

# Alireza SARMADIAN

DATE OF BIRTH: 7<sup>th</sup> OF MAY, 1991

Department of Engineering and Design, University of Sussex, Brighton BN1 9QT, UK

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## EDUCATION

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- SEP. 2018-  
PRESENT **PhD Research Scholar** 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 SHAFEE](#), 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

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| MAY. 2021- JUL. 2021 | <b>Research Fellow</b><br>DEPARTMENT OF ENGINEERING AND DESIGN, UNIVERSITY OF SUSSEX <ul style="list-style-type: none"><li>Control system design, simulation, and rapid prototyping; build, test, and hardware demonstration of controlled resonance on a physical prototype.</li><li>Integrating different technologies, including advanced manufacturing, fuel and combustion technology, electrical machine design, power electronics, and control engineering.</li></ul>   |
| FEB. 2019- APR. 2021 | <b>Doctoral Tutor</b><br>DEPARTMENT OF ENGINEERING AND DESIGN, UNIVERSITY OF SUSSEX <ul style="list-style-type: none"><li>Provided students with the support required for carrying out simulations and calculations. Responsible for marking assignments and providing students with necessary feedback.</li></ul>   |
| NOV. 2016- MAR. 2018 | <b>Research Assistant</b><br>FACULTY OF NEW SCIENCES AND TECHNOLOGIES, UNIVERSITY OF TEHRAN <ul style="list-style-type: none"><li>Designed research projects involving heat and mass transfer for three graduates' dissertations; <b>modelling, simulation and experiments</b>.</li><li>Supported MSc students through presentations, group and individual tutorials including <b>CAD CAM, ANSYS FLUENT</b> and <b>Test rig</b> demonstrations.</li></ul>  |
| APR. 2016- OCT. 2016 | <b>Research and Development Engineer at PISHRAN NOVIN ASEMAN, Tehran</b><br>HYDRAULIC VALVE DESIGN AND MANUFACTURING <ul style="list-style-type: none"><li>Designed physics-based models of industrial solenoid valves and became familiar with valve selection based on standards such as API and ASTM.</li><li>Analysed flow and thermodynamics by means of analytical calculations as well as FEA and CFD simulations.</li><li>Liaised regularly with clients, sub-contractors, vendors and project stakeholders.</li></ul> |
| 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 Shafaei *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 Shafaei *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 Shafaei, 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 Shafaei, *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 Shafaei *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 Shafaei, 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 Shafaei, 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. Shafaei, 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 Shafaei, H Mashouf, A Sarmadian, SG Mohseni, *Applied Thermal Engineering*, 107: 28-36.

## TEACHING EXPERIENCE

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

## AWARDS AND PATENTS

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**Chancellor's International Research Scholarship (CIRS) 2018**; [Doctoral School](#), University of Sussex, Falmer House, Brighton BN1 9QF, United Kingdom  
**Sarmadian, Alireza**; Mashouf, Hooman; Shafaei, 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 INSTITUTION OF MECHANICAL ENGINEERS
NOV. 2019- PRESENT	Reviewer 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) 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   University 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, <b>LabVIEW (FPGA)</b> , familiar with Fortran, C and C++

## LANGUAGES

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ENGLISH: Advanced  
FARSI: Native

## ACADEMIC INTERESTS

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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

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Physical Fitness, Basketball, Swimming, Travelling

## REFERENCES

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Prof **Julian Dunne** ([J.F.Dunne@sussex.ac.uk](mailto:J.F.Dunne@sussex.ac.uk)), Tel: +44-1273-872570  
Dr **Christopher Long** ([C.A.Long@sussex.ac.uk](mailto: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](mailto:S.Jafari@cranfield.ac.uk)), Tel: +44-1234-750111 x5106  
Centre for Propulsion Engineering, School of Aerospace Transport and Manufacturing  
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Dr **Ro. Rafiee** ([roham.rafiee@ut.ac.ir](mailto:roham.rafiee@ut.ac.ir)) Tel: +98-21-8609-3046, Fax: +98-21-8977-41-88  
Dr **M. Shafaei** ([mshafaei@ut.ac.ir](mailto:mshafaei@ut.ac.ir)), Tel: +98-919-0110200, Fax: +98-21-88497324  
Faculty of New Sciences and Technologies, University of Tehran, Tehran  
Dr **S.G. Mohseni** ([smohseni@alumni.ut.ac.ir](mailto:smohseni@alumni.ut.ac.ir))  
School of Mechanical Engineering, College of Engineering, University of Tehran, Tehran