

University of Illinois at Urbana-Champaign



Air Conditioning and Refrigeration Center A National Science Foundation/University Cooperative Research Center

Student Resumes

October 2021

Air Conditioning and Refrigeration Center

University of Illinois at Urbana-Champaign

For additional information:

Air Conditioning and Refrigeration Center
University of Illinois
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Amir Chavoshi

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EDUCATION

- Ph.D., Mechanical Engineering** Expected December 2021
University of Illinois at Urbana-Champaign, Urbana, USA
Advisor: *Prof. Predrag Hrnjak* GPA: 3.8/4
Thesis: Pressure Drop in Headers of Micro-channel Heat Exchangers
Courses: Thermal Systems Design, Energy Conversion Systems, Refrigeration & Cryogenics, Multiphase Systems & Processes, Heat Conduction, Thermal Radiation, Convective Heat Transfer, Viscous Flow & Heat Transfer, Intermediate Fluid Mechanics, Intermediate Thermodynamics, Intermediate Gas Dynamics, Tools of Computational Mechanics, CFD for Incompressible Flow
- Master of Science, Mechanical Engineering** June 2011
Shiraz University, Shiraz, Iran
Advisor: *Prof. Omid Abouali*
Thesis: Numerical Simulation of Oil Separators
- Bachelor of Science, Mechanical Engineering** September 2008
Shiraz University, Shiraz, Iran

TECHNICAL SKILLS

- **Computer Skills:** ANSYS Fluent, Engineering Equation Solver (EES), MATLAB, SolidWorks, Creo, LabVIEW, GAMBIT, MS Visio
- **Programing Skills:** Python, familiar with C

RESEARCH EXPERIENCE

- Research Assistant at Air-Conditioning and Refrigeration Center - University of Illinois** Jan 2013-present
- **Pressure Drop in Headers of Micro-channel Heat Exchangers**
 - Experimentally and numerically explored pressure drop of refrigerant in the headers of micro-channel heat exchangers and the effects of that on distribution of refrigerant among micro-channel tubes
 - Developed an EES-CFD linked model for numerically prediction of refrigerant distribution in tubes of Micro-channel heat exchangers
 - Performed CFD simulation of single-phase and two-phase flow in the headers of Micro-channel heat exchanger using FLUENT
 - Conducted hands-on experiments, including thermal system operation, fluid machinery control optimization, flow visualization with a high-speed camera, and image processing
- Independent study with a focus on Design of Thermal Systems - University of Illinois** January 2014-May 2014
- **Re-designing the Cooling System of an existing Ice Rink Facility**
 - **Charge Minimization in a Condenser**
- Research Assistant - University of Wisconsin_Milwaukee** January 2012-December 2012
- **Total Suspended Solid Removal from Wastewater**
 - Experimentally and numerically investigated separation of solid particles from wastewater
 - Simulated the separation of solid particles from liquid with FLUENT
- Research Assistant - University of Shiraz, Iran** September 2008-June 2011
- **Numerical Research of Oil Separators**
 - Modeled the separation of oil, water, and gas in oil separators via FLUENT
 - Numerically investigated the characteristic of baffles inside oil separators

MENTORSHIP/TRAINING EXPERIENCE

Project Assistant - University of Illinois Urbana-Champaign

September 2020-May 2021

- Mentored over 40 senior undergraduate students, in over 15 design projects, fulfilling their Senior Design Project requirement (through the course ME-470), by providing technical guidance/suggestions and logistics support, closely tracking individuals and teams' performance throughout the semester, and helping them maintain focus

Teaching Assistant - University of Illinois Urbana-Champaign

September 2013-May 2020

- Lead discussion sessions through variety types of classes such as:
 - Mechanical Engineering Laboratories: Heat transfer (ME-320), Fundamentals of Fluid Mechanics (ME-310)
 - Mechanical Engineering Fundamental Courses: Heat transfer (ME-320), Intermediate Gas Dynamics (ME-410)
 - Mathematical Courses: Calculus II (Math-231), Engineering Calculus (Math-231E)

Instructor - Nayriz Azad University, Iran

September 2009-December 2009

- Taught Auto-Mechanics Fundamentals and Lead the Laboratory