Ayaaz Yasin

Cincinnati, Ohio

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Education

PhD in Mechanical Engineering, Fall 2024 - present
University of Cincinnati, Cincinnati, OH

MS in Aerospace Engineering, 2024
University of Cincinnati, Cincinnati, OH
Thesis title: *Computational Modeling of Evaporation without Tuning Coefficients*

BS in Mechanical Engineering Technology, 2022
Minor in Mathematics,
University of Cincinnati, Cincinnati, OH
Senior project: *Aerodynamic Optimization of a Solar Car*

Peer-Reviewed Publications

2. **Computational modeling of evaporation without tuning coefficients**
A. Yasin and K. Bellur 2025
Applied Thermal Engineering 10.1016/j.applthermaleng.2025.126807

1. **An investigation of phase change induced Marangoni-dominated flow patterns using the Constrained Vapor Bubble Data from ISS experiments**
U. Chakrabarti*, A. Yasin*, K. Bellur, and J. Allen | *equal contribution 2023
Frontiers in Space Technologies - Microgravity 10.3389/frspt.2023.1263496

Invited Talks

1. **Liquid-vapor phase change in aerospace applications** 11 Apr 2025
Seminar talk at the Dept of Aerospace Engineering, University of Cincinnati

Conference Presentations

8. **Multiscale Oscillations in Thin Liquid Films** (poster)
A. Yasin, U. Chakrabarti, and K. Bellur 17-19 Nov 2025
10th ASTFE Thermal and Fluids Engineering Conference, Washington, DC

7. **Exploring two-dimensional flows in evaporating thin films: A step towards a dynamic model**
A. Yasin and K. Bellur 09-12 Mar 2025
10th ASTFE Thermal and Fluids Engineering Conference, Washington, DC

6. **Modeling of evaporation in cryogenic fuels without tuning coefficients**
A. Yasin and K. Bellur 26-30 Aug 2024
35th NASA Thermal and Fluids Analysis Workshop, Cleveland, OH

5. **Modeling evaporation without tuning coefficients**
A. Yasin and K. Bellur 12-14 Apr 2023
51st Midwestern University Fluid Mechanics Retreat, Rochester, IN

4. **A numerical study of coefficient-free kinetic evaporation modeling in liquid Hydrogen**
A. Yasin, and K. Bellur 19-21 Nov 2023
76th American Physical Society Division of Fluid Dynamics Annual Meeting, Washington, DC

3. **An investigation of Marangoni induced flow in Constrained Vapor Bubble ISS experiments**
A. Yasin, U. Chakrabarti, K. Bellur, and J. Allen 13-15 Mar 2023
50th Midwestern University Fluid Mechanics Retreat, Rochester, IN

2. **A CFD model of evaporation in liquid Hydrogen without the need for tuning coefficients** (poster)
A. Yasin, and K. Bellur 20-22 Nov 2022
75th American Physical Society Division of Fluid Dynamics Annual Meeting, Indianapolis, IN

1. **A solution to the 2022 AUVSI Student Unmanned Aerial Systems competition**
A. Yasin, R. Gilligan, D. Heitmeyer, and K. Cohen 23 Mar 2022
AIAA Region III Student Conference, Purdue University, West Lafayette, IN

Honors and Awards

Prof Kirti Ghia Fellowship 2025
Awarded by the UC Dept of Mechanical Engineering for CFD-related research.

Excellence in Teaching Award – Honorable Mention 2024
Awarded by the University of Cincinnati Graduate College

Travel Grant – American Physical Society 2023
Funding to present at the Division of Fluid Dynamics annual conference.

Graduate Assistant Scholarship 2023, 2024
Awarded by the UC Dept of Engineering and Computing Education

P&G Simulation Center Student Support Scholarship 2022
Partial graduate funding

Graduate Incentive Scholarship 2022 - 2024
Partial graduate funding by the UC Dept of Aerospace Engineering

Several conference travel awards 2022 - 2024
Awarded by the UC Graduate College

Undergraduate Research Fellowship 2022
Awarded by the UC Office of Research

Outstanding Senior Award 2022
Awarded by the UC College of Engineering and Applied Science

UC Global Outreach Scholarship 2015
Awarded by the University of Cincinnati

Teaching Experience

As instructor of record

3. MET 4076: Applied Computational Methods (Lecture & Lab) Spring 2025
2. ENED 1120: Foundations of Engineering Design Thinking II Spring 2024
1. ENED 1100: Foundations of Engineering Design Thinking I Spring 2023, Fall 2023

As teaching assistant

2. ENED 1120: Foundations of Engineering Design Thinking II Spring 2022
1. ENED 1100: Foundations of Engineering Design Thinking I Fall 2020, Fall 2021

Mentoring & Supervision

- Current students: Saaras Pakanati (undergraduate)
- Served as mentor for students in the First-Year Engineering Program, 2023-2024.
- Supervised a team of six undergraduate and two graduate teaching assistants, 2023-2024.

Professional Experience

Graduate Student and Research Assistant, 2022 - present
UC Lab for Interfacial Dynamics, advised by Dr. Kishan Bellur
Dept of Mechanical & Materials Engineering, University of Cincinnati
- Investigation of phase change driven oscillations in liquid thin films.
- Modeling acoustic propagation in the ISS Flow Boiling & Condensation Experiment.
- Development of a tuning coefficient-free computational model of evaporation.
- Computational investigation of phase change driven surface-flow phenomena in microgravity using data from ISS Constrained Vapor Bubble experiments.

Instructor Spring 2025
Dept of Mechanical & Materials Engineering
University of Cincinnati, Cincinnati, OH

Instructor Fall 2023 - Spring 2024
Dept of Engineering & Computing Education
University of Cincinnati, Cincinnati, OH

Research Assistant, P&G Digital Accelerator Fall 2022
Dept of Mechanical Engineering, University of Cincinnati, Cincinnati, OH
in collaboration with The Procter and Gamble Company.
- Implementation of genetic algorithms for computing *arbitrarily oriented bounding boxes*.

Student Worker, **Ohio Innocence Project** Summer 2022
University of Cincinnati, Cincinnati, OH

Product Development Engineering Co-op Spring 2021 - Summer 2021
GMi Companies, Lebanon, OH

Manufacturing Engineering Co-op Spring 2019, Fall 2019
Regal Beloit Corporation, Florence, KY

Research and Development Intern Spring 2018 - Summer 2018
3D Paradise, New Delhi, India

Engineering Intern Spring 2017 - Summer 2017
Shaperjet, New Delhi, India

Computer Skills

Programming: MATLAB, C, C++, Python, VBA, HTML, Bash, Git/GitHub, LaTeX.
Modeling: Ansys Fluent, OpenFOAM, SolidWorks, Star CCM+, Simcenter 3D, COMSOL Multiphysics, LabVIEW.

Extra-Curriculars

Hindustani classical music – Studying Tabla under Prof. James Feist at the UC College-Conservatory of Music since 2019. Performed at recitals and music conferences.

Taekwondo – 4th Dan Kukkiwon black belt. Served as a junior instructor and president of the UC Taekwondo Club, 2020-2022.

Amateur radio – Technician-class amateur radio operator, FCC callsign: KE8WUP. Volunteer radio operator for the Queen City Emergency Net.

Volunteer interviewer for the **1947 Partition Archive**. Conducted interviews of the eyewitnesses of the *Partition of India*, in India and Canada.