Alireza Sarmadian

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Work Experience

Oct. 2021- Present — Research Associate
Department of Engineering, King's College London -an EPSRC-funded Prosperity Partnership with Jaguar Land Rover (JLR)
- Created experimentally-verified electrochemical-thermal simulation models for Li-ion batteries.

May. 2021- Aug. 2021 — Research Fellow
Department of Engineering and Design, University of Sussex
- Completed Control system design, simulation, and rapid prototyping; build, test, and hardware demonstration of controlled resonance on a physical prototype.
- Integrated different technologies, including advanced manufacturing, fuel and combustion technology, electrical machine design, power electronics, and control engineering.

Feb. 2019 Apr. 2021 — Doctoral Tutor
Department of Engineering and Design, University of Sussex
- Provided students with the support required for carrying out simulations and calculations.
- Responsible for marking assignments and providing students with necessary feedback.

Nov. 2016- Mar. 2018 — Research Assistant
Faculty of New Sciences and Technologies, University of Tehran
- Designed research projects involving heat and mass transfer for three graduates' dissertations; **modelling**, **simulation** and **experiments**.
- Supported MSc students through presentations, group and individual tutorials including **CAD CAM**, **ANSYS FLUENT** and **Test rig** demonstrations.

Apr. 2016 Oct. 2016 — Research and Development Engineer at Pishran Novin Aseman
Hydraulic Valve Design and Manufacturing
- Designed physics-based models of industrial solenoid valves. Analysed flow and thermodynamics by means of analytical calculations as well as FEA and CFD simulations.
- Liaised regularly with clients, sub-contractors, vendors and project stakeholders.

Summer 2014 — Summer Internship at National Iranian Gas Company, Fars, Shiraz

Summer 2013 — Summer Internship at Iran Khodro Diesel Company, Fars, Shiraz

Membership and Service

Mar. 2021- Present — CEng MIMechE
Institution of Mechanical Engineers

Nov. 2019- Present — Reviewer
International Journal of Heat and Mass Transfer, Elsevier

Education

Sep. 2021 **PhD** in Engineering and Design
School of Engineering and Informatics, **University of Sussex**, Brighton, UK
Thesis: "Thermal Management of Heat-Generating Automotive Powertrain Hardware using Spray Evaporative Cooling" | Supervisor: Prof Julian Dunne

Aug. 2016 **M.Sc.** in Aerospace engineering, Distinction
Faculty of New Sciences and Technologies, **University of Tehran**, Tehran, Iran
Thesis: "Condensation Heat Transfer, Pressure Drop, and Flow visualization Characteristics of R-600a in Horizontal Smooth and Helically Dimpled Tubes" | Supervisor: Dr Maziyar Shafaee, GPA: 3.72/4

Aug. 2014 **B.Sc.** in Mechanical Engineering, First
School of Mechanical Engineering, **Shahid Bahonar University of Kerman**, Iran
Thesis: "Design and Optimization of Desalination Systems" (Grade: 19/20)
| Supervisor: Prof Mehran Ameri

Awards and Patents

Chancellor's International Research Scholarship (CIRS) 2018; Doctoral School, University of Sussex, Falmer House, Brighton BN1 9QF, United Kingdom
Sarmadian, Alireza; Mashouf, Hooman; Shafaee, Maziyar. 2017. Helically Dimpled Enhanced Heat Transfer Tube. Iran Intellectual Property Office, Patent 91320, filed June 5, 2016, and issued February 18, 2017.

Skills

Courses:	Starting to Teach | Associate Fellow of the Higher Education Academy (**AFHEA**)
	Piping (PDMS) and Welding (MIG, TIG, and STICK)
	CFD (Finite Difference and Finite Volume)
	Working Safely | Institution of Occupational Safety and Health (Crawley College)
	Emergency First Aid At Work (RFQ) | QA Level 3 (Posturite Ltd)
	- Including Management of Catastrophic Bleeding
	Risk Assessment Training | Univerisy of Sussex
	LabVIEW Core 1 | NI customer Education
Software:	LabVIEW, EES (Engineering Equation Solver), REFPROP | NIST,
	Ansys (APDL, Fluent and ICEM), COMSOL, SimScale and STAR-CCM+
Programming:	Expert in MATLAB, **LabVIEW (FPGA)**, familiar with Fortran, C and C++

