

EDUCATION

Michigan State University, East Lansing, MI

Ph.D. in Physics; Graduate Certificate in High-Performance Computing

Exp. October 2023

GPA: 3.7/4.0

University of Notre Dame, South Bend, IN

B.S. in Physics, Economics

May 2015

GPA: 3.56/4.0

PROFESSIONAL EXPERIENCE

Facility for Rare Isotope Beams (FRIB)

2017–

Graduate Research Assistant, Nuclear Astrophysics Experiments

East Lansing, MI

- Clean, cut and analyze experimental data to constrain beta-decay transitions in select neutron-rich nuclei
- First author on a numerical sensitivity study of nuclear reaction rate variations in core-collapse supernovae simulations
- Manage experiment and analysis project timelines using Agile methodology
- Contributed to 12 NSF-funded experiments and ongoing detector systems commissioning
- Communicate scientific projects to public via guided tours of the cyclotron facility

Graduate Research Assistant, SECAR Beam Development

2018–

- Designed a machine-learning pipeline for optimizing magnet settings in the SECAR separator from the ground up
- Ported the pipeline to Microsoft Azure cloud resources as a 2021 ICER Cloud Computing Fellow
- Optimized results have been employed in an NSF-funded experiment, and part of a forthcoming paper

Travelers Insurance Fixed Income Investments

2015–2017

Senior Associate Quantitative Analyst

St. Paul, MN

- Assessed return attribution on a \$30 billion municipal bond portfolio, communicated results to VPs
- Modeled asset/liability matching to minimize portfolio systematic and curve risk
- Managed the department SharePoint database and implemented workflows for faster, clearer communication
- Began pursuit of a CFA charter and passed the first of three exams

European Organization for Nuclear Research (CERN)

2014

Undergraduate Research Assistant and Programmer

Geneva, Switzerland

- Performed sensitivity studies comparing lifetime ratios and kinematic variables to better determine B-meson lifetimes
- Developed and programmed elements of the ROOT/R interface library, later distributed in ROOT

TECHNICAL SKILLS AND INTERESTS

Concepts: Machine Learning • Big Data Pipeline Analysis • High-Performance Computing • Software Management • Version Control • Cloud Computing • Open-Source Collaboration • Linux Computing

Programming: *Proficient:* Python • C++ • Git • ROOT • Bash • Azure • Docker • L^AT_EX • PyTorch
Familiar: HTML • Node.js • SQL • MS Access • SharePoint • MPI • R • JavaScript • VBA

Publications: 10 publications; 3 refereed; 2 in prep. *Citations:* 14; *h-index:* 2

Language: *Native:* English; *Basic:* Spanish • French

PERSONAL PROJECTS

Major League Baseball Daily Hit Predictor (HitBot)

2022–

- Scraper to pull daily updates from MLB player stats, along with future matchup data and store in a private database
- Pipeline a ML algorithm to predict the most likely players to get a hit on a daily basis given past data
- Upload daily predictions—which have contributed to a > 70% success rate—to my personal website