

StudentShapers Recruitment: Calling all Life Science, Biochemistry, Biomedical Science or similar disciplines students

VR DIF: Evaluating a new VR micropipette teaching tool to acquire pipetting skills

Bursary: 2 weeks over the summer (September 2024) £390/week and 16 weeks of 3h/week during term 1 & 2 time for £60/week. 2 positions available.

Who should apply: *Students who have recently learned how to operate a micropipette and are using this instrument in their practical/project. We are especially keen on recruiting students who are new to this device and maybe found it challenging to master its correct operation. The kind of programme you are enrolled in is secondary.*

Campus/Location: *South Kensington and Hammersmith campus with some parts that can be done remotely/online (i.e. summer tasks). Interviews or focus groups will be conducted in person if possible.*

Project details:

This project, called "Developing of a VR micropipette controller to teach pipetting skills" is funded by the Imperial College Digital Innovation Fund (total funding ~£100,000). Learning how to operate a micropipette is an essential skill for every life science scientist. Micropipettes are the most important tool used in almost all research labs. However, mastery of correct pipetting is a challenging task for most students. We have secured grants to develop and produce 20 unique VR controllers that resemble the shape and function of a micropipette to train students how to correctly operate this essential tool. To enable students to learn this essential practical skill in a safe, low-cost environment, we have designed a VR controller add-on that can mimic the physical properties of a real micropipette with a small simulation built in Unreal Engine. The add-on consists of a micropipette model equipped with a position sensor, momentary switch, and springs. The pipette add-on can be attached to any VR controller model (i.e. PICO or Oculus), which provides the precise position of the pipette within the virtual reality laboratory simulation. Meanwhile, the add-on measures the correct operation of the micropipette and provides physical feedback. With this controller it is possible to train motor skills (specifically finger muscles) to allow correct operation (e.g., slow and controlled release of the plunger) while providing students with real-time feedback about their performance.

This way students can experience the full procedure without the risk of damaging the micropipette or wasting material. The combination of VR with this unique controller allows students to practice this essential skill in any classroom without any prior safety training. Therefore, reducing cost, plastic waste as well as anxieties within students that might be associated with the foreign laboratory environment. As the use of micropipettes is one of the most essential skills for researchers that is widely taught among various courses and faculties (Medicine, Chemistry & Life Sciences), this project has the potential to be widely beneficial to many students. Its implementation could also be beneficiary for MOOCs and online courses offered by the College to enable students access to some practical training.

We are looking for a student to help us evaluate the experience and learning effect of this new VR tools. Students will be involved in the educational research process which will require them to perform literature research into the current literature, designing the research question and methodology as well as applying for ethics. Then once ethics are approved students will conduct the interviews/focus group with a small number of students to capture their experience with the new tool. This will entail conducting the VR training and data recording as well as data analysis. Finally, students will collaborate with staff to disseminate the research via a published article within a peer-reviewed educational journal.

We are hoping to recruit students that are passionate about science and education that act as a connection between staff and student and can enrich this research with their perspective and experience. As this project requires knowledge of educational practice a large amount of self-study of current literature is required that might lie without the area of their usual expertise.

STUDENTSHAPERS

How to apply:



Applications (300-500 words) should be made via the 'Student Expression of Interest' form on the StudentShapers website ([here](#)) or accessed using the above QR code. This will then be distributed directly to the appropriate staff partner.

Deadline: 05.04.2024 5pm, with initial conversations with students held in the w/c 15.04.2024.

Contact details: for informal correspondence/questions on the project please contact Dr Silke Donahue at s.donahue@ic.ac.uk