

StudentShapers Recruitment: Calling all students with an interest in Earth Science, Coding, and Virtual Reality

ViRSE – Crystal Structure Tetris

Bursary:

£365/week (8 full time weeks) – for one student

Who should apply:

Students with an aptitude for coding and enthusiasm for creating software, as well as an understanding of the atomic structures of common minerals. We anticipate that students enrolled on programmes in the Department of Earth Science and Engineering will be best placed to meet these criteria, but all Imperial undergraduates are eligible. Preference will be given to students who are not in their final year.

Campus/Location: *South Kensington; some work can be done remotely, but on campus attendance will be expected for at least 50% of the project.*

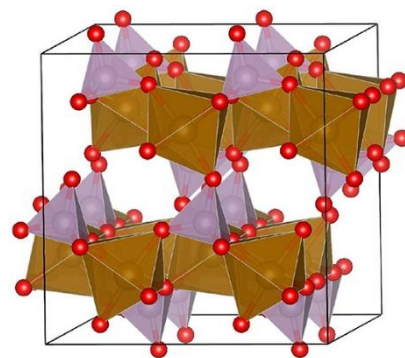
Project details:

Crystal Structure Tetris is a project to develop a gamified application to familiarise learners with the atomic structure of common minerals. The application will be built in Unity for deployment within ViRSE – a new major VR project for education within Imperial College London. The concept for Crystal Structure Tetris is to gamify the experience of familiarisation with atomic structures to engender 3D visualisation of atomic structures. The application will be developed for VR, but with support for flat screen use. Learners will compete to beat their own high score and on completion will be able to inspect the important aspects of the crystal chemistry of the completed structure. The project will be conducted with Dr Matthew Genge (ESE) who has expertise in both VR and in the development of activities for the forerunner of ViRSE. The work will involve: (1) creation of models within Blender, (2) coding of behaviours, user controls and user experience, (3) sound design, and (4) flexible data structure design.

The student undertaking this engagement will gain a deeper understanding of crystal structures, as well as gaining technical skills and experience in coding (in C#/Unity), and in three-dimensional visualisation. They will also gain experience in collaborative software-development as part of a professional team.

This engagement is part of the ViRSE (Virtual Reality Student Experience) project, which is developing a virtual reality platform to ease the development and deployment of 'multi-player' virtual reality into Imperial's teaching across a range of departments and subjects. ViRSE is built on the Unity game engine, and all ViRSE applications (including this project) are also built within Unity; code is written in the C# programming language. Students will not need to build a VR interface, write rendering code, or concern themselves with networking or administrative issues; these are handled by the ViRSE framework and the Unity engine. The development in this engagement will concentrate on the creation of a three-dimensional 'environment' specific to the project, and creating and testing the code necessary to make it function, and to interface with the ViRSE system.

All ViRSE student shaper engagements will commence with a two-week full time training course, which will provide the necessary grounding in the C# language, object-oriented programming, the Unity engine, the ViRSE platform, and 3D modelling tools. This course will take place on-campus July 3rd-14th 2023. In subsequent six project weeks the ViRSE student partners will lead on the development of the particular applications within Unity, in



The atomic structure of olivine. Crystal Structure Tetris will allow a user to add each component in turn

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collaboration with the academic lead, and with the VIRSE team providing technical support and advice. These six project-development weeks are flexible in precise timing, but should take place over summer 2023, before the start of Autumn term of the 23/24 academic year.

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: 31st March 2023 [CAN be different if you prefer – but might be good to keep them all the same!]

Contact details: Contact Dr Matt Genge (Earth Science & Engineering), m.genge@ic.ac.uk for further information