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

3. **A multiscale CFD model of evaporating Hydrogen menisci: Incorporating subgrid thin-film dynamics and in situ accommodation coefficients**
A. Yasin*, S. Pakanati*, and K. Bellur | *equal contribution 2026
Fuels 10.3390/fuels7010003

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. **Modeling Mutliscale Oscillations in Thin Liquid Films**
A. Yasin, U. Chakrabarti, and K. Bellur 09-12 Mar 2026
11th ASTFE Thermal and Fluids Engineering Conference, Tempe, AZ

7. **Stability and Contact Line Dynamics of Evaporating Thin Liquid Films**
A. Sarchami, S. Pakanati, T. Enam, A. Yasin and K. Bellur 09-12 Mar 2026
11th ASTFE Thermal and Fluids Engineering Conference, Tempe, AZ

6. **Multiscale Oscillations in Thin Liquid Films** (poster)
A. Yasin, U. Chakrabarti, and K. Bellur 16-20 Nov 2025
ASME International Mechanical Engineering Congress & Exposition, Memphis, TN

5. **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

4. **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

4. MET 5036L: Thermal Environmental Systems & Heat Transfer Lab — Spring 2026
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, Spring 2026
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.