Eric Cooper

Boston University (graduated)
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Education

- **Ph.D. in Mathematics** May 2019
  Boston University, Boston, MA
  Thesis: Selection of Quasi-Stationary States in the 2D Navier-Stokes Equation on the Torus
  Advisors: Dr. Margaret Beck and Dr. Konstantinos Spiliopoulos
- **Certificate, Data Science Specialization** June 2018
  Johns Hopkins University, Bloomberg School of Public Health, via Coursera
- **M.A. in Mathematics** May 2014
  Boston University, Boston, MA
- **B.A. in Mathematics** May 2012
  Minor: Computer Science
  University of Virginia, Charlottesville, VA

Research Experience

- **Doctoral Researcher** 2012-2019
  Department of Mathematics and Statistics, Boston University
  - Focus on dynamical systems, partial differential equations, stochastic processes, and numerical simulation.
  - Studied the deterministic and stochastically forced two-dimensional Navier-Stokes equation, a partial differential equation that is used to model the flow of viscous fluids.
  - Derived a finite-dimensional stochastic model of the forced Navier-Stokes equation that captures the key underlying dynamics while greatly simplifying the analysis.
  - Implemented Monte Carlo methods and multi-scale analysis to determine numerically the average behavior of statistics of interest relating to the randomly forced fluid over many trials.
  - Expertise translatable to discrete dynamical systems and Markov chains.

Work Experience

- **Teikametrics** July 2020-Present
  Boston, MA
  Data Scientist
  - Data Scientist on the Artificial Intelligence team at a rapidly growing e-commerce startup.
  - Work to design, maintain, and enhance a multi-channel digital auction bidder using data science and machine learning.
- **Insight Data Science** January 2020-July 2020
  Boston, MA
  Insight Data Science Fellow
  - Post doctoral professional development fellowship designed to train and transition PhD's from STEM fields to industry data science.

- Developed a predictive model in python to determine the location of lead water pipes in New York City.

- **U.S. Census Bureau** Summer 2010
  Suitland, MD
  JPSM Junior Fellow

  - Internship with the U.S. Census Bureau through the Joint Program in Survey Methodology.
  - Worked in the Governments division developing methods to impute missing data from voluntary surveys of local governments.

Technical Skills

- Programming languages and software packages: Python, R, MATLAB, SQL, Mathematica, Latex

Publications and Preprints

- M. Beck, E. Cooper, and K. Spiliopoulos,"Selection of quasi-stationary states in the Navier-Stokes equation on the torus", 2019, Nonlinearity, Vol 32, pp. 209-237.

- M. Beck, E. Cooper, G. Lord, and K. Spiliopoulos, "Selection of quasi-stationary states in the stochastically forced 2D Navier-Stokes equation," 2020, Journal of Nonlinear Science, Vol 30, pp. 1677-1702.

Talks

- Boston University Dynamics Seminar, Boston Univeristy *November 2015*
- BU Brown PDE Seminar, Boston University *December 2016*
- BU CISE Graduate Student Workshop, Boston University *January 2018*
- BU/Keio Worskhop, Boston University *June 2018*
- Boston Graduate Math Colloquium, Boston University *October 2018*

Workshops Attended

MSRI Summer Graduate Schools, Berkeley, CA

- Dispersive PDE *Summer 2014*
- Incompressible Fluid Flows at High Reynolds Number *Summer 2015*

Teaching Experience

- **Instructor, Boston University** 2012-2019
  Boston, MA

  - Responsibility to design curricula, write quizzes and exams, and assign final grades.
  - Instructor for summer courses including Calculus I (Summers 2013, 2016), Calculus II (Summer 2018), Multivariable Calculus (Summers 2014, 2016), Ordinary Differential Equations (Summers 2017, 2018), Linear Algebra (Summer 2015), and Applied Statistics (Summer 2019).

- **Teaching Fellow, Boston University** 2012-2019
  Boston, MA
  - Led discussion sections for courses including Calculus I, Calculus II, Multivariable Calculus, Ordinary Differential Equations, Linear Algebra, Calculus I for Social Science, and Calculus II for Social Sciences.
- **Instructor, Upward Bound** Summer 2012
  Charlottesville, VA
  - Designed and taught five week summer courses for high school students from low income and/or rural families in precalculus, calculus, and physics.

Academic Service and Seminar Organization

- **Referee**, machine learning article for the Journal of Physics Communications 2019
- **Organizer**, BU CISE Grad Student Workshop, Boston University January 2019
  - Student organizer for the annual systems engineering workshop at Boston University.
  - Reviewed submissions and abstracts, selected speakers, and organized the schedule of presentations.
  - Ran the day of logistical operations and ensured the schedule was adhered to.
- **Organizer**, BU Student Dynamics Seminar, Boston University 2014-2015
  - Organized talks by graduate students within the Boston University Department of Mathematics and Statistics to provide an opportunity to speak in a low stakes environment as well as build camaraderie among students.
- **President**, AMS Graduate Student Chapter, Boston University 2013-2014
  - Organized professional development seminars and invited guest speakers.

Academic References

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