Kirby Hermansen

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⌥ GitHub
in LinkedIn

EDUCATION

Michigan State University, East Lansing, MI
Ph.D. in Physics; Graduate Certificate in High-Performance Computing

November 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)
Graduate Research Assistant, Nuclear Astrophysics Experiments

2017–
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
Senior Associate Quantitative Analyst

2015–2017
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)
Undergraduate Research Assistant and Programmer

2014
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 ● LaTeX ● 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