Aqueeb Anjum Sunny

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Research Interests

Gen IV reactors, fuel performance optimization, ML applications in nuclear engineering

Education

Military Institute of Science and Technology (MIST) Jun 2025
Bachelor of Science in Nuclear Engineering
CGPA: 3.46 out of 4.00

Research Experience

Undergraduate Thesis:

- Conducted Monte Carlo simulations with OpenMC to analyze the neutronic behavior of the ALFRED reactor core.
- Compared and evaluated reflector materials in an LFR core to assess neutron economy and fuel cycle length.
- Performed preliminary neutronic evaluation of a conceptual Multi-Purpose Research Reactor.

Publications

1. Shuddho, S. S., **Sunny, A. A.**, & Mollah, A. S. (2025). *Neutronic Performance of Reflector Materials in Lead-Cooled Fast Reactor*. Nuclear Engineering and Design (Under Review). https://dx.doi.org/10.2139/ssrn.5348419 — Jul 2025

2. Dipto, R. R., Shuddho, S. S., **Sunny, A. A.**, & Mollah, A. S. (2024). *Analysis of Neutronics Parameters of Different Annular Fuel Using Monte Carlo Code OpenMC Utilizing JEFF-3.3 and ENDF/B-VIII.0 Nuclear Data Libraries*. Proceedings of the Energy Conference 2023. https://dx.doi.org/10.2139/ssrn.4997514 — Oct 2024

Technical & Research Skills

Technical Skills: OpenMC, NJOY, Python (numpy, pandas, matplotlib), scikit-learn, Git, Linux, Markdown
Research Skills: Core Design, Monte Carlo Simulations, Data Analysis, Nuclear Data Processing
Portfolio: heisen23.github.io/portfolio (Core designs & simulations)

Professional Training

Rooppur Nuclear Power Plant, Pabna 7-8 Feb 2024
- Trained in nuclear power plant operations and safety protocols

Bangladesh Atomic Energy Centre, Dhaka 11-15 Feb 2024
- Completed Non-Destructive Testing training program

TRIGA Research Reactor, Atomic Energy Research Establishment, Savar 5 Mar 2024
- Studied research reactor operations and neutronics applications

Courses & Workshops

Machine Learning Crash Course, Google — Sep 2025
2025 Nuclear Engineering Summer School, MTV — Aug 2025
Computational Nuclear Science and Engineering, IAEA — Jul 2025

Leadership & Outreach

MIST Nuclear Engineering Club, Senior Executive Panel Jun 2023 - Oct 2024
Organized nuclear engineering events, including a quiz competition for 50+ students, and delivered presentations to 30+ freshmen, introducing them to the field.

Private Tutor (Physics & Mathematics, High School Level) 2022 - Present
Provided individualized and group tutoring for secondary and higher-secondary students.

References: Available upon request.