

# Advance Notice for a Funded PhD Opportunity

Please find below preliminary details for a fully funded PhD Studentship in the Department of Computer Science at the University of Auckland, New Zealand, supervised by Dr Matthew Egbert that would start in mid to late 2018.

## Project: Simulating the behaviour of proto-cells

What was the first organism? Amazing advances have been made in understanding how life's molecular building blocks first emerged, but it remains unclear what caused these molecules to develop into a first integrated organism. In this project, we will develop computational simulations of protocells and related dissipative structures to investigate the possibility that the organism-like behaviours demonstrated by simple non-living physical structures facilitated the earliest stages of life's evolution. The development of these models and simulations will be conducted alongside real-world experimental work done locally and with international collaborators.

## Candidate

The interdisciplinary nature of the project means that applications are welcome from students from a wide variety of backgrounds including Computer Science, Maths, Physics, Biology or Engineering. The primary methodology that will be used and developed by the candidate will be computational modelling of complex systems.

The candidate must hold (or expect to complete soon) a BSc or MSc, and have some research experience (e.g. a final-year research project). They should also have some experience developing computational models, or in a comparable area. Other desirable capabilities include good writing and communication skills, critical thinking, creativity, drive and curiosity.

An interest in Biology will be an advantage for this project, but prior knowledge in this area is not required. The project also can connect with Philosophy of Biology topics including the definitions of life and behaviour, so students interested in the intersection of philosophy and science are also encouraged to apply.

The scholarship will not be officially listed until March 2018. In the meantime, informal enquiries are very welcome. Please send these to Dr Matthew Egbert at [m.egbert@auckland.ac.nz](mailto:m.egbert@auckland.ac.nz).

## Scholarship Details

Stipend is expected to be approx. NZ\$27,300 pa (tax free) for three years plus tuition fees. Start date is flexible but would preferably be between March and November 2018. The successful candidate will have the opportunity to attend national and international conferences to present their work.

The studentship is funded by a Marsden Fund grant recently awarded by the Royal Society of New Zealand to fund three years of research on this topic.