

# Fully Funded PhD Opportunity

Applications are invited for a fully funded PhD Studentship in the Department of Computer Science at the University of Auckland, New Zealand, supervised by Dr Matthew Egbert.

## 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 employed 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 (e.g. mathematical modelling, control engineering, etc.). Other essential 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 connects with Philosophy of Biology topics including the definitions of life and behaviour, so students interested in the intersection of philosophy and science are encouraged to apply.

## Scholarship Details

Stipend is to be NZ\$27,500 pa (tax free) for three years plus tuition fees. Start date is flexible but would preferably be before December 2018. The successful candidate will have the opportunity and financial support 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.

Further details about the scholarship are available here:

<https://www.auckland.ac.nz/en/study/scholarships-and-awards/find-a-scholarship/university-of-auckland-marsden-grant-phd-scholarships-in-simulating-the-behaviour-of-protocells-957-sci.html>

## To apply...

Applications will be considered until the position is filled; applications received by June 1, 2018, will receive full consideration.

To apply send the following to Dr Matthew Egbert at [m.egbert@auckland.ac.nz](mailto:m.egbert@auckland.ac.nz).

1. Cover letter (400 word max). Including:
  1. Why you want to do a PhD.
  2. Where you see yourself 2 years after you've completed your PhD.
  3. What you believe your strengths and weaknesses are.
2. Your CV
3. Transcript of your most recent degree. If you are currently enrolled in a programme, send partial transcript if possible and the final grade you expect to receive.
4. Example of academic writing (e.g. a lab report, essay, blog-post, or an assignment that you are proud of). Please include a minimal description of what it is.

Informal enquiries to the same email address are very welcome.