Raymond Chu

Department of Mathematical Sciences
Carnegie Mellon University
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Academic Appointments

Carnegie Mellon University

– **NSF RTG Postdoctoral Researcher**, Department of Mathematical Sciences *August 2025 – Present*

Education

University of California, Los Angeles (UCLA)

– **Ph.D**. in Mathematics *Sep 2020 - June 2025*
Cumulative GPA: 3.99/4.00
– **Bachelor of Science** in Applied Mathematics *Sep 2016 - June 2020*

Research Interests

Partial Differential Equations, Stochastic Analysis, Variational Methods, Optimal Transport, Numerical Analysis

Publications

1 **R. Chu**, Jacobs M. *Guaranteeing Higher Order Convergence Rates for Accelerated Wasserstein Gradient Flow Schemes*. In Preparation.

2 **R. Chu**, I. Kim, Y. Kim, K. Nam. *The Nonlocal Stefan Problem via a Martingale Transport*. *Probability Theory and Related Fields* (2025).

3 **R. Chu**. *A Hele-Shaw Limit with a Variable Upper Bound and Drift*. SIAM Journal on Mathematical Analysis (2023).

4 S. Christensen, **R. Chu**, C. Anderson, M. Roper. *Fast Asymptotic-Numerical Method for Coarse Mesh Particle Simulation in Channels of Arbitrary Cross Section*. Journal of Computational Physics (2022).

Honors & Awards

Pacific Journal of Mathematics Dissertation Award, Pacific Journal of Mathematics *2025*
– Recognized by the Pacific Journal of Mathematics for research conducted during doctoral studies.

Dissertation Year Fellowship, UCLA *2024*
– UCLA Graduate Division fellowship providing $20,000 and tuition support.

Ligget Teaching Fellow, UCLA *2023*
– Recognized for teaching contributions as Instructor and TA in UCLA's Mathematics Department.

National Science Foundation Graduate Research Fellowship Honorable Mention, NSF *2022*
– Honorable Mention for the NSF Graduate Research Fellowship Program for Mathematical Analysis.

Horn-Moez Prize, UCLA *2021*
– Awarded for first-year academic performance in UCLA's Mathematics Ph.D. program.

Summer Mentored Research Fellowship, UCLA *2021*
– Awarded from UCLA based on merit to support my research.

Undergraduate Research Fellowship, UCLA *2020*
– Undergraduate research scholarship awarded by UCLA's Physical Science Division.

Research Talks

Stochastic Optimal Transport and the Stefan Problems, UMichigan's Financial/Acturial Mathematics Seminar *2024*

The Fractional Stefan Problem, UCLA's Participating Analysis Seminar *2024*

The Stefan Problem via Stochastic Variational Methods, AMS 2023 Fall Southeastern Sectional Meeting *2023*

The Stiffness Limits of Porous Medium Type Equations, University of Auburn Applied and Computational Mathematics Seminar *2022*

The Stiffness Limits of Porous Medium Type Equations, UCLA's Participating Analysis Seminar *2022*

Industry Experience

Quantitative Research Intern, Morgan Stanley *Summer 2024*
- Implemented a local volatility model from an academic paper to price zero-coupon bonds in C++.
- Integrated the zero-coupon bonds model to make a hybrid equities model with stochastic interest rates.

Teaching Experiences

Graduate Student Instructor
- Masters Real Analysis (Graduate Course, Math 204) *Winter 2023 & Winter 2024*

Teaching Assistant
- Advanced Topics in Financial Mathematics (Math 179) *Spring 2024*
- Introduction to Statistics (Math 170S) *Fall 2023*
- Introduction to Data-Driven Mathematical Modeling (Math 42) *Spring 2023*
- Mathematical Finance (Math 174E) *Fall 2022*
- Mathematical Modeling (Math 142) *Spring 2022 & Winter 2021*
- Applied Partial Differential Equations (Graduate Course, Math 266B) *Winter 2022*
- Applied Ordinary Differential Equations (Graduate Course, Math 266A) *Fall 2021*
- Math 131B: Real Analysis *Spring 2021*
- Math 31A: Differential and Integral Calculus *Fall 2020*

Undergraduate Mentoring

Departmental Reading Program Co-Organizer *Fall 2021 - Present*
- Paired ∼ 45 undergraduate students annually with a graduate student mentor for a one on one reading course on advanced mathematical topics.

Departmental Reading Program Mentor *Fall 2021 - Present*
- Mentored undergraduates in a quarter-long reading program, focusing on subjects including:
  - Mathematical Statistics
  - Optimization and Linear Algebra
  - Stochastic Calculus (×3)
  - Fourier Analysis
  - Measure Theory