

Andrew Gracyk

agracyk2@illinois.edu | (916)705-8865

EDUCATION

University of Illinois at Urbana-Champaign

Ph.D., Statistics

Coursework: regression analysis I/II, mathematical statistics, stochastic processes, large sample theory (all advanced).

Fall 2021 – Present

University of California, Santa Barbara

M.A., Applied Mathematics

Master's Thesis Advisor: Paul J. Atzberger.

Master's Thesis Title: *Convolutional neural networks in learning Fokker-Planck equations*

PhD-level coursework: measure theory (real analysis) A/B, partial differential equations A/B/C, ordinary differential equations A/B/C, numerical analysis A/B/C, machine learning, optimal transport.

Fall 2019 – Spring 2021

University of California, Los Angeles

B.S., Applied Mathematics, Minor in Statistics

Alpha Lambda Delta Honor Society, Beta Theta Pi.

Fall 2015 – Spring 2019

London School of Economics

Summer study abroad. Courses in managerial and financial accounting.

Summer 2018

PUBLICATIONS

GeONet: a neural operator for learning the Wasserstein geodesic, (submitted to the 36th conference on Neural Information Processing Systems), 2022.

GRADUATE RESEARCH ORGANIZATIONS

Machine Learning Researcher

University of Illinois at Urbana-Champaign

Member of DIGIMAT program at UIUC, a collection of PhD students and faculty that research mathematical physics, data science, and materials science.

Winter 2022 – Present

Machine Learning Researcher in Partial Differential Equations

Atzberger Research Group

Member of research group in machine learning at UCSB under Dr. Paul Atzberger, Professor of Mathematics.

Researched machine learning techniques, notably CNNs and DNNs, in partial differential equations.

Fall 2019 – Spring 2021

UNDERGRADUATE RESEARCH

Statistics Research Assistant in Imaging

University of California, Los Angeles

Assistant in statistics research for Dr. Rick Schoenberg, Professor of Statistics, in statistical imaging.

Summer 2019

Statistics Research in Stochastic Processes in Finance

University of California, Los Angeles

Performed statistics research in designing a strategy in options trading using numerical simulation with R.

Summer 2019

Mathematics Research in Numerical Analysis

University of California, Los Angeles

Conducted research under Dr. Chris Anderson, Professor of Mathematics, that focused on numerical methods in algorithmic and high frequency trading.

Fall 2018

Mathematics Research in Stochastic Differential Equations

Fall 2018

University of California, Los Angeles

Analyzed and applied research in numerical methods for financial stochastic differential equations.

ACADEMIC EMPLOYMENT

Statistics Graduate Teaching Assistant

University of Illinois at Urbana-Champaign

Taught and lectured students weekly. Held office hour sections.

Created content and material for students.

Fall 2021 –
Present

STAT 400 – Statistics and Probability I (Kelly Findley)

STAT 400 – Statistics and Probability I (Ha Nguyen)

Winter 2022
Fall 2021

Mathematics Graduate Teaching Assistant

University of California, Santa Barbara

Taught and lectured students weekly. Held office hour and extra practice sessions.

Created homework, practice midterms, and practice finals for students.

Held multi-hour review sessions, speaking in front of 60+ students.

Fall 2019 –
Summer 2020

Math 3B – Integral Calculus (Mychelle Parker)

Math 3B – Integral Calculus (Hauchen Chen)

Math 3B – Integral Calculus (Mihai Putinar)

Math 3B – Integral Calculus (Darren Long)

Summer 2020
Spring 2020
Winter 2020
Fall 2019

PRESENTATIONS AND TALKS

The Basics of PyTorch with NNs, CNNs, and PINNs

DIGIMAT Professional Development Seminar. University of Illinois at Urbana-Champaign.

Winter 2022

Convolutional Neural Networks in Learning Fokker-Planck Equations

MA Thesis Defense. University of California, Santa Barbara.

Spring 2021

Machine Learning in Solving the Poisson Equation Diffusion Constant

SIAM Graduate Seminar. University of California, Santa Barbara.

Fall 2020

Convolutional Neural Networks in Learning Partial Differential Equations

Applied Math Summer Seminar. University of California, Santa Barbara.

Summer 2020

Convolutional Neural Networks in Learning Partial Differential Equations

Graduate Simulation Seminar Series. University of California, Santa Barbara.

Summer 2020

A Special Case of Global Regularity for the Navier-Stokes Equation

Applied Math Summer Seminar. University of California, Santa Barbara.

Summer 2020

HONORS, AWARDS

Graduate Block Fellowship Grant at UIUC

2021

ALD/PES Academic Honor Society at UCLA

2016 – 2019

Dean's Honors List at UCLA for consecutive quarters

2015 – 2019

Beta Theta Pi Academic Scholarship Awards

2017 - 2019

ACADEMIC OUTREACH

Organizer, Summer Applied Math Seminar at UCSB

Organized the graduate student applied mathematics seminar at UCSB for summer 2020.

Summer 2020

PROGRAMMING

Languages, experienced: R, MATLAB/Octave, Python (PyTorch, Numpy)

Languages, basic: C++, Swift

Additional software: Git, Latex, Excel, Word, Powerpoint, Photoshop, Affinity, Maya, Revit, SolidWorks, AutoCAD, Sketchup

LANGUAGES

English (native)

Spanish (3 classes)

French (3 classes)