

# Andrew Gracyk

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## 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

*In preparation; more details to come soon.*

## 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

*University of California, Los Angeles*

Fall 2018

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

## ACADEMIC EMPLOYMENT

<b>Statistics Graduate Teaching Assistant</b> <i>University of Illinois at Urbana-Champaign</i> 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
<b>Mathematics Graduate Teaching Assistant</b> <i>University of California, Santa Barbara</i> 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)	Summer 2020
Math 3B – Integral Calculus (Hauchen Chen)	Spring 2020
Math 3B – Integral Calculus (Mihai Putinar)	Winter 2020
Math 3B – Integral Calculus (Darren Long)	Fall 2019

## PRESENTATIONS AND TALKS

<i>The Basics of PyTorch with NNs, CNNs, and PINNs</i> DIGIMAT Professional Development Seminar. University of Illinois at Urbana-Champaign.	Winter 2022
<i>Convolutional Neural Networks in Learning Fokker-Planck Equations</i> MA Thesis Defense. University of California, Santa Barbara.	Spring 2021
<i>Machine Learning in Solving the Poisson Equation Diffusion Constant</i> SIAM Graduate Seminar. University of California, Santa Barbara.	Fall 2020
<i>Convolutional Neural Networks in Learning Partial Differential Equations</i> Applied Math Summer Seminar. University of California, Santa Barbara.	Summer 2020
<i>Convolutional Neural Networks in Learning Partial Differential Equations</i> Graduate Simulation Seminar Series. University of California, Santa Barbara.	Summer 2020
<i>A Special Case of Global Regularity for the Navier-Stokes Equation</i> 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

<b>Organizer, Summer Applied Math Seminar at UCSB</b> Organized the graduate student applied mathematics seminar at UCSB for summer 2020.	Summer 2020
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## **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)