# Alireza SARMADIAN

DATE OF BIRTH: $7^{th}$ OF MAY, 1991

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## EDUCATION

SEP. 2018- PRESENT — **PhD Research Scholar** in ENGINEERING AND DESIGN
**School of Engineering and Informatics**, **University of Sussex**, Brighton, UK
Thesis: "Thermal management of an evaprative spray cooling system for ICEs and automotive electrical and electronic powertrain components"
| 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

## WORK EXPERIENCE

FEB. 2019- PRESENT — Doctoral Tutor
DEPARTMENT OF ENGINEERING AND DESIGN, UNIVERSITY OF SUSSEX

- Modules: Engineering Thermodynamics, Programming for Engineers, Engine Technology, Control Engineering, Engineering Maths, Thermal power cycles, Computer Aided Design and Modelling, CFD and FEA.
- 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**.
- Developed research schedules and provided guidance throughout projects.
- 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, Tehran
HYDRAULIC VALVE DESIGN AND MANUFACTURING

- Designed physics-based models of industrial solenoid valves and became familiar with valve selection based on standards such as API and ASTM.
- 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

## Publications

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| 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.** |

## Teaching Experience

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| Semester-2 2020/21 | **Doctoral Tutor**,<br>Computational Fluid Dynamics (MSc), **Labs**, Dr Esra Sorguven<br>Finite Element Analysis (MSc), **Labs**, Dr Yevgen Petrov<br>Smart Interactive Systems (LabVIEW), **Labs**, Dr Rodrigo Aviles-Espinosa |
| Semester-1 2020/21 | **Doctoral Tutor**,<br>Design for Manufacture for Product Design, **Labs**, Dr Giovanni Contreras Garcia<br>Control Engineering, **Labs and practicals**, Dr Alaa Hussein<br>Programming for Engineers (MSc), **Workshop**, Dr Dmitrijs Dmitrenko<br>Programming for Engineers (Undergrads), **Lab and Workshop**, Dr Kun Liang |
| Semester-2 2019/20 | **Doctoral Tutor**,<br>Systems Analysis and Control, **Workshop**, Dr Bao Kha Nguyen<br>Computer Aided Design and Modelling, **Labs**, Dr Kun Liang (CAD),<br>and Dr Yevgen Petrov (FEA)<br>Engineering Thermodynamics, **Workshop and lab**, Dr Esra Sorguven<br>Thermal power cycles, **Jet Engine Lab**, Mr Harri Koivisto |
| Semester-1 2019/20 | **Associate Tutor**, Engineering Maths, **Workshop**, Dr Carole Becker<br>Control Engineering, **Lab and practicals**, Dr Alaa Hussein<br>Engine Technology, **Lab**, Dr Arash Dizqah, Prof Peter Fussey<br>Programming for Engineers (Graduates), **Workshop**, Dr Ronald Grau<br>Programming for Engineers (Undergrads), **Lab**, Dr Kun Liang |
| Semester-2 2018/19 | Engineering Thermodynamics, **Lab**, Dr William Wang<br>School of Engineering and Informatics, University of Sussex |
| Spring 2015 | **Teaching Assistant**, Advanced Maths, **Workshop**, Dr Roham Rafiee<br>Faculty of New Sciences and Technologies, University of Tehran |

## 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.

## Membership and Service

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| Mar. 2021- Present | CEng MIMechE<br>Institution of Mechanical Engineers |
| Nov. 2019- Present | Reviewer<br>International Journal of Heat and Mass Transfer, Elsevier |

## Skills

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| Courses: | Starting to Teach \| Associate Fellow of the Higher Education Academy (**AFHEA**)<br>Piping (PDMS) and Welding (MIG, TIG, and STICK)<br>CFD (Finite Difference and Finite Volume)<br>Working Safely \| Institution of Occupational Safety and Health (Crawley College)<br>Emergency First Aid At Work (RFQ) \| QA Level 3 (Posturite Ltd)<br>- Including Management of Catastrophic Bleeding<br>Risk Assessment Training \| Univerisy of Sussex<br>LabVIEW Core 1 \| NI customer Education |
| Software: | LabVIEW, EES (Engineering Equation Solver), REFPROP \| NIST,<br>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

## Academic Interests

Thermal Management and control, 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, Basketball, Swimming, Travelling

## References

**Prof Julian Dunne** (J.F.Dunne@sussex.ac.uk), Tel:+44-1273-872570
**Dr Christopher Long** (C.A.Long@sussex.ac.uk), Tel:+44-1273-678967
Department of Engineering and Design, School of Engineering and Informatics, University of Sussex, Brighton, UK
**Dr Soheil Jafari** (S.Jafari@cranfield.ac.uk), Tel:+44-1234-750111 x5106
Centre for Propulsion Engineering, School of Aerospace Transport and Manufacturing Cranfield University, Bedfordshire MK43 0AL, UK
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