CURRICULUM VITAE

Ian Q. Snider

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EDUCATION

Washington University in St. Louis, *St. Louis, MO* *Expected: May 2025*
B.S. Mechanical Engineering GPA: 4.00/4.00

Truman State University, *Kirksville, MO* *Expected: May 2024*
B.A. Physics, Mathematics minor GPA: 3.91/4.00

- Physics/Engineering Dual-Degree Program with Washington University in St. Louis

PROFESSIONAL EXPERIENCE

Brookhaven National Laboratory - *Student Collaborator*, *Upton, NY* *Sum 2023*

- Supplementary Undergraduate Research Program (SURP) (see: *Resonance Capture Widths for the Bayesian Resonance Reclassifier*)
- Wrote a detailed research report and presented my summer work to a laboratory audience
- Assisted new interns with learning Git and understanding the BRR code base

Brookhaven National Laboratory - *Student Collaborator*, *Upton, NY* *Sum 2022*

- Science Undergraduate Laboratory Internship (SULI) program. A 10 week internship at the National Nuclear Data Center (NNDC) researching machine learning in nuclear physics. (see: *Accuracy Correlation in Neutron Resonance Reclassification*)
- Wrote a detailed research report and presented my summer work to a laboratory audience

RESEARCH

Resonance Capture Widths for the Bayesian Resonance Reclassifier *Sum 2023*
Faculty mentor: Gustavo Nobre - *NNDC, Brookhaven National Laboratory*

- Used Python machine learning methods to train an algorithm for reclassifying Pb-206 neutron resonances
- Sampled capture widths from a Porter-Thomas distribution to create more realistic synthetic training data for the Bayesian Resonance Reclassifier.

Accuracy Correlation in Neutron Resonance Reclassification *Sum 2022*
Faculty mentor: Gustavo Nobre - *NNDC, Brookhaven National Laboratory*

- Used machine learning to train an algorithm for correcting neutron resonances
- Explored Python machine learning methods
- Learned how properties of isotopes were reflected in an algorithm's success
- Developed an iterative learning method for incrementally improving the success of an algorithm

Interface for Starlink Satellite Observations *August 2021 - March 2022*
Faculty mentor: Vayujeet Gokhale - *Dept. of Physics, Truman State University*

- Developed a user interface with Python for planning satellite observations

SKILLS

- **Coding Languages:** Python, C, C++, Shell scripting, LaTeX, HTML, Octave, Mathematica, MATLAB
- **Processing/Editors:** Microsoft Office, Vim
- **Technical/Laboratory:** Technical writing, basic analog & digital electronics
- **Other:** Solidworks, Linux command line, Computer clusters, OnShape, Git

RELEVANT COURSEWORK

- **Physics:** Physics I & II, Vibrations & Waves, Intermediate Laboratory, Modern Physics I & II, Electronics, Mathematical Physics, Classical Mechanics, Electricity & Magnetism
- **Engineering:** Statics and Mechanics of Materials, Computer Aided Design, Thermodynamics, Fluid Mechanics, Solid Mechanics, Vibrations
- **Mathematics:** Calculus I, II, & III, Foundations of Mathematics, Linear Algebra, Ordinary Differential Equations, Statistics, Methods of Optimization
- **Computer Science:** Foundations of Computer Science I & II (C++), Computing Structures

- **Other:** Chemical Principles 1

ACTIVITIES

WashU Robotics - *MATE ROV team member* *2023 - present*

- Member on the MATE ROV underwater robotics team
- Designed a vertical profiling buoyancy engine

Society of Physics Students - *Demo Chair* *2020 - 2023*

- Organize, develop, and perform physics demos
- Inform/encourage students to engage in research activities
- Weekly commitment to volunteer physics tutoring
- Wrote and proctored exams for 2022 & 2023 Science Olympiads ("Crave the Wave" and "Remote Sensing")

Dark Sky TSU *Fall 2021 - Spring 2022*

- Group at Truman State University dedicated to light pollution education and outreach

Competitive Math *December 2022*

- Participated in the 2022 Putnam competition

PROJECTS OF NOTE

TerminalGraphingCalculator *2023*

- A 3D graphing calculator that runs in the terminal. 3D parametrized equations are projected onto a 2D plane (the screen) and each "pixel" is represented using an ASCII character

CONFERENCES

- American Physical Society - Division of Nuclear Physics and Japan Physical Society joint Fall 2023 meeting. Hilton Waikoloa Village, The Big Island, HI, Nov 27-Dec 1.
- American Physical Society - Division of Nuclear Physics Fall 2022 meeting. Hyatt Regency Hotel, New Orleans, LA, October 29-31.

AWARDS & HONORS

Conference Experience for Undergraduates 2023 *September 2023*

- Competitive research abstract award and invitation to the APS Division of Nuclear Physics and The Physical Society of Japan joint Fall 2023 meeting on the Big Island, Hawaii.

Conference Experience for Undergraduates 2022 *August 2022*

- Competitive research abstract award. An invitation to the poster presentation at the APS DNP Fall 2022 meeting in New Orleans, LA.

Sigma Pi Sigma Honor Society *May 2022*

- Recognized for service and academic scholarship in physics.