Musanna Galib

LinkedIn Github Orcid Website

✉ musannagalib@rocketmail.com

☎ (1) 604 338 6291

Summary

Mechanical Engineer and Materials Researcher with 7+ years of experience in thin film deposition, multi-scale modeling, and battery material testing. Specialized in structure–property–performance relationships. Proficient in SEM, profilometry, and cyclic testing under cleanroom protocols. Active contributor to open-source tools and cross-functional project teams delivering reliable, scalable materials solutions.

Education

- **The University of British Columbia (UBC)** — Vancouver, Canada
  Ph.D. Candidate at Mechanical Engineering; CGPA: 87% — *Sep 2020 -Present*

- **Bangladesh University of Engineering and Technology (BUET)** — Dhaka, Bangladesh
  M.Sc. & B.Sc. in Mechanical Engineering; CGPA: 3.92/4.00 (4th/180) — *April 2012 - May 2019*

Experience

- **Materials simulation & Battery experiment– Research Assistant** — Vancouver, Canada
  The University of British Columbia — *Sep 2021 - Present*
  - Led research on materials design; performed battery assembly, cyclic testing, and material characterization using optical microscopy, profilometry, SEM, and EDX.
  - Built multi-scale models using ab initio molecular dynamics simulations (AIMD) with Finite Element Analysis (FEA), integrated ML (PyTorch) for interatomic potentials; contributed to open-source softwares.

- **Mechanical Engineering Faculty & Consultant – Instructor & Engineer** — Dhaka, Bangladesh
  Bangladesh University of Engineering and Technology — *Apr 2017 - Oct 2021*
  - Instruction and Curriculum Development: Worked as an instructor for undergraduate engineering courses.
  - Testing, Certification, and Consultant: Worked as a consulting engineer for testing and certification of breakpads, internal combustion engines, structural integrity of automobiles, emission analysis, and fuel properties.

Research Projects

- **Open-source Software Development:** Surftrack, MOOSEAnalyze, AtomProNet
- **Machine Learning Research:** Interatomic potential development at UBC-Vancouver
- **Battery Research:** Multi-scale modeling, Battery & Cleanroom testing at UBC-Vancouver and UBC-Okanagan

Technical Skills

- **Computational**: Python, MATLAB, Bash, PyTorch, VASP, LAMMPS, ABAQUS, MOOSE
- **Experimental**: Battery assembly, Cyclic testing, In-situ optical microscopy, Profilometer

Grants & Fundings

- **DRI EDIA Champions** - Funding Agency: Digital Research Alliance of Canada — [Amount: 35,000 CAD]
- **4-Year Doctoral Fellowship** - Funding Agency: The University of British Columbia — [Amount: 93,267 CAD]

Honors & Awards

- **1st prize** - Ideas With Impact Competition by ICICS & HATCH at UBC — [May 2024]
- **Best Presentation Award** - CSME Congress in Computational Mechanics at University of Toronto — [May 2024]
- **Dean's List** - 4 consecutive years in BUET — [Feb 2013 - Feb 2017]
- **University Merit List** - 4 consecutive years in BUET — [Feb 2013 - Feb 2017]

Publications and Conferences

- 4 first author; 8 co-author; 1 book chapter; 2 first author manuscript under review (refereed) (Link)

Leadership Experience

- Steward, UBC Teaching Assistants' & Instructors Union (CUPE 2278) — [2024-2025]
- Vice President (Academic), Mechanical Engineering Graduate Association, UBC — [2022-2023]
- Award Leader, The Duke of Edinburgh's Award Foundation Bangladesh — [2017-2021]