

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 | • CFD | • Adv. Algorithm | • Air Quality Engineering |
| • Thermodynamics | • Heat and Mass Transfer | • Adv. Machine Learning | • 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 6 journal publications and presented findings at 2 international 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 L^AT_EX.

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 5 papers during this time and presented at 1 international and 1 national conference.

Other Professional Activities/Leadership / Extracurricular

Entangled Air | An exhibition bringing together the art of TOMÁS SARACENO and my research

Spring 2022

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

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

Summer 2023

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

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

