Renato Spacek

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Education

University of Massachusetts at Amherst, Amherst, MA, USA

M.Sc. in Applied Mathematics, College of Natural Sciences, Sep. 2021

B.Sc. in Mathematics, College of Natural Sciences, Sep. 2019

B.Sc. in Chemical Engineering, College of Engineering, Sep. 2019

Research Experience

University of Massachusetts at Amherst, Amherst, MA, USA Feb. 2017 - Sep. 2021

Graduate research assistant

- Topics: Nonequilibrium Statistical Mechanics, Numerical Analysis, Stochastic Methods, Multiscale Methods, Scientific Computing, Nonlinear Dynamics, Mathematical Modeling
- Principal Investigator: Matthew Dobson

University of Arkansas, Fayetteville, AR, USA May 2018 - Aug. 2018

Undergraduate research assistant

- Topics: Phase Inversion, Membrane Separations, Statistical Mechanics, Stochastic Methods, Multiscale Methods, Scientific Computing, Coarse Graining, Polymer Melts
- Principal Investigator: David Ford

Conference Presentations

- Undergraduate Mathematics Symposium, University of Illinois at Chicago, November 10, 2018. Poster presented: *"Invariant Measures of Nonequilibrium Langevin Dynamics"*
- Separations REU Symposium, University of Arkansas, July 18, 2018. Poster presented: *"Efficiency Analysis of Dissipative Particle Dynamics Simulations of Polymeric Membrane Formation"*

Talks

- GRAduate Student Seminar (GRASS), University of Massachusetts at Amherst, April 29, 2021. *"Computation of linear response of nonequilibrium stochastic dynamics"*
- GRAduate Student Seminar (GRASS), University of Massachusetts at Amherst, February 2, 2020. *"Invariant measures of nonequilibrium Langevin dynamics "*

Employment

University of Massachusetts at Amherst, Amherst, MA, USA

- Graduate IT Assistant, Research Computing Facility Sep. 2019 - Sep. 2021
  - Provide help desk consultation and support to faculty, graduate students and administrative staff on installed software and hardware.
  - Support the operation of peripheral devices such as scanners and printers.
  - Create and update shared documentation of regular operational procedures.
  - Write scripts to improve operational efficiency.
  - Perform server and network administration duties.
  - Development and maintenance of RCF website
  - Manage and maintain a Beowulf-style computing cluster

- Peer Tutor, College of Engineering — Jan. 2017 - Sep. 2019
  1. ChE 110 - Introduction to Chemical Engineering
  2. ChE 120 - Fundamentals
  3. ChE 231 - Mathematical Modelling
  4. ChE 330 - Fluid Mechanics
  5. ChE 333 - Heat and Mass Transfer
- Teaching Assistant/Grader
  1. MATH 331 - Ordinary Differential Equations for Scientists and Engineers
  2. MATH 551 - Numerical Analysis I
  3. ChE 320 - Kinetics and Reactor Design
- ExSEL Leader/Tutor, Learning Resource Center — Jan. 2018 - Sep. 2019
  1. ChE 120 - Fundamentals
  2. MATH 235 - Introduction to Linear Algebra
  3. MATH 331 - Ordinary Differential Equations for Scientists and Engineers
  4. MATH 300 - Fundamental Concepts of Mathematics
  5. MATH 523H - Introduction to Real Analysis
  6. MATH 551 - Numerical Analysis I
- Summer ENGIneering Institute (SENGI) Peer Mentor — Summer 2017

Computer Literacy Skills

- Operating Systems: Linux (CentOS, ubuntu), macOS, Windows
- Programming Languages: Julia, C/C++, bash, MATLAB, Python
- Web Development: HTML, CSS, PHP, JavaScript
- Softwares: LaTeX, Mathematica, VMD, LAMMPS
- High-Performance Computing: GPGPU, OpenMP

Languages

- Native: Portuguese
- Fluent: English, Spanish
- Proficient: Italian