Md Fuad Hasibul Hasan

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Fuad Hasan | fuad-hh | Fuad Hasibul Hasan

Troy, New York - 12180, USA

Objective

I am a graduate student at Rensselaer Polytechnic Institute. My research focus is massively parallel scientific computing for plasma and neutronic simulation.

Experience

- **Rensselaer Polytechnic Institute [🌐]** *August 2023 - Current*
  Graduate Assistant Troy, NY, USA
  - Currently working as a research assistant on the Department of Energy funded Computational Evaluation and Design of Actuators for Core-Edge Integration (CEDA) project. I develop C++ libraries for high performance coupling and particle transport simulation.
  - Worked as a teaching assistant for Computer Science 1 in Fall 2023. I conducted office hours, lab sessions, and graded tests.

- **NATS Incorporated [🌐]** *August 2022 - April 2023*
  Field Application Engineer Middletown, CT, USA (Remote)
  - I was posted in Bangladesh as an overseas employee to work on installation, training, and pre and post-sales services for NATS equipments. After I was offered for a fully funded Ph.D. opportunity at RPI, I resigned from this job earlier to start preparing to move to the USA and worked to improve my programming skills.

Education

- **Rensselaer Polytechnic Institute** *August 2023 - Present*
  Ph.D. in Nuclear Engineering Troy, NY, USA
  - GPA: 3.90/4.00 (ongoing)

- **University of Dhaka** *2021 - 2022*
  M.Sc. in Nuclear Engineering Dhaka, Bangladesh
  - Grade: 3.58/4.00

- **University of Dhaka** *2016 - 2021*
  B.Sc. in Nuclear Engineering Dhaka, Bangladesh
  - GPA: 3.48/4.00

Projects

- **M.Sc. Thesis** *2022*
  Modeled and meshed the geometry, set up simulation cases, ran simulations, and analyzed results
  - Coupled Neutronic and Thermal-Hydraulic Analysis of a Conceptual Small Modular Fast Reactor Fuel Pin Using OpenMC, OpenFOAM, and ENRICO.

- **B.Sc. Thesis** *2021*
  Defined geometry and materials, and other auxiliary OpenMC case setup, did verification studies, analyzed results [🐙]
  - Neutronic Analysis of an Ultra-Long-Life Small Modular Fast Reactor Loaded with U-Zr-Pu Fuel Using Monte Carlo Code OpenMC.

Publications

C=Conference

[C.1] Jacob Merson, Abhiyan Paudel, Fuad Hasan, Cameron Smith, Angel Castillo-Crooke, Mark Shephard, Eric Suchyta (2024). **Geometry-Aware Coupling of Multimodel Simulations and Data for Digital Twins through the Parallel Coupler for Multimodel Simulations (PCMS)**. In *Bulletin of the American Physical Society*. American Physiological Society (APS). October 7–11, 2024; Atlanta, Georgia.

[C.2] Albert Mollen, Toseo Moritaka, Aaron Scheinberg, Robert Hager, Hongxuan Zhu, Michael Churchill, Seung Hoe Ku, Jacob Merson, Fuad Hasan, Mark Shephard, CS Chang (2024). **Simulation of plasma turbulence in stellarator equilibria with the global gyrokinetic particle-in-cell code XGC**. In *Bulletin of the American Physical Society*. American Physiological Society (APS). October 7–11, 2024; Atlanta, Georgia.

[C.3] George Wilkie, Robert Hager, Felix Parra, Jacob Merson, Fuad Hasan (2024). **Pedestal fueling studies enabled by streamlined neutral transport workflow**. In *Bulletin of the American Physical Society*. American Physiological Society (APS). October 7–11, 2024; Atlanta, Georgia.

Skills

- **Programming Languages:** C++, CUDA, Python, C
- **C++ Libraries/Frameworks:** Kokkos, Catch2, ADIOS2, HDF5, MPI, etc.
- **Other Tools:** CMake, Bash, Git, Matplotlib, Numpy, ParaView, Meshing tools: GMSH, Omega_h, etc., Tracing and Profiling Tools: HPCToolkit, TAU, etc.
- **Research Skills:** Monte Carlo Simulation, Particle Transport in Unstructured Meshes, Neutronics, Parallel Programming, etc.

Awards

- **National Science and Technology Fellowship** *2021*
  Ministry of Science and Technology, Bangladesh
  ◦ Awarded for significant contribution to science and engineering.
- **Winner of Global Atomic Quiz** *2021*
  Rosatom (online)

Internship, Certifications & Trainings

- **Research Intern at Materials Science Division, Bangladesh Atomic Energy Commission** *2020*
- **Trainee at Non-destructive Testing Division, Bangladesh Atomic Energy Commission** *March 2019 - May 2019*
- **Joint ICTP-IAEA Course on Theoretical Foundations and Application of Computational Fluid Dynamics in Nuclear Engineering** *13-17 September 2021*
- **Joint ICTP-IAEA Advanced School/Workshop of Computational Nuclear Science and Engineering** *23-27 May 2022*

Additional Information

Languages: Bangla (Native), English (Proficient)