Leverhulme-funded PhD Opportunity:
Co-evolution of social relationships and cognition: a theoretical investigation

Supervisors: Sasha Dall & Alex Thornton, Centre for Ecology and Conservation, University of Exeter, Penryn Campus, Cornwall

We are looking for an enthusiastic, analytically-minded student to join us in beautiful Cornwall.

Full details of how to apply are here: http://www.exeter.ac.uk/studying/funding/award/?id=3933

Project Description
Relationships can be hard work. Indeed, the challenges of maintaining social relationships are widely thought to drive the evolution of large brains and intelligence in humans and other animals such as primates, cetaceans and corvids. This idea, known as the Social Intelligence Hypothesis, has been hugely influential in biology, psychology and anthropology for over 50 years. However, it remains highly controversial and lacks predictive power, largely because it is based on verbal arguments rather than formal models with explicit assumptions. In this PhD, part of the Leverhulme-funded project “The role of social relationships in cognitive evolution” you will develop a novel theoretical framework to analyse whether and under what circumstances social relationships generate cognitive demands and how those demands in turn influence social evolution.

By integrating game theoretical approaches with recent advances in the ecology of information use, you will develop mathematical and/or computational models to analyse the implications of evolutionary costs and benefits of tracking information from social partners to make decisions across differing social and ecological conditions. These models will generate explicit predictions of whether and under what circumstances social relationships generate cognitive demands for monitoring and responding to partner behaviour, and how those demands in turn influence social evolution. Predictions from the models will be tested using data from co-supervisor Alex Thornton’s long-term field studies of wild corvids and meta-analyses of published data.

The successful candidate will be supervised by Dr Sasha Dall and Dr Alex Thornton at the lively research environment of the Centre for Ecology and Conservation, at the University of Exeter’s Penryn Campus in Cornwall. Prof, John McNamara FRS (Mathematics: University of Bristol) will be involved with the project as an external partner. You will be an active member of both Thornton’s Wild Cognition Research Group, and the wider Behaviour
Discussion Group, one of the largest concentration of behavioural biologists in the world.

This award provides annual funding to cover UK/EU tuition fees and a tax-free stipend. For students who pay UK/EU tuition fees the award will cover the tuition fees in full, plus at least £15,285 per year tax-free stipend. Students who pay international tuition fees are eligible to apply, but should note that the award will only provide payment for part of the international tuition fee and no stipend.

**Entry requirements**

Applicants for this studentship must have obtained, or be about to obtain, a First or Upper Second Class UK Honours degree, or the equivalent qualifications gained outside the UK, in an appropriate area of science or technology (e.g. biology, psychology, mathematics, computer science). A Master’s degree in a related area is desirable.

Applicants must have strong mathematical and/or computational skills and research interests in the evolution of cognition and behaviour. Experience of theoretical modelling would be a strong advantage.

If English is not your first language you will need to have achieved at least 6.5 in IELTS and no less than 6.0 in any section by the start of the project. Alternative tests may be acceptable (see [http://www.exeter.ac.uk/postgraduate/apply/english/](http://www.exeter.ac.uk/postgraduate/apply/english/)).