**Project title:** Integration of camera software with melt electrowriting 3D printer user interface

**Project background/description:**

At [T3mPLATE](https://t3mplate.mech.uwa.edu.au/), we use melt electrowriting (MEW) to fabricate micron-scale polymeric scaffolds for use in biomedical applications. MEW is multi-parametric process that requires balancing of parameters such as temperature, voltage, speed and pressure to achieve a stable print with adequate fidelity.

High resolution cameras are used to monitor the printing process, allowing the user to live-adjust print parameters. We have developed a script that enables live automated quantification of print stability (extraction of parameters from video footage) from this video feed (in Python). Similarly, we have developed a custom graphical user interface (GUI) for controlling the 3D printer (in C#).

The goal of this project is to integrate the two software’s together. This will allow the custom GUI to display the video feed with quantification parameters in real-time. You will work with our biomedical engineers at the world class facilities of the Harry Perkins Institute of Medical Research to ensure that the software is user-friendly.

This will rapidly improve the efficiency, quality and reproducibility of our devices which have far reaching biomedical implications. Successful completion of this project within the timeframe may lead to future prospects working within our laboratory or spinoff companies.

**Qualifications & expertise:**

* Required
  + Tertiary qualification in software engineering/development or equivalent
  + Extensive experience with C#
  + Extensive experience with Python
  + Knowledge of sockets / pipes for camera streaming
  + Independent working skills and ability to meet deadlines
* Preferred
  + Experience developing user-end software
  + Familiarity with additive manufacturing or biofabrication techniques

**Start time:** ASAP

**Commitment:** 1-2 days/week

**Location:** Remote work available with weekly check in meetings. On-site lab visits will be required at Harry Perkins Institute of Medical Research (6 Verdun St, Nedlands, WA).

**Expected project duration:** 3-6 months

**Contact:** If you are interested in this opportunity, please get in touch via email to [elena.juanpardo@uwa.edu.au](mailto:elena.juanpardo@uwa.edu.au) and [michael.vernon@research.uwa.edu.au](mailto:michael.vernon@research.uwa.edu.au)