

# 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 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 L<sup>A</sup>T<sub>E</sub>X.

**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 Association 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



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