined May 2011

548 Following   **570** Followers

Tweets	Tweets & replies	Media	Likes

📌 **Pinned Tweet**

irena papst, phd 👩‍💻🔀🦠 @irenapapst · Jun 25, 2021   ⋯

these are my only plans on july 1st #SettlersTakeAction

FINAL REPORT OF THE
TRUTH AND RECONCILIATION
COMMISSION OF CANADA
VOLUME ONE: SUMMARY
*Honouring the Truth,
Reconciling for the Future*

Truth and Reconciliation
Commission of Canada
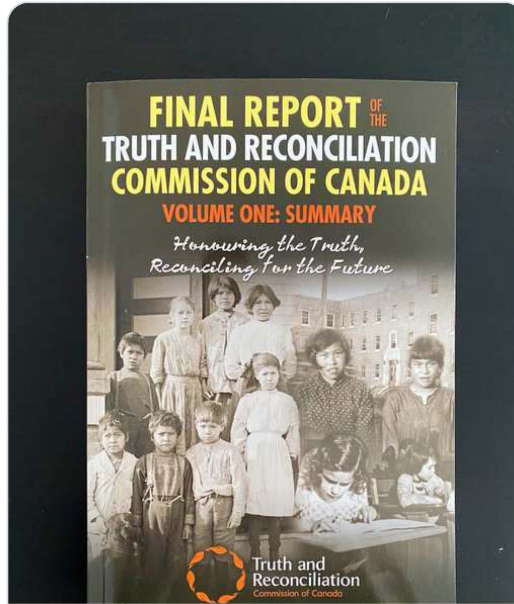
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🔁 **irena papst, phd** 👩‍💻🔀🦠 Retweeted

Dawn Bowdish @MsMacrophage · Jan 1   ⋯
The protocol has been updated to include any number of mRNA vaccine doses. Email howiek@mcmaster.ca if interested and to see if you are eligible. Read more about it here:

Ekaterina Landgren

HOME   CV   RESEARCH   TEACHING   MISC

Hello,

a bit about me:

CV   RESEARCH   TEACHING
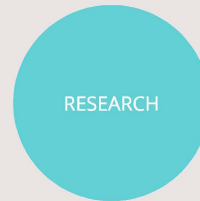
I'm Ekaterina (Kath), and I am a Postdoctoral Visiting Fellow at the Cooperative Institute for Research in Environmental Science at University of Colorado Boulder. Prior to joining CIRES, I received a Ph.D. in Applied Mathematics from Cornell University. I've used dynamical systems models to study a wide range of phenomena -- from voter turnout to planets beyond our solar system. I am bringing these interests together by building a model of how public support for climate policy can be influenced by migration and strategic investment in clean energy. I am interested in investigating strategies to overcome political polarization in the U.S. I am passionate about complex systems, open science, and interdisciplinary research.

Contact
ek672@cornell.edu

Ekaterina Landgren

Center for Applied Mathematics
136 Hoy Road
Cornell University
Ithaca, NY 14850

ek672@cornell.edu
kathlandgren.com

PROFESSIONAL EXPERIENCE

Cooperative Institute for Research in Environmental Sciences
at **University of Colorado Boulder**
Postdoctoral Visiting Fellow   January 2023 – present

EDUCATION

Cornell University, Ithaca, NY
Ph.D. in Applied Mathematics   December 2022
    Dissertation: Models of Varying Complexity from Voter Networks to Extrasolar Planets
M.Sc. in Applied Mathematics   May 2020
    Advisor: Steven Strogatz

Brown University, Providence, RI   May 2017
Sc.B. in Applied Mathematics, A.B. in Philosophy
    Cum Laude, Phi Beta Kappa, Sigma Xi
    Honors thesis: Modeling Evacuation Dynamics in a Crowded Room
    Advisor: Bjorn Sandstede

RESEARCH INTERESTS

Dynamical systems and their applications, mathematical models of social phenomena, conceptual climate models, intermediate complexity climate models, planetary atmosphere dynamics.

