Personal Information

Full Name: Majid Ashouri **Address:** San Marcos, TX 78666. Authorized to work for any US employer

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Education

Ph.D. in **Mechanical Engineering** (Sep'10–May'16, GPA: 3.71/4)

School of Mechanical Engineering, Sharif University of Technology, Tehran.

M.Sc. in **Mechanical Engineering** (Sep'07–Feb'10, GPA: 3.94/4)

School of Mechanical Engineering, Sharif University of Technology, Tehran.

B.Sc. in **Mechanical Engineering** (Sep'02–Sep'07, GPA: 3.03/4)

School of Mechanical Engineering, Sharif University of Technology, Tehran.

More details

Awards and Honors

Best PhD dissertation nationwide (2017) awarded by the Iranian Society of Mechanical Engineers, Iran.

Olympiad silver medal, 2nd (2007) in national annual undergraduate Olympiad in mechanical engineering, Iran.

Ranked 4th (2007) in national annual entrance exam for graduate studies in applied mechanics, Iran (11,258 applicants).

More details

Research and Interests

Machine learning; deep learning; artificial neural networks. Data-driven and physics-based modeling and optimization.

Numerical heat transfer and computational fluid dynamics. Design, simulation, and fabrication of mechanical systems.

Publications (Journal Papers)

[1] **M. Ashouri**, A. Hashemi, A transfer learning metamodel using artificial neural networks applied to natural convection flows in enclosures, arXiv:2008.12483, 2020.

[2] **M. Ashouri**, M.B. Shafii, A. Moosavi, Theoretical and experimental studies of a magnetically actuated valveless micropump, Journal of Micromechanics and Microengineering, 27, p. 015016 (9pp), 2017.

[3] **M. Ashouri**, and M.B. Shafii, Numerical simulation of magnetic convection ferrofluid flow in a permanent magnet−inserted cavity, Journal of Magnetism and Magnetic Materials, 442, 270–278, 2017.

[4] P. Mostaghimi, **M. Ashouri**, B. Ebrahimi, Hydrodynamics of fingering instability in the presence of a magnetic field, Fluid Dynamics Research, 48, pp. 055504–055519, 2016.

[5] **M. Ashouri**, M.B. Shafii, A. Moosavi, Diffuser miniature pump with an extra ferrofluidic valve, Microfluidics and Nanofluidics, 19, 1235–1244, 2015.

[6] **M. Ashouri**, M.B. Shafii, A. Moosavi, H. Amiri Hezave, A novel revolving piston minipump, Sensors and Actuators B: Chemical, 218, 237–244, 2015.

[7] **M. Ashouri**, M.B. Shafii, H. Rajabi-Kokande, MHD natural convection flow in cavities filled with square solid blocks, International Journal of Numerical Methods for Heat & Fluid Flow, 24, 1813–1830, 2014.

[8] **M. Ashouri**, B. Ebrahimi, M.B. Shafii, M.S. Saidi, M.H. Saidi, Correlation for Nusselt number in pure magnetic convection ferrofluid flow in a square cavity by a numerical investigation, Journal of Magnetism and Magnetic Materials, 322, 3607–3613, 2010.

Publications (Conference Proceedings)

[1] **M. Ashouri**, M.B. Shafii, A. Moosavi, A magnetically actuated diffuser micropump, ICMTSET'2014, Dubai.

[2] **M. Ashouri**, M.B. Shafii, A. Moosavi, A ferrofluidic piston micropump, ICAEME'2014, Kuala Lumpur.

[3] **M. Ashouri**, S.A. Tabatabaei, N. Mahinpey, Statistical analysis of CFD simulations in a spouted bed, CFD'2014, Tehran.

full list (11 conference papers)

Publications (Patents)

[1] **M. Ashouri**, M.B. Shafii, A. Shahriari, Microfluidic pump, Patent No. US 10,138,886 B2, USA, Nov. 27, 2018 (publication No. 2016/0319806 A1).

[2] **M. Ashouri**, M.B. Shafii, A. Shahriari, Revolving piston minipump, registry No. 89945, Iran, 2015.

[3] **M. Ashouri**, H. Amiri-Hezave, M.B. Shafii, A. Moosavi, Nozzle-diffuser magnetic minipump with an assisting active valve, registration No. 81691, Iran, 2014.

[4] N. Zia-ol-eslami, **M. Ashouri**, H. Amiri-Hezave, M.B. Shafii, Electric power generator using reciprocating fluid flow in a pulsating heat pipe, registration No. 80753, Iran, 2013.

[5] **M. Ashouri**, H. Amiri-Hezave, N. Zia-ol-eslami, M.B. Shafii, A. Moosavi, Diaphragm micropump with electromagnetic actuation and passive valves, registration No. 80600, Iran, 2013.

[6] **M. Ashouri**, M.B. Shafii, S.A. Tabatabaei, H. Gholamian, Ferrofluidic diffuser micropump, registration No. 78442, Iran, 2012.

