

Saber Izak Ghasemian

Magdeburg, Saxony-Anhalt, Germany

✉ saber.izak@ovgu.de ☎ +491632599338

EDUCATION

Otto Von Guericke University Magdeburg (OVGU)

Ph.D. in Electrical Engineering (European Union Horizon 2020 – UCOM Project)

Magdeburg, Germany

Sep 2020 - Present

- Main Responsibilities: Acoustics and Bubble dynamics

Iran University of Science and Technology (IUST)

Master of Science in Mechanical Engineering

Tehran, Iran

Oct 2014 - Apr 2017

- Thesis Title: Design, simulation of heat losses and performance assessment of Tonpilz-type ultrasonic transducers
- GPA: 3.8 out of 4

Sharif University of Technology (SUT)

Bachelor of Science in Aerospace Engineering

Tehran, Iran

Sep 2009 - Sep 2014

National Organization for Development of Exceptional Talents (NODET)

Diploma in Mathematics and Physics

Mazandaran, Iran

Sep 2005 - Sep 2009

TEACHING EXPERIENCES

Teaching Assistant in “Viscous flow” Course

Master’s degree in mechanical engineering, 21 students

School of Mechanical Engineering, IUST

Sep 2017 – Jan 2017

- Independently supervised students in computer programming projects (FORTRAN coding) including:
 - Numerical simulation of viscous flow around a cylinder and comparison with analytical solution
 - Numerical solution of viscous flow between two approaching plates connected with hinge
- Participated in one-to-one support and group activity
- The average of class in computer programming projects was 8.7 out of 10

Teaching Assistant in “Advanced mathematics”

Master’s degree in mechanical engineering, 18 students

School of Mechanical Engineering, IUST

Sep 2017 – Jan 2017

- Supported students with the delivery of lessons and solving sample questions

OpenFOAM for Beginners

Volunteer teacher

Aerospace Engineering Department, SUT

Sep 2016 – Jan 2016

- Unix philosophy, Linux Installation and Terminal
- FOAM Structure and Running
- Geometry and Structure Grid Generation
- Pre-Processing and Boundary Conditions
- Solution and Control Algorithms
- Numerical Schemes and Algorithms
- Parallel Processing and Other Dictionaries
- Unstructured and Dynamic Grid Generation

OpenFOAM for Beginners

Volunteer teacher

School of Mechanical Engineering, IUST

Sep 2015 – Jan 2015

participated in the following activities:

- Unix philosophy, Linux Distributions and Installation
- Computational Fluid Dynamics
- FOAM Structure and Running
- Geometry, Structure Grid Generation, Unstructured and Dynamic Grid Generation
- Pre-Processing, Boundary Conditions, Solution and Control Algorithms
- Numerical Schemes and Algorithms, Parallel Processing and Other Dictionaries

WORK EXPERIENCES

Ohllab, Institute for Physics , OVGU

Marie Curie Early Stage Researcher (European Union Horizon 2020 – UCOM Project)

Magdeburg, Germany

Mar 2020 - Present

- Signal processing algorithms for ultrafast ultrasound imaging
- Capturing the dynamics of laser generated bubbles using acoustic waves

Bio-MEMS/Micro-fluidics Lab, IUST

Research Assistant

Tehran, Iran

Jan 2019 - Feb 2020

- Researched on piezoMEMS energy harvesters and piezoelectric micro-actuators
- Designed low frequency energy harvesters for biomedical applications
 - Reduced the frequency of a high power energy harvester from 68 Hz to 61 Hz without dropping in the output power

Hydrodynamics Lab, IUST

Research Assistant

Tehran, Iran

May 2017 – Dec 2018

- Designed and manufactured the test section and test setup for a cavitation tunnel with all subsystems including:
 - A 5-hole pitot tube
 - Suction and blowing system
 - Sensors installation
 - Micro-bubble injection system
- Designed ultrasonic flow meters and transducers

Tosan Energy Group, SUT

Research Assistant

Tehran, Iran

Jun 2012 – Jun 2014

- Designed auxiliary cooling system for cooling towers using ANSYS Fluent

JOURNAL PAPERS

Published by Springer Nature 2020

Applied Physics A: Materials Science and Processing

- **S. Izak Ghasemian**, M. Alizadeh *Lowering the Resonance Frequency of a Two-Dimensional High-Power Piezoelectric Energy Harvester with Reducing the Stiffness of the Harvester* doi.org/10.1007/s00339-020-3299-9
 - Reduced the frequency of a high power energy harvester from 68 Hz to 61 Hz without dropping in the output power using reducing the stiffness of the harvester
 - Proposed a dimensionless parameter for output power to compare different piezoelectric energy harvesters

TECHNICAL SKILLS

Programming

- Python
 - Numpy
 - Matplotlib
 - Scipy
- MATLAB
 - Signal Processing
 - k-Wave toolbox
- FORTRAN

Machine Learning

- TensorFlow
- Keras
- PyBrain

CAD Software

- SolidWorks

Operating Systems

- Windows
- Linux

Simulation

- COMSOL Multiphysics
 - Fluid Flow
 - Pressure Acoustics
 - Solid Mechanics
 - Piezoelectric Devices
 - Electric Current
 - Electrostatics
 - Heat Transfer
- OpenFOAM
 - BlockMesh & Snappy
 - Dynamic Mesh
 - Parallel Processing
- ANSYS Fluent, ANSYS CFX

Applications

- Microsoft Office (Word, Excel, PowerPoint, Visio)
- Tecplot
- L^AT_EX

LANGUAGE SKILLS

Persian

Native

English

Full proficiency

- TOEFL scores: Total:100 (Reading:28, Listening:30, Speaking:20, Writing:22)

AWARDS AND ACHIEVEMENTS

- Ranked 2th in the master's degree
- Full tuition scholarships in the master's degree
- Full tuition scholarships in the bachelor's degree
- Ranked 297 in the field of "Mathematics and Physics" in National Examination for University Entrance Qualification (over 400,000 participants)
- Ranked 105 in the national entry exam for master of mechanical engineering (over 50,000 participants)

RESEARCH INTERESTS

- Fluid Dynamics, Cavitation
- Signal Processing, Ultrasound Image Processing
- Acoustics, Ultrasound, Ultrasound Imaging, High Frame Rate Imaging
- MEMS, Micro-Sensors, Micro-Actuators
- Design of Experiment (DOE)
- Machine Learning, Deep Learning