

Type of programme

Research

Employing trust:

St George's University Hospital NHS Foundation Trust

Academic placement based at:

St. George's Hospital

Brief outline of department

The neurosurgery service is provided by 16 consultants and encompasses the full spectrum of cranial and spinal procedures for all ages including paediatrics. We run an active clinical programme with each consultant having specialist interests, including: vascular, neuro-oncology, skull base, paediatrics, spinal surgery, trauma, hydrocephalus, and functional neurosurgery. Academically we are supported by a professor of neurosurgery, reader, senior lecturer, and 2 clinical lecturers. There is a busy clinical research programme including PhD students and research associates.

Structure of academic project/what expected

The academic foundation year 2 trainee in neurosurgery will have a choice of projects in functional neurosurgery led by Michael Hart. These will include:

- Advanced neuroimaging analysis for movement disorders and deep brain stimulation (including tractography, resting-state functional MRI, and ultra-high field 7 Tesla MRI)
- Machine learning approaches for lesion detection in focal epilepsy
- Big data analysis of clinical outcomes in neuromodulation for pain

It is the intention that skills are learnt in:

- Data analysis skills including coding in Matlab / Python and Bash
- Knowledge of advanced statistical approaches including machine learning
- Good research practice, including data handling and consent
- Appraisal of research papers on neuroimaging analyses applied to neurosurgery

The learning resources that we will provide will include:

- Daily lab support, either face-to-face or remote
- Access to neuroimaging courses and training (see www.neurocodeskills.fun for suitable resources)
- Face-to-face progress and troubleshooting meetings initially, reduced as required to a minimum of monthly meetings over the course of the programme

We have a growing and versatile team to support each trainee. This includes senior group leaders, clinical lecturers, PhD students, and research associates. Additionally, we have close links with a number of other groups within SGUL (Professor Howe and Dr Barrick) and in other institutions including the University of Oxford, the University of Cambridge, and University College London.

Finally, in terms of expected outputs, we would anticipate that each academic F2 would be able to generate a first author peer reviewed paper of original research data. In addition, there will be opportunities present their research in either oral or poster form at national and international meetings, to lead an audit, lead reviews, and contribute as a co-author to other research within the department. There is the opportunity to register for the St George's, University of London Postgraduate Certificate in Research.

Clinical commitments during academic placement

No routine service commitment but there may be involvement in patient recruitment to clinical studies.

Departmental academic teaching programme (if applicable)

Bi-monthly research lab meeting

Bi-monthly molecular and clinical sciences institute academic meetings

Daily neurosurgery clinical teaching

Weekly neurosurgery foundation year and registrar teaching

Academic Lead:

Michael Hart, Senior Lecturer and Honorary Consultant Neurosurgeon mhart@sgul.ac.uk