[7] **M. Ashouri**, M.B. Shafii, M.H. Saidi, H. Gholami-Derami, Piston micropump using magnetic actuation in magnetic liquid, registration No. 72462, Iran, 2011.

[8] **M. Ashouri**, M. Ashouri, M.B. Shafii, M.H. Saidi, B. Ebrahimi, Circular micropump using magnetic actuation in magnetic liquid, registration No. 61087, Iran, 2009.

Teaching Assistant Experience

- Optical measurements methods in fluid mechanics (fall 2009, fall 2012–fall 2013), Advanced mathematics (fall 2009, fall 2012), Conduction heat transfer (spring 2012), Heat transfer II (spring 2010), Thermodynamics laboratory (fall 2010), *in Mechanical Engineering Department, Sharif University of Technology, Tehran, Iran.*

Professional Experience

- Postdoctoral Research Associate, Ingram School of Engineering at Texas State University (2020–present).
  Duties: Design optimization, fabrication, and characterization of a stretchable piezoresistive sensor.
- Technical Lead, Research and Development of Microfluidics Ltd., Tehran, Iran (2017–2019).
  Duties: Numerical simulation and experiment on ferrohydrodynamic continuous flow open-loop pumping.
- Research Assistant, Mechanical Engineering Department at Sharif University of Technology (2010–2016).
  Duties: Design, simulation, fabrication, and characterization of microfluidic pumps.
- Mechanical Researcher, Niroo Research Institute, Tehran, Iran (2011).
  Duties: Documenting the specifications for 2-3 MW wind turbines.
- Research Assistant, Mechanical Engineering Department at Sharif University of Technology (2007–2010).
  Duties: Fabrication and characterization of ferrofluid-based pumps and actuators.
- Mechanical Researcher, Sharif Energy Research Institute, Tehran, Iran (2009).
  Duties: Thermodynamic cycle modeling of the compressor stations in natural gas network.

Other Research Projects

- Conjugate magnetic convection of ferrofluid in an enclosure split in half by a permanent magnet, *Sharif University of Technology, Tehran, Iran* (2016).
- Design and characterization of a prototype miniature peristaltic pump for drug delivery, *National Elite Foundation, Tehran, Iran* (2015).
- Diagnosis of two-phase flow regimes in a slot-rectangular spouted bed by statistical analysis of pressure fluctuations data of CFD Simulations (2014).
- Analytical and numerical study of transient MHD flow of liquid metal in channels under uniform magnetic fields, *Sharif University of Technology, Tehran, Iran* (2012).
- Microchannel flows simulations using Molecular Dynamics and Dissipative Particle Dynamics, *Sharif University of Technology, Tehran, Iran* (2011).
- Numerical simulation of the two-dimensional channel flow in the presence of solid blocks, *Sharif University of Technology, Tehran, Iran* (2011).
- Numerical study of the effect Saffman lift force on the motion of a sphere in a two-dimensional Couette flow with a pressure gradient, *Sharif University of Technology, Tehran, Iran* (2010).
- Numerical simulation of particle tracking under the effect of Brownian force, *Sharif University of Technology, Tehran, Iran* (2010).
- Numerical modeling of transient particle distribution in a ventilated room, *Sharif University of Technology, Tehran, Iran* (2010).
- Analytical and numerical solution of transient channel flow under uniform magnetic fields, *Sharif University of Technology, Tehran, Iran* (2009).
- Numerical simulation of two-phase water−ferrofluid flow in a structured channel, *Sharif University of Technology, Tehran, Iran* (2009).
- Numerical solutions of the laminar natural convection flow over vertical flat surfaces using similarity method, *Sharif University of Technology, Tehran, Iran* (2008).
- Code development for GMRES and BiCGSTAB methods for the numerical solution of non-symmetric linear systems, *Sharif University of Technology, Tehran, Iran* (2007).
- Design, fabrication, and experimental study of a Spiral Plate Heat Exchanger, Sharif University of Technology, Tehran, Iran (2007).

Software Skills

Computational	Ansys Fluent, CFX, Icepak; Simcenter STAR-CCM+, Flotherm; Abaqus, FEniCS, FiPy.
CAD Modeling	SolidWorks, AutoCAD, Gambit, Ansys ICEM CFD, Gmsh.
Programming	Python, C++, Fortran, MATLAB, Maple, Visual Basic.
HP Computing	Linux, Shell Scripting, SSH, parallel processing, AWS, Docker, Slurm, …
Machine Learning	NumPy, SciPy, Pandas, Numba, OpenCV, Scikit-Learn, PyTorch, TensorFlow, Keras.

Language Proficiency

English: Fluent Persian: Native speaker

TOEFL test: 106 (Reading: 30, Listening: 26, Speaking: 22, Writing: 28), February 2019.

GRE test: 322 (Verbal: 154, Quantitative: 168, Analytical Writing: 3.5; Percentiles: 65, 94, 41), March 2019.

Additional information available upon request.