

# Ali Ghavami

US Permanent Resident

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## Educational Background

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PhD in **Mechanical Engineering** Atlanta, Georgia  
**Georgia Institute of Technology** 2016-Present  
**GPA: 4.00/4.00**

Bachelor of Science in **Mechanical Engineering** Tehran, Iran  
**Sharif University of Technology** 2011-2015  
**GPA: 18.68/20.00**

High school Diploma in **Mathematics and Physics** Tehran, Iran  
**Mofid 2 High School & Pre-University** 2007-2011  
**GPA: 19.90/20.00**

## Research Interests

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- Cryogenic Engineering
- Stirling Cryocooler
- Pulse Tube Cryocooler
- Heat Exchanger Design
- Heat Transfer
- Computational Fluid Dynamics

## Honors & Awards

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- 2016 **Georgia Institute of Technology President's Fellowship**, Georgia, USA
- 2014 **Merit-based Admission Offer** to the **M.Sc. program** at the **Mechanical Engineering Department, Sharif University of Technology**, Tehran, Iran
- 2014 **Ranked 4<sup>th</sup>** among 130 Mechanical Engineering students of the class of 2011, **Mechanical Engineering Department, Sharif University of Technology**, Tehran, Iran
- 2011 **Ranked 199<sup>th</sup>** in the nation-wide university entrance examination for BS among **more than 400,000** participants, Iran

## Projects & Research Activities

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**SmallSat Stirling Cryocooler** Georgia Institute of Technology  
Supervised by: Prof. S. Mostafa Ghiaasiaan 08/2016 - Present

- Designing and modeling whole parts of Stirling Cryocooler, which is used for IR sensors in small satellites and operates in high frequency (300 Hz), by the aid of Ansys Fluent and Sage, as well as performing experiments on its different components

**Online tube cleaning, B.Sc. Thesis** Sharif University of Technology  
Supervised by: Prof. M. T. Manzari 10/2014 - 05/2015

- Studying the movement of small soft balls inside tubes and investigating its application for cleaning tubes of heat exchangers by the aid of numerical simulation and ANSYS Fluent as well as conducting some scientific experiments for evaluating the motion of soft balls in different conditions

## Selected Course Projects

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**Rotational Flow Field** for the course **Introduction to CFD** Spring 2015

- Calculating the distribution of a scalar quantity in the purely rotational flow field by using two finite volume schemes, the flow field got unstructural triangle meshed by finite difference schemes, by means of C++, Tecplot and ParaView, supervised by Prof. M. T. Manzari

**Grid Generator** for the course **Introduction to CFD** Spring 2015

- develop a two-dimensional structured grid generator which works based on ELLIPTIC PDE solvers, by means of C++ and Tecplot, supervised by Prof. M. T. Manzari

**Droplet Motion** for the course **Interfacial Fluid Mechanics** Fall 2014

- Investigation the movement of a droplet in a microchannel under the influence of different temperature gradients and simulation of droplet motion by means of ANSYS Fluent, supervised by Dr. Ali Moosavi

**Suspension System** for the course **Automatic Control** Spring 2014

- Designed PID and LEAD controller for suspension system of automobile and simulated it by means of MATLAB Simulink and V-Realm Builder, supervised by Dr. Hossein Nejat

**Elevator** for the course **Machine Element Design II** Spring 2014

- Design and modeling of an elevating system utilized in apartments, including the design and modeling of an elevator, a gear box, shafts, ball bearings, a winch and the system structure as well as the choice of proper electric motor and wire ropes, supervised by Dr. Behzadipour

**Annular Fin** for the course **Heat Transfer I** Spring 2014

- Solving heat transfer equations by means of MATLAB for angular fin and modeling it using ANSYS, supervised by Dr. Ali Moosavi

**Couette Flow** for the course **Fluid Mechanics II** Spring 2014

- Simulated couette flow for Newtonian and Non-Newtonian fluids and studying behavior of fluids in the narrow gap of a journal bearing using ANSYS Fluent, supervised by Prof. Seif

**Shaping Machine** for the course **Dynamics of Machinery** Fall 2013

- Modeling of a shaping machine by means of MATLAB Simulink and designing the appropriate flywheel as well as the choice of proper electric motor, supervised by Dr. Behzadipour

**Car Lifter** for the course **Machine Element Design I** Spring 2013

- Designed portable car lifter that can be disassembled, supervised by Dr. Hossein Nejat

## Work Experiences

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**Book Editor** Tehran, Iran

Authored by: Prof. M. Seif 06/2014 - 06/2015

- Scientific Editor of a Persian Fluid Mechanics Textbook, 2<sup>nd</sup> Ed., Fadak Istatis Publication

**Engineering Intern at Mapna Group** Mapna Group, Tehran, Iran

Supervised by: Dr. Ali Moosavi 06/2014 - 09/2014

- Calculated oil storage tank thermal loss, sized steam pipe, and optimized heat exchangers in two gas turbine power plants by considering weather condition

## Teaching Experiences

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**TA for ME Systems Lab** Georgia Institute of Technology

Instructor: Dr. Matt Perrella Spring 2017

- Teach theory and run the experiments at the lab, ask and answer student questions, and evaluate students' lab work

**TA for Dynamics, Fluid Mechanics, Strength of Material** Sharif University of Technology

Instructors: Dr. Hossein Nejat, Prof. Saeed Seif, Dr. Navid Arjmand Fall 2014, Fall 2013

- Clarifying ambiguous points for students, Preparing homeworks, Grading exams and homeworks

## Publications

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- Carl Kirkconnell, Ali Ghavami, Mostafa Ghiaasiaan, Matthew Perrella, "Role of Size on the Relative Importance of Fluid Dynamic Losses in Linear Cryocoolers – Part I", Cryogenic Engineering Conference 2017

## Computer Skills

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- **Software Skills**

- ANSYS FLUENT, ADINA, OpenFOAM
- Salome, Tecplot, ParaView
- SolidWorks, AutoCAD
- Sage

- **Languages/Programming**

- C
- C++
- MATLAB
- LaTeX