PUBLICATIONS

Landgren and Nadeau. SWAMPE: A Shallow-Water Atmospheric Model in Python for Exoplanets. *Journal of Open Source Software* 7 (80), 4872 (2022)

Landgren and Nadeau. Comparison of Two Analytic Energy Balance Models Shows Stable Partial Ice Cover Possible for Any Obliquity. *Planetary Science Journal* 3.79 (2022)

Landgren, Juul, and Strogatz. How a minority can win: Unrepresentative outcomes in a simple model of voter turnout. *Physical Review E* 104.5 (2021): 054307.

*DeBellevue and Kryuchkova (Landgren). Fractal Behavior of the Fibonomial Triangle Modulo Prime p, Where the Rank of Apparition of p is $p + 1$. *Fibonacci Quarterly* 56 (2018): 113-120.
*Alphabetical order indicated by *.

PRESENTATIONS

Invited talks
"Introduction to Research"   February 2022
    Cornell Chapter of Association for Women in Mathematics
"Effects of Network Structure on Undemocratic Outcomes."   August 2021
    Clarkson University Graduate Student Seminar
"When Can Minority Win? A Simple Model of Voter Turnout."
    SIAM Conference on Applied Dynamical Systems   May 2021
    Women in Network Science Seminar, University of Washington   February 2021

"Noisy El Niño: A Case Study of Conceptual Climate Models"   March 2021
    Math and Statistics Tea, Mt. Holyoke College
"Snowball Planets: Effects of Obliquity, Albedo, and Heat Transport on Ice Cover"   October 2020
    Jet Propulsion Laboratory Exoplanet Journal Club
Contributed talks
"How Can Minority Win?"
    Contagion on Complex Social Systems Workshop   August 2022

Poster presentations
"Exploring the Interaction of Rotation Rate and Stellar Irradiation on Synchronously Rotating Sub-Neptunes"
    American Geophysical Union Fall Meeting   December 2022
"Introducing SWAMP-E: a Shallow-Water Atmospheric Model in Python for Exoplanets"
    American Geophysical Union Fall Meeting   December 2021
    Emerging Researchers in Exoplanet Science Conference   May 2021
Seminars
"Impacts of Noise on a Dynamical Systems Model of El Niño"   June 2020
    Applied Dynamical Systems Student Seminar, Cornell University
"Effects of Obliquity on the Snowball State"   March 2020
    Applied Dynamical Systems Student Seminar, Cornell University

AWARDS AND FELLOWSHIPS
Zonta International Amelia Earhart Fellowship   2021
    Awarded annually to up to 35 women around the globe pursuing a PhD in space sciences.
SIAM Student Chapter Certificate of Recognition   2021
    Awarded for outstanding service and contributions to the SIAM student chapter.
SIAM Student Travel Award   2019
Undergraduate Research and Teaching Award   2015, 2016
    Awarded to Brown students collaborating with Brown faculty on research projects.
2016 Mathematical Contest in Modeling, *Honorable Mention*   2016
    In an undergraduate team created, analyzed, and wrote a report on a model of fluid dynamics.
Brown Mathematical Contest for Modeling, *Outstanding Winner*   2015
    In an undergraduate team created, analyzed, and wrote a report on a model of Hanta virus spread.

UNDERGRADUATE RESEARCH MENTORSHIP
"Energy Balance Model for HAT-P-2b"   Summer 2022
    Thomas Mitchell. Mentored jointly with Nikole Lewis
"Wind farm layout optimization"   Spring 2021
    Anna Asch. Mentored jointly with Shriya Nagpal and Alice Nadeau
"Mathematics and Climate"   Fall 2020
    Anna Asch. Directed Reading Program
"Applying the Budyko Model to Martian Obliquity"   Summer 2020, Fall 2020
    Anushka Naranyan. Mentored jointly with Alice Nadeau

TEACHING EXPERIENCE
MIT ESP (Educational Studies Program), *Instructor*   Online, Summer 2020
    M14095: Mathematical Models and How to Build One,
    Designed and taught a six-session class in mathematical modeling for high school students.
Cornell University
    Teaching Assistant
    MATH 4210: Nonlinear Dynamics and Chaos   Spring 2020