Languages

English: Advanced
Farsi: Native

Interests

Thermal Management, Temperature control, Batteries, Energy Storage Systems, Heat transfer augmentation, Two-phase flow, Flow visualization, Micro-channels, Heat sinks, Heat pipes, Microfluidics, Lab-on-a-chip devices, and MEMS

Activities

Physical Fitness, Running, Swimming, Travelling

Publications

Jan 2022	"Temperature control of vibrating heat-generating hardware using spray evaporative cooling in the nucleate boiling region. **A Sarmadian**, J. F. Dunne, J. Thalackottore-Jose, C. A. Long, J-P Pirault, **Applied Thermal Engineering, 200: 117710**
Nov 2021	"Correlation models of critical heat flux and associated temperature for spray evaporative cooling of vibrating surfaces. **A Sarmadian**, J. F. Dunne, J. Thalackottore-Jose, C. A. Long, J-P Pirault, **Int. J. Heat Mass Transf, 179: 121735**
May 2021	"An experimentally-verified temperature control simulation model for spray evaporative cooling of vibrating powertrain parts. J. Thalackottore-Jose, **A Sarmadian**, J. F. Dunne, C. A. Long, J-P Pirault, Cedric Rouaud **Int. J. Heat Mass Transf, 170: 121041**
Dec. 2020	"Flow boiling heat transfer and pressure drop characteristics of Isobutane in horizontal channels with twisted tapes." **A Sarmadian**, HA Moghaddam, A Asnaashari, HAN Joushani, M Moosavi, MS Islam, SC Saha, M Shafaee **Int. J. Heat Mass Transf, 162: 120345**
Oct. 2020	"Heat flux correlation models for spray evaporative cooling of vibrating surfaces in the nucleate boiling region." **A Sarmadian**, J. F. Dunne, C. A. Long, J. Thalackottore-Jose, J-P Pirault, Cedric Rouaud **Int. J. Heat Mass Transf, 160: 120159**
Aug. 2020	"The effect of surface vibration on spray evaporative cooling." **A Sarmadian**, J. F. Dunne, C. A. Long, J-P Pirault, J. Thalackottore-Jose, Cedric Rouaud **Proceedings of the 7th International Conference on Fluid Flow, Heat and Mass Transfer**
Jun. 2020	"Condensation heat transfer and pressure drop characteristics of Isobutane in horizontal channels with twisted tape inserts." HA Moghaddam, **A Sarmadian**, A Asnaashari, HAN Joushani, MS Islam, SC Saha, G Ghasemi, M Shafaee **International Journal of Refrigeration, 107: 20-30**
Feb. 2020	"Flow pattern maps, pressure drop and performance assessment of horizontal tubes with coiled wire inserts during condensation of R-600a." HA Moghaddam, **A Sarmadian**, M Shafaee, H Enayatollahi, **Int. J. Heat Mass Transf, 148: 119062**
Nov. 2019	"Pressure loss and performance assessment of horizontal spiral coil inserted pipes during forced convective evaporation of R-600a." F Alimardani, HA Moghaddam, **A Sarmadian**, M Shafaee, **International Journal of Refrigeration, 107: 20-30**
Aug. 2019	"An experimental study on condensation heat transfer characteristics of R-600a in tubes with coiled wire inserts." HA Moghaddam, **A Sarmadian**, M Shafaee **Applied Thermal Engineering, 159: 113889**
Sep. 2017	"Condensation Heat Transfer and Pressure Drop Characteristics of R600a in Horizontal Smooth and Helically Dimpled Tubes." **A Sarmadian**, M Shafaee, H Mashouf, SG Mohseni **Experimental Thermal and Fluid Science, 86: 54-62.**
Sep. 2017	"Visual study of flow patterns during evaporation and condensation of R-600a inside horizontal smooth and helically dimpled tubes." H Mashouf, M Shafaee, **A Sarmadian**, SG Mohseni, **Applied Thermal Engineering, 124: 1392-1400**
Jul. 2017	"Discovering an empirically new relation and obtaining the flow pattern map for dimpled tubes in two-phase flow for refrigerant R600-a." A Vahabi, M. Shafaee, **A Sarmadian**, H Mashouf, **Modares Mechanical Engineering, 17: 39-48.** (in Farsi)
Aug. 2016	"Evaporation heat transfer and pressure drop characteristics of R-600a in horizontal smooth and helically dimpled tubes." M Shafaee, H Mashouf, **A Sarmadian**, SG Mohseni, **Applied Thermal Engineering, 107: 28-36.**