Stephen Mahon

Steve - he/him

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Summary

Award-winning researcher in robotics. Experienced in fluidic and mechanical systems, electronics, rapid prototyping, robotics, spectroscopy, and systems engineering. Technical graduate with degrees in Physics and Electronic Engineering. European citizen and green card holder–eligible to work in the European Union, the United Kingdom, and the United States without sponsorship.

Professional Experience

Flexible Thinking, Chicago, USA — May 2021 - present

Consultant–Self-Employed

Self-employed tech start-up consultant focusing on prototyping and manufacturability.

Edinburgh Instruments, Remote, USA — Dec 2021 - April 2022

Sales Engineer

- Spectroscopic solutions expert who partook in proactive customer interactions to promote Edinburgh Instrument's products.
- Qualified leads, developed customer interest in our instrumentation, and actively followed them through to closure to meet targets.
- Liaised with other teams internally, such as working with research and development for a bespoke order or creating technical content with the marketing team.
- Prepared quotations using CRM and quote software and updated the sales database weekly.
- Analyzed the optical spectroscopy market in the Americas to identify growth areas, new applications, and funding trends.

Stealth Mode Startup Company, Edinburgh, UK — Oct 2020 – Mar 2021

Founder (non-exec)

- Founder and Early-Stage Researcher for a University startup that focused on the design and control of complex fluidic systems without the use of onboard electronics.
- Developed patented technology with applications in microfluidics (biotech) and industrial hydraulics (robotics).
- Refined prototype systems in CAD/CAM and iterated designs using rapid manufacture methods (3D printing, CNC machining)
- Moved to a non-executive role in March 2021.

School of Engineering, The University of Edinburgh, UK — Jun 2019 – Oct 2020

Postdoctoral Research Associate

- Developed a fluidic-controlled system for soft robotics and hydraulic robotic systems.
- Provided systems engineering principles for the development of a systems interface based on the Robotic Operating System.
- Mechanical engineering design and fabrication, including structural analysis and CAD design/FEM.
- Prototyped for rapid de-risk in proof-of-concept and ideation using rapid prototyping tools (laser cutting, 3D printing, CNC machining, circuit board design, molding).
- Disseminating research through internal reports, conference proceedings, and journal publications.

School of Engineering, The University of Edinburgh, UK — Jan 2017 – May 2019

Teaching and Lab Assistant

Teaching assistant and lab demonstration in the School of Engineering in Chemical Engineering for undergraduate chemical engineering students.
4.5 hours per week in classes of 70 students and labs of 30 students.
I prepared weekly tutorials, solved assigned problems, explained theory and concepts, graded labs, exams, and reports.
Topics covered: units & components, mass balances, vapor liquid equilibria, reactions & recycle, energy balances with reactions & recycle loops.

Deptartment of Physics, University College Cork, Ireland — Sep 2014 – Apr 2016
Teaching and Lab Assistant

Lab demonstrator in the Physics Department for practical sessions for first-year undergraduate physics students (3 hours/week).
Teaching Assistant for tutorial sessions for first-year biological science students (3 hours/week).
Introduced general physics topics and skills to prepare for further studies in the physical sciences.
Demonstrated experiments for measuring mechanical and electrical properties, prepared weekly tutorials, solved assigned problems, explained theory and concepts, graded exams and reports.
Topics covered included classical mechanics, thermodynamics, electricity and electrical circuits, electro-and-magnetostatics, geometrical optics, quantum mechanics, and nuclear physics.

The Tyndall National Institute, Cork, Ireland — Jun 2014 – Aug 2014
Undergraduate Research Associate (Intern)

Designed data acquisition LabVIEW scripts for power-voltage-current analysis.
Used pulsed and continuous-wave lasers to determine gain profiles and cavity modes of photonic devices.
Developed an experimental setup for the measurement of thermal resistance controlled by LabVIEW with automated scripting graphs to MATLAB.
Performed spectral measurements of semiconductor devices in the near-infrared.

Education

The University of Edinburgh, Edinburgh, UK — 2020
Doctor of Philosophy (PhD) in Engineering specializing in Electronic Engineering and Robotics.

University College Cork, Cork, Ireland — 2015
Bachelor of Science (BSc) in Chemical Physics.

Awards

Winner of Most Outstanding Student Paper, 2019 IEEE International Conference on Soft Robotics, Seoul, South Korea — 2019

Winner of the Dx Challenge, 2017 Antimicrobial Resistance Design Challenge Competition Winter School, Edinburgh, UK — 2017

Publications

For the most up-to-date list of publications see Google Scholar.

Mohammed E Sayed*, Jamie O Roberts, Karen Donaldson, **Stephen T Mahon**, Faiz Iqbal, Boyang Li, Santiago Franco Aixela, Georgios Mastorakis, Emil T Jonasson, Markus P Nemitz, Sara Bernardini, Adam A Stokes. Modular Robots for Enabling Operations in Unstructured Extreme Environments. Advanced Intellegent Systems, 4: 2000227. doi: 10.1002/aisy.202000227, 2022. — 2022

Simona Aracri*, Francesco Giorgio-Serchi, Giuseppe Suaria, Mohammed E Sayed, Markus P Nemitz, **Stephen Mahon**, Adam A Stokes. Soft robots for ocean exploration and offshore operations: A perspective. Soft Robotics, 8(6):625-639/ doi: 10.1089/soro.2020.0011, 2021. — 2021

S. T. Mahon*, A. Buchoux, M. E. Sayed, L. Teng and A. A. Stokes. Soft Robots for Extreme Environments: Removing Electronic Control 2019 2nd IEEE International Conference on Soft Robotics (RoboSoft), pp. 782-787. doi: 10.1109/ROBOSOFT.2019.8722755, 2019. 2019

S. T. Mahon*, J. O. Roberts, M. E. Sayed, D. H.-T. Chun, S. Aracri, R. M. McKenzie, M. P. Nemitz, A. A. Stokes. Capability by Stacking: The Current Design Heuristic for Soft Robots. Biomimetics, 3(16). doi: 10.3390/biomimetics3030016, 2018. 2018

Satheesh Chandran*, **Stephen Mahon**, Albert A Ruth, J Braddell, MD Gutiérrez. Cavity-enhanced absorption detection of H2S in the near-infrared using a gain-switched frequency comb laser. Applied Physics B, 124(4):1-9. doi: 10.1007/s00340-018-6931-z, 2018. 2018