MATH 3610: Mathematical Modeling   Fall 2019

MATH 2930: Differential Equations for Engineers   Spring 2019

Brown University

Teaching Assistant

APMA 1650: Statistical Inference I   Fall 2015, Spring 2017

INDUSTRIAL EXPERIENCE

IMA Math-to-Industry Bootcamp III   Minneapolis, MN, Summer 2018
    Six-week coding and research program at Institute for Mathematics and its Applications
Hewlett-Packard Customer Operations, *Summer Intern*   Moscow, Russia, Summer 2014

SERVICE AND LEADERSHIP

SIAM Minisymposium Organizer
Dynamics of Influence and Representation in Social Systems   May 2021
    SIAM Conference on Applications of Dynamical Systems
    Joint with Alice Schwarze and Leonie Neuhauser
Cornell University
Expanding Your Horizons Conference, *Logistics Chair*   AY 2021
    Organize a campus-wide STEM outreach event for 500 middle-school girls.
Center for Applied Mathematics First-Year Mentoring Program, *Mentor*   AY 2019, 2021
    Mentor a first-year PhD student
SIAM Graduate Student Chapter, *President*   2018-2021
    Organized SIAM-sponsored events for student chapter members.
Center for Applied Math Anti-Racism Reading Group, *Co-organizer*   AY 2020
    Moderated a biweekly graduate student discussion focusing on anti-racism and DEI topics.
ZigZag Mentorship Program, *Mentor*   AY 2017, AY 2019
    Mentored undergraduate students on course selection and career development.
Expanding Your Horizons Conference, *Math Workshop Volunteer*   2018, 2019
    Led a mathematics workshop for middle school girls.
Brown University
Applied Mathematics Department Undergraduate Group, *President*   AY 2015, AY 2016
    Organized events for undergraduates interested in applied mathematics.
Technology House, *President*   AY 2016
    Led a sixty-person, communal living group for students interested in STEM topics.
New Scientist Program, *Mentor*   AY 2015
    Mentored and advised a first generation college student.

PROFESSIONAL MEMBERSHIPS

Society for Industrial and Applied Mathematics, *Member*
American Mathematical Society, *Member*
Mathematics of Climate Research Network, *Member*

LANGUAGES

- Fluent: Russian, English
- Advanced: Spanish, German
- Intermediate: Korean
- Beginner: Swedish

SKILLS

Programming languages: Python, R, HTML
Software: MATLAB, Mathematica, Maple

Stephen Cowpar, PhD · 3rd
Mathematician

- EVERI Everi Holdings Inc.
- Cornell University

New York, New York, United States · **Contact info**

102 connections

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About

An Applied Mathematician by training, I have a passion for applying mathematical and statistical modelling to new problems, especially ones where it is not clear how get started, or where I have to learn elements of a new field to understand the problem.
I have taken numerous Data Science & Machine Learning courses and am familiar with tools such as scikit-learn, pandas, NumPy, Matplotlib, TensorFlow and Keras. I

Activity
102 followers

Stephen hasn't posted lately
Stephen's recent posts and comments will be displayed here.

Show all activity →

I count myself among the growing number of "Effective Altruists" in the world. It is

Experience

Mathematician II
Everi Holdings Inc. · Full-time
Jun 2022 - Present · 9 mos

Cornell University
Full-time · 7 yrs 11 mos
Ithaca, New York, United States

- **PHD Candidate - Applied Math Researcher**
  Nov 2020 - Jun 2022 · 1 yr 8 mos

  -Collaboration with Jacob G. Scott at Cleveland Clinic.
  -Spearheaded development of novel multifaceted model of "Evolutionary Game Assay" cancer experiments to study an error previously invisible over 100+ experiments.
- **PHD Student - Mathematical Researcher & Teaching Assistant**
  -Created stochastic agent-based modeling framework to generate synthetic
  Aug 2014 - Nov 2020 · 6 yrs 4 mos
  data, computed spatial auto-correlation statistics and used time-series
  Teaching:
  techniques to compare synthetic with experimental data.
  -Delivered binary classifier of experimental date (good or not) that will
  -Headed 30 TA team for Intro to Data Science class. led class 1-2 times per
  analyze 100+ data sets.
  week, enabling students to gain proficiency in clustering algorithms,
  regression, Principal Component Analysis, Support Vector Machines, Natural

Process Engineering Intern, Lab Technician & Data Analyst

Analog Devices Internship

Jun 2013 - Aug 2013

- Executed regression analyses on data gathered from 1000+ electrical experiments on silicon wafers.

