

## **PhD Positions at the University of Technology Sydney, Australia**

Dr Xuzhen He from UTS is seeking high-achieving PhD students in 2022. The research project is “Multiscale modelling of fluid–particle transport in porous media”, which is funded by the Australian Research Council Discovery Early Career Researcher Award. Candidates with knowledge and research experience in computational fluid mechanics, discrete element method, and/or multiscale modelling are encouraged to apply.

### **About the project:**

The aim of this project is to use a multiscale approach to rigorously model fluid–particle transport in porous media – a fundamental process in many engineering problems. With advanced parallel-computing tools, a microscale model is developed to incorporate interacting grains, water, and particles. The model and innovative upscaling methods will transform our understanding of mechanisms and allow development of predictive models for particle transport in both steady and unsteady porous flows. The fundamental knowledge and new-generation numerical models will support technological advances to directly benefit rail and road construction and their maintenance, fuel and renewable-energy extraction, coastal soil and water protection, and bushfire control.

Dr Xuzhen He is a Lecturer and ARC DECRA Fellow at UTS. He obtained his bachelor’s degree from Tsinghua University and studied in the University of Cambridge for his PhD. In 2015, he received the prestigious John Winbolt Prize from Cambridge.

### **About the role:**

The PhD candidate is expected to meet the **following criteria:**

- Master’s degree by research or bachelor’s degree with a strong academic record which is equivalent to first-class honours
- Domestic students or international students (meeting UTS English Proficiency requirement) currently residing in Australia (preferred)
- Demonstrated self-motivation and commitment to work on research topics.
- Demonstrated experience in undertaking research in the fields of computational fluid mechanics, discrete element method, and/or multiscale modelling.
- Demonstrated programming skills (C/C++/CUDA preferred).
- Excellent written skills evidenced by scientific journal papers, conference papers, or technical reports.
- Excellent interpersonal and oral communication skills

### **About the Scholarship:**

This project includes funding for a living stipend scholarship at the Research Training Program rate of \$28,854 per annum (tax-exempt). Fee waivers may also be considered for the successful international candidate.

The scholarship is for 3 years with a potential 6-month extension