Research Internships available

A research internship is available immediately in the Drosophila connectomics group headed by Dr Gregory Jefferis and Dr Matthias Landgraf in the Department of Zoology at the University of Cambridge. Start date can be from 15 Jan 2018 with a duration of 3 months to one year. A stipend covering local living expenses will be provided.

Our research group collaborates with scientists from HHMI Janelia Research Campus (USA), the MRC Laboratory for Molecular Biology (Cambridge), and the Centre for Neural Circuits and Behaviour (University of Oxford) in order to characterise neural circuits required for sensory processing and memory acquisition, storage, and retrieval. We are using a web-based collaborative tool called CATMAID to reconstruct individual neurons and their synaptic connections from a recently completed electron microscopy (EM) volume of a whole adult fly brain. In a second step, sophisticated data analysis tools are employed to unravel principles of circuit organisation.

Although a number of projects are available, we are currently keen to develop a project working directly with a senior member of the group, Dr Elizabeth Marin, to analyse connectivity in the lateral accessory calyx of the mushroom body. This brain substructure appears to be dedicated to processing thermosensory inputs, a vital sensory modality for the fly. A comprehensive study of this circuit should yield a model for thermosensory learning and memory which could then be tested experimentally.

We are looking for highly motivated students with a background in biological or physical/computational sciences and a long-term interest in understanding the circuit basis of brain function and behaviour. In exchange, we will work to develop your research skills and scientific independence. Experienced senior staff will train you in neuron tracing, data analysis and relevant Drosophila neuroanatomy. You will be expected to contribute directly to scientific publications and may have the opportunity to present your work at a conference, depending on length of stay. This is an opportunity to join one of the first large scale connectomics efforts that will have a major impact on circuit neuroscience.

3D visualisation of 7 classes of traced Mushroom Body Kenyon cells
Essential Experience/Attributes

• Relevant BSc, or equivalent, to a good level in an appropriate subject (e.g., neuroscience, biological sciences or computer science/physical sciences).
• Good understanding of neuroscience
• Strong desire to understand circuit basis of brain function and behaviour
• Good communication skills (written and oral).
• Ability to work in a team
• Attention to detail

Desirable Experience/Attributes

• Formal coursework in neuroscience
• Prior research experience
• Experience in analysing neural circuits
• Experience in R, python or equivalent programming
• Experience working with electron microscopy data
• Experience with *Drosophila*

Informal enquiries about this project may be made to Dr. Gregory Jefferis (gsxej2@cam.ac.uk) or Dr Elizabeth Marin (em711@cam.ac.uk).