- Communicated results to engineers daily leading to 5+ refinements in the device fabrication process weekly

Education

Cornell University
Doctor of Philosophy - PhD, Applied Mathematics
Dec 2020 - May 2022
Grade: 3.85 GPA

Cornell University
Master of Science - MSc, Applied Mathematics
Aug 2014 - Dec 2020
Grade: 3.85 GPA

University of Limerick
Bachelor of Science - BSc, Mathematics and Physics
Aug 2010 - May 2014
Grade: First Class Honours

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Licenses & certifications

Building Deep Learning Applications with Keras 2.0
LinkedIn
Issued Jan 2022

Show credential ⎋

Building and Deploying Deep Learning Applications with TensorFlow
LinkedIn
Issued Jan 2022

Show credential ⎋

Skills

Mathematical Modeling

Data Science

Statistics

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Honors & awards

George Gooberman Memorial Prize for Excellence in Physics
Issued by University of Limerick · Sep 2011

Associated with University of Limerick

Best grades in UL Physics Department.

Organizations

SIAM Student Chapter - Cornell
Treasurer · Jan 2019 - Sep 2021

Associated with Cornell University

Interests

Companies   Groups

Everi Holdings Inc.
36,907 followers

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Causes

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Environment • Health • Human Rights • Poverty Alleviation • Science and Technology
• Social Services

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Dongping Qi • **3rd**
Ph.D. majoring in Applied Mathematics

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Jacob Brown • **3rd**
PhD Student in Applied Mathematics at Cornell University

🔒 Message

Timothy Johnson • **3rd**
Research Assistant in Cornell University Department of Neurobiology

🔒 Message

Wangwei Wu • **3rd**
Ph.D. candidate at Cornell University | ex-Instagram Reels content relevance

🔒 Message

Heather Wilber • **3rd**
NSF Postdoctoral Fellow at The University of Texas at Austin

🔒 Message

David Hathcock

Department of Physics,
Cornell University

Statistical Physics
Nonlinear Dynamics
Biophysics
Evolutionary Dynamics

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h-index	4	4
i10-index	3	3

0 articles	5 articles
not available	available

Based on funding mandates

TITLE	CITED BY	YEAR
Modeling the network dynamics of pulse-coupled neurons S Chandra, D Hathcock, K Crain, TM Antonsen, M Girvan, E Ott Chaos: An Interdisciplinary Journal of Nonlinear Science 27 (3), 033102	37	2017
Fitness dependence of the fixation-time distribution for evolutionary dynamics on graphs D Hathcock, SH Strogatz Physical Review E 100 (1), 012408	18	2019
Noise filtering and prediction in biological signaling networks D Hathcock, J Sheehy, C Weisenberger, E Ilker, M Hinczewski IEEE Transactions on Molecular, Biological and Multi-Scale Communications 2 …	14	2016
Myosin V executes steps of variable length via structurally constrained diffusion D Hathcock, R Tehver, M Hinczewski, D Thirumalai eLife 9, e51569	7	2020
Reaction rates and the noisy saddle-node bifurcation: Renormalization group for barrier crossing D Hathcock, JP Sethna Physical Review Research 3 (1), 013156	4 [*]	2021
Asymptotic absorption-time distributions in extinction-prone Markov processes D Hathcock, SH Strogatz Physical Review Letters 128 (21), 218301	1	2022
Bifurcation instructed design of multistate machines T Yang, D Hathcock, Y Chen, P McEuen, JP Sethna, I Cohen, I Griniasty arXiv preprint arXiv:2301.01507		2023
FLUCTUATIONS, SCALING, AND UNIVERSALITY IN FIRST-PASSAGE PROCESSES D Hathcock Cornell University		2022
Cellular Signaling beyond the Wiener–Kolmogorov Limit C Weisenberger, D Hathcock, M Hinczewski The Journal of Physical Chemistry B 125 (46), 12698-12711		2021

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Max Lipton · 3rd

Mathematics Graduate Student at Cornell University

• Cornell University

Salem, Oregon, United States · **Contact info**

82 connections

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About

I am a motivated and independent mathematics PhD candidate at Cornell University. My research area is dynamical systems that occur in pure mathematical subfields like algebraic topology or geometric group theory. My advisor is Professor Steven Strogatz.

