ERIC M SCHMID

ML/Quantitative Analytics Research Associate

@ eric.schmid@nyu.edu GitHub: https://github.com/ericschmid-uchicago Chicago Site: https://ericschmid-uchicago.github.io/

KEY ACHIEVEMENTS

Model Optimization Success
Increased model accuracy by 21% using optimized architectures.

Team Leadership Excellence
Led team of 10 developers to successful project completion.

International Art Exhibitor
Executed exhibitions in over 10 international galleries.

Web Development Impact
Developed responsive web solutions, increasing user engagement by 30%.

EDUCATION

02/2025 - Present
Dublin, Ireland

PhD in Mathematical Sciences
GCAS College
- Topic: Applied Category Theory & AI
- Completing remotely
- Co-advisors: Prof. Fernando Tohmé, Prof. Neil Ghani (Strathclyde), Dr. Toby St. Clere Smithe (Topos Institute)

09/2021 - 03/2025
Chicago, IL

MS in Applied Mathematics
DePaul University
- GPA: 4.0

09/2023 - 12/2023
Chicago, IL

Graduate Coursework in Computer Science
University of Chicago
- Coursework: Introduction to Python Programming (GPA: 4.0)

09/2008 - 12/2013
New York, NY

BA in Individualized Study (Interdisciplinary Studies)
New York University
- Dean's List for & Spring 2009
- Concentration: Continental Philosophy and Visual Art
- Minor: Mathematics
- GPA: 3.589

EXPERIENCE

10/2024 - Present
Chicago, IL

ML/Quantitative Analytics Research Associate
Navier
- Develop and implement machine learning models for cryptocurrency price forecasting using PyTorch and scikit-learn
- Design and optimize deep learning architectures for time series prediction
- Implement backtesting frameworks to evaluate model performance
- Conduct statistical analysis of market data using Python's data science stack
- Create automated data pipeline for real-time model updates and predictions

06/2023 - 10/2024
Chicago, IL

Co-founder
Bourbaki Capital
- Led a team of developers and analysts, setting team priorities
- Developed software using Python and interacted with Amazon AWS API
- Designed and implemented a websocket listener for market data
- Utilized Python library HFTbacktest for backtesting quantitative financial models

10/2016 - 06/2023
Chicago, IL

Professional Artist
- Exhibited at prestigious galleries and museums across Europe and North America, including Kunsthalle Zürich, Vilma Gold (London), Neue Alte Brücke (Frankfurt), Croy Nielsen (Berlin), Svetlana (New York), Centralbanken (Oslo), Emily Harvey Foundation (New York), M. LeBlanc (Chicago) and Galleria Federico Vavassori (Milan)

09/2016 - 10/2016
Chicago, IL

Temporary Web Development Consultant
Chicago.com
- Created a responsive navigation bar for website using HTML, CSS, Javascript, and JQuery
- Implemented improvements for social media integration and mobile experience

02/2016 - 08/2016
Chicago, IL

Software Engineering Intern
Raise.com
- Completed software engineering coursework in Java, UNIX and SQL
- Developed various applications including a hangman game, karaoke jukebox and random sentence generator

01/2014 - 10/2015
New York, NY

Production Manager
Ben Schumacher Studio

05/2013 - 08/2013
Chicago, IL

Web Development Intern
Chicago Sun-Times

SKILLS

AWS | CSS | Deep Learning | ECommerce | GitHub | Grunt | Haskell | HTML | Java | Java Spring | JavaScript | jQuery | Linear Algebra | Unix Shell Scripting | Numpy | Pandas | Python | PyTorch | Scikit-Learn | Scipy | SQL | Time Series | XGBoost | PostgreSQL | Agda | Coq | Idris | OCaml | Azure | Functional Programming

FIND ME ONLINE

GitHub
https://github.com/ericschmid-uchicago

Website
https://ericschmid-uchicago.github.io/

PhilPapers
https://philpeople.org/profiles/eric-schmid

PROJECTS

Macroeconomic Effects on Bitcoin Price Using Topological Data Analysis and Distance-to-Default Metrics

10/2024 - 12/2024 Chicago, IL

Developed a machine learning model integrating topological data analysis, financial risk metrics, and macroeconomic indicators to predict Bitcoin price movements with performance exceeding random chance.

- Developed ML model predicting Bitcoin trends using Topological Data Analysis and Distance-to-Default metrics, achieving 21% better-than-random AUC (0.6089 in a three-category classification problem)
- Created novel validation approach using shifted 30-day moving averages to reduce volatility impact while avoiding look-ahead bias
- Built XGBoost classifier with time series cross-validation for 3 price categories, achieving 5.9% better accuracy than random chance
- Applied SHAP analysis to identify predictive features, combining TDA metrics with Treasury yields and federal debt data from Yahoo Finance and FRED API

The value of innovation: the economics of targeted drugs for cancer (PUBLISHED in Targeted Oncology)

2007 Chicago, IL

I analyzed the economic implications of targeted cancer drugs, examining their substantial costs ($13,000-$100,000 annually) relative to their clinical benefits and addressing concerns about healthcare resource allocation in an era of breakthrough but expensive oncology therapeutics.

- Co-authored research paper published in Targeted Oncology examining the economic considerations of 16 FDA-approved targeted cancer therapies
- Analyzed cost-effectiveness ratios and insurance reimbursement considerations for novel cancer drugs ranging from $13,000-$100,000 per patient annually
- Evaluated economic sustainability challenges of targeted therapies in oncology while acknowledging their breakthrough clinical value
- Recommended methodology improvements for cost-effectiveness studies to better inform healthcare resource allocation decisions
- Explored the complex relationship between drug pricing, patient access, and the value of medical innovation in cancer care

COURSES

Introduction to Python Programming, Numerical Analysis I, Real Analysis I, Finite-Dimensional Vector Spaces, Probability & Statistics I, Abstract Algebra I & II, Point-Set Topology, Mathematical Modeling, Complex Analysis, Group Theory, Number Theory, Commutative Algebra, Category Theory, Mathematical Logic (Model Theory), Algebraic Topology, Calculus I-III, Statistics, Linear Algebra, Discrete Mathematics, Non-Euclidean Geometry

INTERESTS

Machine Learning

AI

Type Theory

Category Theory

Functional Programming

Mathematical Logic