

# MOSTAFA MOBLI

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300 Main St, A117  
Columbia, SC 29201

Interested in numerical solutions to problems involving reactive flows and heat transfer. Focused on developing new numerical methods and applying previously developed methods to analyze a wide range of fluid flow and heat transfer applications. Specially focused on continuous methods to simulate phase change on a micro/nano scale used in various cooling industries, and thermal analysis of glow discharge to show importance of an accurate temperature analysis in glow discharge simulations.

## EDUCATION

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| <b>PhD</b> | University of South Carolina, Mechanical Engineering<br>Dissertation: "Characterization of Evaporation/Condensation During Pool Boiling and Flow Boiling" | May 2018 |
| <b>MS</b>  | University of South Carolina, Mechanical Engineering<br>Thesis: "High pressure micro glow discharge: Detailed approach to gas temperature modeling"       | May 2014 |
| <b>BS</b>  | University of Tehran, Mechanical Engineering  | May 2012 |

## TEACHING EXPERIENCE

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**University of South Carolina, Columbia, SC** Aug 2019- present  
**Instructor, Mechanical, Aerospace, and Nuclear Engineering**

- Courses Designed and taught:
  - EMCH 354 Heat Transfer
  - EMCH 360 Fluid Mechanics
  - AESP 314 Energy Power and Propulsion
  - AESP 361 Aerospace Lab I
  - AESP 362 Aerospace Lab II
  - AESP 420 Flight and Orbital Mechanics
  - AESP 428 Design
  - EMCH 578 Introduction to Aerodynamics
  - EMCH 744 Aerodynamics and Flight Mechanics
  - EMCH 751 Advanced Heat Transfer
  - AESP 350 Aerospace Systems
- Faculty Undergraduate lab manager
  - Oversee design of new labs and maintenance of old lab

- Aerospace Engineering Undergraduate committee
  - Curriculum development and improvement
  - ABET accreditation

**MS Students currently under supervision, co-supervision**

Malhar Joshi, “Optimized shape for heat removal in microchannels”, May 2023

Daniel Monteith, “Improving  $C_d$  by manufacturing bird inspired wings”, May 2023

**Committee Membership**

Fatemeh Hashemian, Comprehensive Exam committee, May 2021

Ejaz Ahmad, “Numerical Simulation of preferential evaporation”, May 2025

**University of South Carolina, Columbia, SC**  
**Lab Instructor**, Computer Science and Engineering

Aug 2014- Aug 2015

- Courses taught:
  - CSCE 146 Algorithmic Design II

**University of South Carolina, Columbia, SC**  
**Teaching assistant**, Mechanical Engineering

Aug 2015- Aug 2019

- Courses taught:
  - EMCH 354 Heat Transfer

**Teaching Assistant**, Sociology

- Courses taught:
  - SOCY 101 Introduction to Sociology
  - SOCY 340 Introduction to Social Problems
  - SOCY 355 Race and Ethnic Relations

**RESEARCH EXPERIENCE**

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**University of South Carolina, Columbia, SC**  
**Instructor**

2022

- A novel hybrid model to simulate evaporation from evaporation to collapse
- Heat transfer in microchannel simulation
- Improving flight performance using an optimized grooved geometry for wing design

**PhD, University of South Carolina, Columbia, SC**  
**Research assistant**, Chen Li

2015 to 2018

- Evaporation/condensation model developed using kinetic theory of gases inspired phase change formulation
- Interfacial heat transfer Coefficient analysis during pool boiling

**MS, University of South Carolina, Columbia, SC**  
**Research assistant, Tanvir Farouk**

2013 to 2014

- Heat Transfer during high pressure glow discharge

## **PUBLICATIONS**

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**Mostafa Mobli**, Mahmoud Bayat, Chen Li, Estimating Bubble Interfacial Heat Transfer Coefficient in Pool Boiling, Journal of Molecular Liquids, Volume 350, 118541

**Mostafa Mobli**, Chen Li, On the Heat Transfer Characteristics of a Single Bubble Growth and Departure During Pool Boiling, ASME 2016, Washington, DC.

**Mostafa Mobli**, Tanvir Farouk, Thermal analysis of high-pressure glow discharge, (GEC 2014, November).

Rajib Mahamud, **Mostafa Mobli**, Tanvir Farouk, Modes of oscillation in DC Driven High Pressure Micro Plasma Discharges. (May 2014, IEEE ICOPS Conference, Presentation Session)

**Mostafa Mobli**, Rajib Mahamud, Tanvir Farouk, High Pressure Micro Plasma Discharge: Effects of Conjugate Heat Transfer (June 2013, IEEE PPS Conference, Poster Presentation)

**Mostafa Mobli**, Rajib Mahamud, Tanvir Farouk, High Pressure Micro Plasma Discharge: Effects of Conjugate Heat Transfer (IEEE proceeding journal)

## **PROFESSIONAL AFFILIATIONS**

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ASME, 2014-Present  
Member,

AIAA, 2021-Present  
Member

IEEE, 2012-2014  
Member

## **LANGUAGES**

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**Farsi:** Native Language

**English:** Fluent Listener, Fluent Speaker, Advanced Reading, and Writing

**Arabic:** Novice Listener, Novice Speaker, Intermediate Reading, and Writing

## COMPUTER SKILLS

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**Programming:** C++, Python, Java, MATLAB

**Applications:** Ansys Fluent, OpenFOAM, COMSOL

**Platforms:** Windows, Linux, Mac OS

