Khaled Mosharraf Mukut

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About Me

Mechanical Engineering PhD candidate specializing in CFD, multiscale modeling, and high-performance computing. Experienced in leading research projects on soot formation and combustion, with multiple publications and a distinguished research fellowship. Passionate about mentoring students and collaborating across disciplines to drive innovative, sustainable solutions. Currently seeking an opportunity to further advance cutting-edge research in computational engineering.

Technical Skills

Languages: Python, C/C++, `MATLAB`, `FORTRAN`, HTML, Bash
Tools: VS Code, PyCharm, Autocad, SolidWorks, Tecplot, Paraview, Tableau
Technologies/Frameworks: Linux, Git
Simulation Tools: OpenFoam, LAMMPS, ANSYS, COMSOL, CONVERGE CFD

Education

Ph.D in Mechanical Engineering (Marquette University) **Aug 2019 – May 2025 (Expected)**
Conducted molecular simulations of soot, uncovering novel insights into particle behavior. *Milwaukee, WI*

MS in Mechanical Engineering (Marquette University) **Aug 2017 – May 2019**
Examined radiation and EGR effects on pollutant formation in spray combustion. *Milwaukee, WI*

Relevant Coursework

- Transport Phenomenon
- Thermodynamics
- CFD
- Heat and Mass Transfer
- Adv. Algorithm
- Adv. Machine Learning
- Air Quality Engineering
- Distributed Computing

Honors and Awards

Awarded Richard W. Jobling Distinguished Research Fellowship | *Marquette University* **Feb 2023**
Outstanding Research Assistant Award | *Marquette University* **Apr 2021**
Awarded Dean's List Scholarship | *Bangladesh University of Engineering & Technology* **2011 & 2012**

Experience

Marquette University **Aug 2017 – Present**
Graduate Assistant *Milwaukee, WI*

- Conducted research leading to 5 journal publications and presented findings at 2 international and 6 national conferences.
- Exhibited strong proficiency in multidisciplinary computational skills, encompassing CFD, molecular modeling, and high-performance computing.
- Instructed and graded a range of undergraduate Mechanical Engineering courses, including Heat Transfer, Fluid Mechanics, Dynamics of Machinery, Thermodynamics, and Measurement and Material Properties Lab.
- Mentored graduate students in the use of essential research tools including `Git`, `Linux`, `Python`, and LaTeX.

Bangladesh University of Engineering & Technology **Mar 2016 – Aug 2017**
Graduate Assistant *Dhaka, BD*

- Mentored two undergraduate senior groups: One group worked on molecular dynamics simulations of explosive boiling, while the other modeled a thermally stratified co-axial jet using ANSYS .
- Published 3 journal publications during this time and presented at 1 international and 2 national conference.

Other Professional Activities/Leadership / Extracurricular

Python Summer School | *A week-long python bootcamp for high school seniors* **Jul 2023**

- Guided 15 high school seniors to create their own air quality data visualizations using Python.

Entangled Air | *An exhibition bringing together the art of Tomás Saraceno and my research* **Jan 2023 – May 2023**

- Led social outreach initiatives to raise awareness about air quality.
- Developed artwork and ensured community engagement and advocating the importance of clean air.

Bangladesh Student Organization at Marquette University (BSAMU) **Jun 2021 – May 2023**
President *Marquette University*

- Organized a number of cultural events and social services to bring the community together.
- Managed executive board of 10 members and led bi-weekly meetings to oversee the organization's progress.

Publications

- K. M. Mukut et al.: J. Phys. Chem. A 128, 5175 (2024)
- K. M. Mukut et al.: Fuel 373, 132197 (2024)
- K. M. Mukut et al.: Comput. Phys. Commun. 276, 108325 (2022)
- For the full list of publications click **here** or **SCAN**