Erin Angelini

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Education

University of Washington **Seattle, WA**
PhD in Applied Mathematics *Expected Graduation: June 2023*

Pomona College **Claremont, CA**
BA in Mathematics *May 2018*

Relevant Coursework: Probability and Stochastic Processes, Dynamical Systems, Partial Differential Equations, Stochastic Models in the Life Sciences, Perturbation Theory, Optimization

Programming Languages: Python, Matlab, Julia

Research Experience

University of Washington **Seattle, WA**
Graduate Research Associate *2019-present*
Advisor: Dr. Hong Qian

Stochastic Thermodynamics for Gene Expression *2020-present*
- Apply concepts from thermodynamics to understand stochastic gene expression.
- Gain functional insight into the non-genetic heterogeneity observed in cell populations (e.g., tumors).
- Develop a statistical framework to infer an "equation of state" from single-cell mRNA data.

Evolutionary Dynamics of Tumor Recurrence *2019-present*
- Analyzed a dynamical model for cancer population dynamics during chemotherapy.
- Investigated relation between induced drug-resistance and inevitability of tumor recurrence.
- Derived general conditions for the inherent limit to the success of continuous therapy.
- Collaboration with Dr. Sui Huang at the Institute for Systems Biology in Seattle, WA.
- Preprint available on bioRxiv.

Pomona College **Claremont, CA**
Undergraduate Research Assistant *2017-2018*
Advisor: Dr. Blerta Shtylla

- Implemented mean-field model of pronuclear spindle alignment in early C. elegans embryos.
- Fit probability density of spindle position to sample distribution generated by a computational model.
- Numerically solved partial differential equation for the mean time to complete spindle rotation.
- Collaboration with Dr. Adriana Dawes at the Ohio State University in Columbus, OH.
- This work culminated in my bachelor's thesis.

Presentations

- "From single-cell data to equation of state via new stochastic thermodynamics." **E. Angelini**, S. Huang, and H. Qian. 2021. Poster presentation at the *Stochastic Physics in Biology Gordon Research Conference (GRC)*. Ventura, CA. Available online.

Teaching Experience

University of Washington **Seattle, WA**
Teaching Associate *2019*
- Calculus with Analytic Geometry I (Fall 2019)
- Partial Differential Equations and Waves (Spring 2019)

Pomona College **Claremont, CA**
Teaching Assistant *2016-2018*
- Calculus III (Spring 2018)
- Differential Equations and Modeling (Fall 2017)
- Linear Algebra (Fall 2017)
- Calculus II with Applications to the Sciences (Fall 2016)

Claremont McKenna College **Claremont, CA**
Teaching Assistant *2017*
- Complex Analysis (Fall 2017)

Leadership & Service

University of Washington **Seattle, WA**

Society for Industrial and Applied Mathematics (SIAM)
Student Chapter Treasurer *2021-present*
- Manage budget used for weekly meetings and other chapter activities.

Student Chapter President *2020-2021*
- Coordinated weekly events, including student-led panels and technical tutorials.
- Organized Q&A sessions for students with guest speakers.

Association for Women in Mathematics (AWM)
Student Chapter President *2019-2020*
- Hosted quarterly events to build community among graduate students.
- Sponsored events for students to meet with visiting speakers.

Pomona College **Claremont, CA**

Association for Women in Mathematics (AWM)
Student Chapter Head Officer *2017-2018*
- Hosted biweekly lunches to build community among undergraduates.
- Ran technical workshops on mathematics-related software.

Awards & Honors

University of Washington **Seattle, WA**

SIAM Certificate of Recognition *2021*
- For outstanding work as SIAM student chapter president.

Achievement Rewards for College Scientists Fellowship *2018-2021*
- Awarded to select incoming PhD students.

Pomona College **Claremont, CA**

Kenneth Cooke Research Fellowship *Summer 2018*
- Awarded to students pursuing research in applied mathematics.