Ian Q. Snider

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EDUCATION

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

Truman State University, *Kirksville, MO* — *Conferred: Dec 2024*
B.A. Physics, Mathematics Minor — 3.89/4.00

EXPERIENCE

Lawrence Livermore National Laboratory - *Graduate Intern*, *Livermore, CA* — *June 2025 - present*
Faculty mentor: Jesse Norris - *Nuclear Criticality Safety Division*

- Developed CRISP (CRItical Simulation Pipeline) for parallelizing jobs from the radiation transport code: COG
- Test driven Python development included Poetry, CI/CD pipeline, sqlite scalable materials database, MPI optimization, CLI development, feature branching, and Sphinx documentation
- Utilized world-class LLNL HPC clusters Dane and Ruby with Slurm sbatch/srun scripts
- CRISP sucessfully automated the materials compiling and k_{eff} benchmarking of ∼3420 ICSBEP critical reactors

Brookhaven National Laboratory - *Nuclear Science Intern*, *Upton, NY* — *2022 - 2024*
Faculty mentor: Gustavo Nobre - *National Nuclear Data Center (NNDC)*

- Developed BRR (Bayesian Resonance Reclassifier) for heavy-nuclei resonance reclassification on NNDC clusters
- Applied python machine learning and Random Matrix Theory to develop synthetic training sets and classify resonance spin assignments for capture cross-sections
- Used the neutron transport code OpenMC to perform perturbative sensitivity analyses of the thermal $1/v$ neutron capture cross-sections for critical reactors

Truman State University - *Student Astronomy Researcher*, *Kirksville, MO* — *2021 - 2022*
Faculty mentor: Vayujeet Gokhale - Department of Physics

- Calculated trajectories of Starlink satellites to optimize telescope viewing plans
- Researched long-exposure luminosity data corruption due to Starlink satellite interference
- Developed a GUI for Truman astronomy students

SKILLS

- **Coding Languages:** Python, Go, C, C++, Bash, Lua, SQL, MATLAB, Mathematica, Octave, LaTeX, Typst, Vimscript
- **Software/Technical:** Simulink, SolidWorks, OpenMC, COG (transport code), NJOY2016, Pytorch, Scikit-learn, Slurm, Git, Linux, Arduino, Microsoft Office, Robotics, Computer Clusters, Embedded Electronics
- **Advanced physics/engineering coursework/lab experience:** Electricity & Magnetism, Electronics, Classical Mechanics, Quantum Physics, Mathematical Physics, Vibrations, Nuclear Physics, Thermodynamics, Fluid Mechanics, Solid Mechanics, Heat Transfer, Acoustics, Materials Science, Thermal Systems, Aerospace Propulsion, Turbojets, Ramjets, Autonomous Aerial Vehicle Control, State Estimation, and Kalman Filtering
- **Advanced mathematics coursework:** Linear Algebra, Ordinary Differential Equations, Computing Structures, Control Systems, Machine Learning, and Optimizations

ACTIVITIES

MARINER Robotics Project - ***Project Lead*** — *2024 - 2025*

- Collaborated with other students to develop an advanced autonomous underwater vehicle (AUV)
- Researched and developed hydrodynamic dive control
- Built a chassis and buoyancy engine
- Researched translational acoustic-RF communications (TARF) for data transmission at the water-to-air interface

MATE ROV Robotics Competition - ***Mechanical Lead*** *2023 - 2025*

- Designed and built a vertical profiling buoyancy engine
- Designed grabbers and manipulators for the main ROV chassis

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

- Organize, develop, and perform physics demos
- Weekly commitment to volunteer physics tutoring
- Wrote and proctored exams for 2022 & 2023 Science Olympiads (“Crave the Wave” and “Remote Sensing”)

SELECTED HONORS

Kenneth L. Jerina Prize for Outstanding Dual-Degree in Mechanical Engineering *April 2025*

- Honored for academic achievements and engineering community contributions.

Sigma Pi Sigma Honor Society *May 2022*

- Recognized for service and academic scholarship in physics