PhD Program between Freie Universität Berlin (FUB) and the China Scholarship Council (CSC)

Open PhD Position at Freie Universität Berlin, offered only to Chinese CSC scholarship candidates 2027

Department/Institute: Biology

Subject area: Evolution

Name of Supervisor: Katja Nowick

Number of open PhD positions: 1 Full-time
Type of the PhD Study: Full-time

Project title: Unravelling the Genomic Basis of Behavioural Diversity in Ruffs

PhD Project description:

Social behaviours are among the most fascinating examples of the complexity of animal relationships, shaped by an interplay of genetic, hormonal, and environmental factors. Understanding how genetic variation translates into behavioural diversity remains a major challenge, particularly for complex traits influenced by many genes. This project will explore these questions in the ruff, an iconic shorebird with three genetically determined male morphs that differ strikingly in appearance and social behaviours, including courtship and aggression. While hormones are known to play an important role in shaping these behavioural differences, the underlying gene expression patterns remain poorly understood. We have already generated an extensive transcriptomic dataset covering multiple brain regions, both sexes, and different developmental stages across all three morphs, offering a unique opportunity to investigate the molecular basis of behavioural diversity. As a PhD student, you will explore this rich dataset using bioinformatics approaches to identify gene expression patterns associated with behavioural variation, develop and test your own hypotheses, and uncover new insights into the genetic and molecular mechanisms underlying social behaviour. The project offers considerable scope to shape your own research questions and will suit a curious, motivated student interested in bioinformatics, genomics, neuroscience, and animal behaviour. No laboratory work is planned; the project will focus on computational analyses and biological interpretation.

Language requirements:

- IELTS: 6,5 oder TOEFL: 95 ibt

Or

- Test Daf 16 bzw. DSH 2

Academic requirements:

You will need a Master's degree in Biology, Bioinformatics, Genomics, Molecular Biology or similar.
You should have experience with bioinformatics methods for the analysis of genomics and
transcriptomics data, computational analysis of gene regulatory networks, programming in R or Python.

Information of the professor or research group leader (website, awards etc.):

Our group studies the evolution of the brain and cognition. Our main focus is on the impact of transcription factors (TFs) and non-coding RNA on differences in transcriptomes, gene regulatory networks, and ultimately the phenotype. TFs are proteins that form gene regulatory networks to regulate the expression of all genes. TFs typically bind to specific DNA sequence motives to control the expression of a few to many other genes. Therefore, evolutionary changes in TFs can potentially have large impacts on the phenotype of a species. Indeed, we demonstrated that some TF genes show significantly more sequence and expression differences between humans and chimpanzees than other types of genes. Intriguingly, some of these fast evolving TFs seem to play a role in brain and cognitive functions.

For more information, visit our website: http://www.nowick-lab.info

Information about the PI:
I did my PhD at the Max-Planck-Institute for Evolutionary Anthropology in Leipzig, Germany. Under the supervision of Prof. Svante Paabo, I studied the functions and evolution of FOXP2, a transcription factor gene involved in language acquisition, in primates. Inspired by the big impact a sequence change in one gene can have on human evolution, I joined the lab of Prof. Lisa Stubbs in the USA for my postdoc, to investigate the largest group of transcription factor genes, the Kruppel-type zinc finger genes, in primates. My work lead to a higher recognition of the importance of gene regulation and the factors regulating it for the evolution of phenotypes, among them cognition in humans.
Since 2011, I lead my own independent research group; in 2016, I became a university professor. I have already supervised 4 postdocs, 10 PhD students, more than 20 Bachelor and Master students.

Please note:
In a first step, the complete application should be uploaded to the online portal (https://fuberlin.moveon4.de/form/60acfece5d328710e40bdbd5/eng) for evaluation by January 15th, 2027.