I will be an NSF Postdoctoral Research Fellow at the MIT mathematics department

Featured

Link

A lower bound on critica potential of a knot

arxiv.org

A preprint of a mathema proved.

Activity

82 followers

Max hasn't posted lately

Max's recent posts and comments will be displayed here.

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Experience

Faculty Instructor

Bridge to Enter Advanced Mathematics (BEAM) · Full-time

Jun 2022 - Aug 2022 · 3 mos

Schenectady, New York, United States · On-site

Faculty instructor for the "Solving Big Problems" course at the Union College site for BEAM Summer Away.

Skills: Teaching

Graduate Teaching Assistant
Cornell University
Aug 2017 - May 2019 · 1 yr 10 mos

Undergraduate Research Assistant
Cornell University
Jun 2015 - Jul 2015 · 2 mos
Ithaca, New York Area

I participated in the Summer Program for Undergraduate Research (SPUR) at
Cornell University under Professor Robert Strichartz's Analysis on Fractals
project. My specific research was about self-similar fractals compatible with
the Heisenberg group.   ...see more

Mathematics Tutor
Willamette University
Jan 2013 - Dec 2014 · 2 yrs
Salem, Oregon

I tutored a wide variety of students in both a "help desk" consultation
format and on an individual basis. Topics I have tutored in include single and
multivariable calculus, proof-writing, linear algebra, differential equations,
real analysis, and topology.   ...see more

Undergraduate Research Assistant
California State University, Chico
Jun 2014 - Jul 2014 · 2 mos
Chico, California Area

I conducted mathematical research as part of the NSF-funded Research
Experience for Undergraduates (REU) at Chico State. My project was about
topological graph theory directed under Professor Thomas Mattman.

Education

Cornell University
Doctor of Philosophy (PhD), Mathematics
2016 - 2023

Cornell University
Masters, Computer Sceince
2016 - 2020

Willamette University
Bachelor of Arts (B.A.), Mathematics and Computer Science
2012 - 2016

Grade: Magna Cum Laude

Activities and societies: Pi Mu Epsilon, Phi Beta Kappa

Show all 4 education →

Volunteering

Teaching Assistant
Cornell Prison Education Program
Feb 2017 - May 2017 · 4 mos
Education

Math 102

Department of Mathematics Representative
Cornell Graduate Student Assembly
Aug 2018 - May 2019 · 10 mos

Skills

Teaching

BEAM   Faculty Instructor at Bridge to Enter Advanced Mathematics (BEAM)

Mathematics

👥 1 endorsement

LaTeX

👥 1 endorsement

Show all 24 skills →

Honors & awards

NSF Mathematical Sciences Postdoctoral Research Fellowship

Issued by National Science Foundation · Jan 2023

A three year postdoctoral fellowship in mathematics at MIT, sponsored by Professor Tobias Colding.

Robert John Bättig Award

Issued by Cornell University Mathematics Department · Dec 2020

🔴 Associated with Cornell University

"Recipients of the Bättig Prize are graduate students in mathematics at Cornell who have passed their A exam (typically in their second year of study). Any such graduate student is eligible regardless of social and financial background. A department committee composed of the chair, the director of graduate studies and three members of the department's graduate admissions committee select a recipient each year based on excellence and promise in mathematics."

NSF Research Training Group Fellow
Issued by National Science Foundation.· May 2019

🔴 Associated with Cornell University

Awarded as part of the Dynamics, Probability, and Partial Differential Equations in Pure and Applied Mathematics grant.

Show all 7 honors & awards →

Languages

English

Japanese
Elementary proficiency

Spanish
Limited working proficiency

Interests

Companies   Schools

🔴 **Cornell University**
586,540 followers

(+ Follow)

W **Willamette University**
22,070 followers

(+ Follow)