

About Me

A highly motivated and conscientious biomedical engineer with a passion for open source and open science.

Areas of Interest

- Biomedical Engineering
- Medical Devices • Tissue Engineering • Computational Modelling

Laboratory Techniques

- Viscometry • Pipetting
- Bioprinting • Centrifuging • pH Probes • Freeze Drying
- Autoclaving

Engineering Techniques

- Rapid Prototyping • 3D Printing
- Laser Cutting • Computer Aided Design • Finite Element Analysis
- Failure Modes and Effects Analysis • Software Development

Programming Languages

- Python • R • Matlab • C • C++
- C# • .Net • Bash • Qt

Software Skills

- Linux • Windows • FreeCAD
- Fusion360 • OpenSCAD
- Microsoft Office • LaTeX • Git
- SVN

EDUCATION

- Jan 2022 – Aug 2023 **Tissue Engineering and Regenerative Medicine**
MSC BY RESEARCH · Swansea University
- Project: A computational approach to bio-ink composition and optimisation.
 - Designed and built a bioprinter.
- Sept 2017 – Jul 2020 **Biomedical Engineering**
BENG(HONS) 2:1 · University of Reading
- Final Year Project: Low-Cost Interferometry as a Tool for Imaging Propagating Action Potentials.
 - Course representative for 3 years; attended meetings of the Staff-Student Liaison Committee and the School Board of Teaching and Learning.
 - Winner of the Red Whale design challenge.
 - Welfare representative for the St John Ambulance Society 2019/2022.

EXPERIENCE

- April 2021 – Present **Prototyper**
FREELANCE
- Helping individuals realise their ideas using 3D printing and software development.
- Sept 2021 – Nov 2021 **QA/RA Project Assistant**
SIMPLIMEDICA
- Quality assurance and regulatory affairs for medical devices.
 - Writing process validation procedures and product specifications.
- Jun 2019 – Aug 2019 **Software Intern**
MORGAN IAT
- Developed graphical user interfaces for medical devices.
 - Developed test software for medical devices to undergo soak testing.
 - Event tree analysis and risk mitigation for medical device software.
 - Tested software on sample hardware for both intended use and edge cases.
 - Used SVN for version control
 - Updated in-house documentation
 - Attended weekly meetings with other engineers and senior management
- Mar 2019 – Sept 2019 **Research Intern**
UNIVERSITY OF READING, BRAIN EMBODIMENT LABORATORY
- Assisted with computational neuroscience research.
 - Focused on using the Adler model to demonstrate electrophysiological properties of neurons.
 - Wrote models in MATLAB.
- Jun 2018 – Aug 2018 **R&D Intern**
MORGAN IAT
- Designed and developed a GUI for a new medical device.
 - Worked on firmware and hardware for haptics systems.
 - Created an event tree analysis and associated risk mitigation spreadsheet for performing risk analysis on the software.
 - Worked with other engineers, the regulatory officer, and clients.
- Oct 2016 **Subsea Product Development Intern**
SONARDYNE
- Assisted acoustic engineers in experiments to test acoustic impedance.
 - Designed, constructed, and tested simple electronic systems.
 - Inspected the electronics of test products.

PUBLICATIONS

Jess R., Ling T., Xiong Y., Wright C., Zhao F., Mechanical environment for cartilage tissue engineering in vitro assisted by in silico models. *Biomaterials Translational*, 2023, 4(1): 18-26. DOI: 10.12336/biomatertransl.2023.01.004

PROTOCOLS

Jess R., Widdowson J., Zhao F., Wright C., Deriving steps per mm for an LVE system. *Protocols.io*. DOI: 10.17504/protocols.io.ewov1o8jplr2/v1

CONFERENCE CONTRIBUTIONS

Jess R., Widdowson J., Wade J., McIntyre S., Mandale S., Zhao F., Wright C., A computational approach to the optimisation of collagen-based bio-inks. *British Society of Nanomedicine Conference*, Swansea, UK, 22nd-23rd August 2022. (Poster), DOI: 10.13140/RG.2.2.20921.85603

VOLUNTEERING

Volunteer First Aider
ST JOHN AMBULANCE

- Provided First Aid at public events.

PROFESSIONAL MEMBERSHIPS

- Member of the Institution of Engineering and Technology
- Licentiate of the Institute of Biomedical Science
- Associate Member of the Institute of Physics and Engineering in Medicine

OTHER QUALIFICATIONS AND INTERESTS

- PADI Rescue Diver, Advanced Open Water Diver, Open Water Diver
- PADI Emergency Oxygen Provider
- Emergency First Response and Secondary Care – First Aid and CPR