

Saria Hannan

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OBJECTIVE

To advance Multiphase Fluid Dynamics conducting collaborative research on Bubble Column Reactors with innovative numerical solutions that foster progress in the chemical and pharmaceutical industries, energy sectors, and environmental engineering.

EDUCATION

Master of Science (M.Sc) Iowa State University Major: Mechanical Engineering, CGPA: 3.73 out of 4.0	August 2023 - May 2025 Ames, IA
Bachelor of Science (B.Sc) Military Institute of Science and Technology Major: Aerospace Engineering, CGPA: 3.90 out of 4.0	Jan 2017 - August 2021 Dhaka, Bangladesh

PROFESSIONAL EXPERIENCE

Graduate Research Assistant <i>Department of Mechanical Engineering, Iowa State University</i> <ul style="list-style-type: none">Developed Numerical Simulation of Gas-Liquid Flows in Bubble Columns using OpenFOAM to validate Euler-Euler Multiphase Model for an optimized Doppler optical probe focusing phase detection, bubble velocity and size measurements.Collaborated with an experimental team of Grenoble, France to efficiently produce behavior patterns of velocity parameters and probability density functions for both monodisperse and polydisperse bubbles)	May 2024 – August 2024 Ames, IA
Graduate Teaching Assistant <i>Department of Mechanical Engineering, Iowa State University</i> <ul style="list-style-type: none">Heat Transfer Course - contributed to course improvements, facilitated one-on-one student support, delivered lectures for 103 students, graded assignments, prepared and proctored quizzes.Heat Transfer Lab: Led Heat Transfer Lab by conducting experiments, provided guidance on key concepts and problem solving, instructed students on solving critical problems using MATLAB to handle data and generate graphs, tracked students' improvements with feedback sessions.	August 2023 – Present Ames, IA
Visiting Lecturer <i>Aeronautical Institute of Bangladesh</i> <ul style="list-style-type: none">Delivered lectures on Aerospace Propulsion, Aircraft Stability and Control Systems.	Jan 2023 – June 2023 Dhaka, Bangladesh
Production Specialist <i>Smart Cases Limited</i> <ul style="list-style-type: none">Sorted products based on the availability of size or colors along with various price tags and generated inbound links of Search Engine Optimization.	Jun 2021 – June 2022 Lakemba, New South Wales, Australia
Trainee Engineer <i>Smart Cases Limited</i> <ul style="list-style-type: none">Trained on MCC and Line Maintenance, Base Maintenance, Engineering Planning and Records, Engineering Services, Component Inspection and Support Shop Maintenance.	Dec 2019 – Jan 20220 Kurmitola, Dhaka, Bangladesh

RESEARCH INTEREST

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|-----------------------------|------------------------------------|
| • Fluid Particle Flows | • Computational Fluid Dynamics |
| • Bubble Column Reactors | • Additive Manufacturing Materials |
| • Multiphase Fluid Dynamics | • Quadrature-based Moment Methods |

TECHNICAL SKILLS

Programming Languages	MATLAB, C/C++, Python, R
Data Library	Matplotlib, Numpy, Pandas, HPC cluster
Software and Tools	ANSYS, ANSYS Fluent, SolidWorks, OpenFOAM, Abaqus FEA, Microsoft Office, OpenMP, Unix/Linux, GitHub, LaTeX, VScode, Mathematica

AWARDS

- Seward, Ratcliffe & Galloway Foundation Mechanical Engineering Fellowship, Iowa State (Fall 2023 – Spring 2024)
- Teaching Excellence Award, Iowa State University (May 2024)
- Research Excellence Award, Iowa State University (May 2024)
- Iowa State College of Engineering Tuition Award (Fall 2023 – Spring 2025)
- Iowa State College of Engineering Resident Tuition Award for Graduate Assistant (Fall 2023 – Spring 2025)
- Iowa State College of Engineering Technology Award for Graduate Assistant (Fall 2023 – Spring 2025)
- Military Institute of Science and Technology Dean's Award (2018-2020)
- Bangladesh Government Scholarships: Dhaka Board - Higher Secondary School (2016) and Secondary School (2014)

LEADERSHIP & INVOLVEMENT

Assistant Secretary	Dec 2024 – Present
<i>Mechanical Engineering Graduate Student Organization (MEGSO), ISU</i>	Ames, IA
<ul style="list-style-type: none">• Encouraged social interactions and assisted in developing professional skillsets of the graduate students• Organized ME Alumni-Graduate Student Workshop to provide graduate students with insights on transitioning from graduate school to careers in industry, academia, research, and other fields.	
Student Member	Fall 2023 – Present
<i>Bangladesh Students' Association (BSA), ISU</i>	Ames, IA
<ul style="list-style-type: none">• Mentored incoming Bangladeshi students at Iowa State with onboarding information and procedures• Participated in International on-campus annual event “Global Gala” promoting cultural diversity	
Senior Advisor	Jan 2020 – Mar 2021
<i>MIST Aeronautics & Astronautics Club (MAAC), MIST</i>	Dhaka, Bangladesh
<ul style="list-style-type: none">• Organized a workshop entitled “Crash Course on SolidWorks” to equip students with fundamental skills for navigating the software and enhancing their technical proficiency. (18 June, 2020)• Hosted a session entitled “Aviation Engineering with Madip Kumar Joshi” to connect students with industry professionals and fostering discussions on emerging aerospace trends. (21 Aug, 2020)• Arranged a workshop entitled “Exploring Aeronautics with Hassan Saad Ifti” to offer students valuable insight into real-world engineering applications. (25 July, 2020)	
Executive Member	January 2019 – December 2019
<i>MIST Robotics Club (MISTRC), MIST</i>	Dhaka, Bangladesh
<ul style="list-style-type: none">• Helped conduct the largest Robotic competition of the school.• Utilized analytical reasoning to evaluate the most deserving winner of the school year.	

CERTIFIED COURSES

- Programming for everybody: Getting started with python (University of Michigan), May 2020, Coursera
- Initiating & Planning Projects (University of California), June 2020, Coursera
- Basic Elements of Design: Design Principles & Software Overview (University of Colorado), June 2020, Coursera
- Simscape: Finite Element Analysis (FEA) of Automotive Systems, June 2020, (Military Institute of Science and Technology)
- Adobe Illustrator (Mastering the Fundamentals): skills in Graphic Design Application including vector graphics, scaling image maintaining quality, May 2020, Bohubrihi E-learning platform.

POSTERS & CONFERENCES

- **Poster Presentation** Validation of Well-posed Euler-Euler Models for Gas-liquid Flows in Bubble Column *Center for Multiphase Flow Research and Education (CoMFRE)*, College of Engineering, Iowa State (Oct 21, 2024)
- **Oral Presentation** Validation of Well-posed Euler-Euler Models for Gas-liquid Flows in Bubble Column *77th Annual Meeting of the Division of Fluid Dynamics, APS*, Salt Lake City, UT (Nov 24-26, 2024)
- **Oral Presentation** Validation of volume fraction profiles and velocity PDFs in a pilot scale bubble column *12th International Conference on Multiphase Flows (ICMF)*, Toulouse, France (May 12-16, 2025)