MICHAEL WIECK-SOSA

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EDUCATION

Carnegie Mellon University | PhD in Statistics | Advisor: [Aaditya Ramdas](#)   *May 2027*
- GPA: 3.96/4.00 | Thesis topic: theory and methods for nonstationary nonlinear time series data

University of Illinois at Urbana-Champaign | MS in Statistics   *May 2022*
- GPA: 3.95/4.00 | Awards: 2-year teaching assistantship with full tuition waiver and stipend

Fordham University | BS in Mathematics with Minors in Computer Science and Economics   *May 2020*
- GPA: 3.77/4.00 | Awards: *magna cum laude* | GRE: 170/170 Quantitative, 163/170 Verbal, 4.5/6.0 Writing

COURSEWORK

- **Statistics**: Advanced Statistical Theory, Advanced Time Series Analysis, Mathematical Statistics, Intermediate Statistics, Regression Analysis, Computational Statistics
- **Computer Science**: Algorithms, Data Structures, Theory of Computation, Operating Systems, Computer Architecture, Artificial Intelligence, Machine Learning, Data Mining for Listening to the Social Universe
- **Math**: Stochastic Calculus, Measure-Theoretic Probability, Functional Analysis, Measure Theory, Interacting Particle Systems, Geometric Flows, Differential Geometry, Lie Groupoids and Lie Algebroids, Topology, Abstract Algebra, Numerical Analysis, Numerical Linear Algebra, Real Analysis, Linear Algebra, Mathematical Modeling

PROGRAMMING LANGUAGES AND SOFTWARE

- Expert in Python: NumPy, pandas, scikit-learn, statsmodels, PyTorch, and TensorFlow
- Expert in R: dplyr, Rcpp, xts, zoo, caret, mgcv, glmnet, parallel, and ggplot2
- Proficient in C++: My undergraduate courses in Algorithms and Data Structures used C++
- Extensive experience with SQL, q/kdb+, Git, and Bash

DOCTORAL RESEARCH

Deep Learning for Nonstationary Nonlinear Time Series | Wei Biao Wu   *2025+*
- Developing theory for estimating time-varying regression functions of nonstationary time series using deep neural networks

Simulation-Based Inference for Nonlinear Models of Time Series through Random Features | Cosma Shalizi   *2024+*
- Creating a method for inferring the parameters of analytically intractable models of nonstationary nonlinear time series

Identifying Relevant Forecasting Signals in Unstable Environments | Michel Haddad and Aaditya Ramdas   *2024+*
- Developing a method for selecting variables for forecasting with nonstationary nonlinear time series

Conditional Independence Testing for Nonstationary Nonlinear Time Series | Michel Haddad and Aaditya Ramdas   *2023+*
- Creating a conditional independence test based on time-varying regression that is robust to nonstationarity and dependence

RESEARCH ASSISTANTSHIPS

Carnegie Mellon University | Simulation-Based Inference through Random Features | PI: Cosma Shalizi   *Summers 2024+2025*
- Developing theory, methods, and software (Python and R) for estimating and inferring the parameters of simulation models
- Using optimization algorithms from PyTorch to optimize highly non-convex objective functions

National Center for Supercomputing Applications | Great Lakes to Gulf | Supervisor: Jong Lee   *Sept. 2020-May 2022*
- Built confidence bands for trends in concentrations and fluxes of chemicals to measure changes in water quality over time
- Used parallel computing to construct these confidence bands for 1000+ locations in the U.S. and made ggplot visualizations

RESEARCH INTERNSHIPS

MIT Lincoln Lab | Sensor Technology Group   *May 2021-July 2021*
- Implemented signal processing methods for tracking objects in outer space and ran simulations to evaluate different methods

University of Illinois at Urbana-Champaign | FORWARD Data Lab | Computer Science Department   *Jan. 2021-May 2021*
- Discovered patterns in the cross-platform dynamics of posts on Twitter, Facebook, and Reddit using Hawkes processes

INDUSTRY INTERNSHIPS

J.P. Morgan | Quantitative Research | Markets Summer Associate | Received Return Offer   *June 2023-Aug. 2023*
- Worked with macro traders and quants on a method for hedging derivatives portfolios via multi-period optimization
- Collaborated with energy derivatives traders on improving the statistical methods used in a systematic trading strategy

J.P. Morgan | Quantitative Research | Markets Summer Associate | Received Return Offer   *June 2022-Aug. 2022*
- Developed a method for adaptively selecting the parameters of a trade execution algorithm based on real-time market data

TEACHING ASSISTANTSHIPS

- For the MS in Computational Finance program: Simulation Methods for Option Pricing, Financial Time Series Analysis, Financial Data Science I and II, and the Machine Learning Capstone Project
- For the MS in Data Science program: Time Series Analysis
- For the BS in Statistics / StatML programs: Advanced Data Analysis

POSTERS AND TALKS

- 2025: Gave a talk about variable selection for large-scale forecasting for nonstationary time series to researchers at Amazon
- 2025: Presented on conditional independence testing at the Virtual Time Series Seminar's Workshop for Junior Researchers
- 2024: Poster about conditional independence testing at the NBER-NSF Time Series Conference at UPenn
- 2024: Gave a talk about nonstationary nonlinear time series theory, nonparametric estimation of time-varying regression functions, and conditional independence testing to the Statistics and Machine Learning Group at Carnegie Mellon University

PROFESSIONAL SERVICE

- 2024+: Chair of Statistics PhD student committee in charge of organizing events related to careers in industry and academia