

Alireza SARMADIAN

Department of Engineering, Faculty of Natural, Mathematical and Engineering Sciences,
Strand Building S1.14 | London | WC2R 2LS | UK, King's College London

MOBILE: (+44) 7862-753830

GMAIL: alireza.sarmadian1991@gmail.com

EMAIL: alireza.sarmadian@Kcl.ac.uk

WORK EXPERIENCE

OCT. 2021- PRESENT	Research Associate DEPARTMENT OF ENGINEERING, KING'S COLLEGE LONDON -AN EPSRC-FUNDED PROSPERITY PARTNERSHIP WITH JAGUAR LAND ROVER (JLR) <ul style="list-style-type: none">Developed experimentally-verified thermal-electrochemical simulation models of lithium-ion batteries using fully physics-based Newman P2D, simplified Newman single particle and lumped semi-empirical models.
MAY. 2021- AUG. 2021	Research Fellow DEPARTMENT OF ENGINEERING AND DESIGN, UNIVERSITY OF SUSSEX -EXTERNALLY-FUNDED BY THE UK GOVERNMENT <ul style="list-style-type: none">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.
SEP. 2018- AUG. 2021	Doctoral Researcher DEPARTMENT OF ENGINEERING AND DESIGN, UNIVERSITY OF SUSSEX -AN EPSRC-FUNDED PROJECT IN COLLABORATION WITH FORD, RICARDO, AND DENSO (INVOLVING 20 PEOPLE IN TOTAL ON THE PROJECT) <ul style="list-style-type: none">Explored the use of an evaporative spray cooling system for cooling automotive electrical and electronic powertrain components.Collected experimental data and constructed very novel dynamic correlation models.Developed a robust spray evaporative cooling control system by simulation.Implemented and tested a robust spray evaporative cooling control system in an actual hardware.
FEB. 2019 APR. 2021	Doctoral Tutor DEPARTMENT OF ENGINEERING AND DESIGN, UNIVERSITY OF SUSSEX <ul style="list-style-type: none">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 <ul style="list-style-type: none">Designed compact, thermally-enhanced heat exchangers with low pressure penalties using environmentally-friendly refrigerants.Patented my design for an optimized helically dimpled tube, and published eight journal papers.Supported MSc students through presentations, group and individual tutorials including CAD drawings, ANSYS FLUENT and test rig demonstrations.
APR. 2016 OCT. 2016	Research and Development Engineer at PISHRAN NOVIN ASEMAN HYDRAULIC VALVE DESIGN AND MANUFACTURING <ul style="list-style-type: none">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 SHAFABEE , 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; Shafae, 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 Shafae **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 Shafae **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 Shafae, 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 Shafae, **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 Shafae **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 Shafae, 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 Shafae, 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. Shafae, 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 Shafae, H Mashouf, A Sarmadian, SG Mohseni, **Applied Thermal Engineering**, 107: 28-36.