DiRAC Health Data Science and AI Placement Opportunity

DiRAC will award one Innovation Placement in 2021 in the area of Health Data Science and the application of AI. The nominal length is 6 months and has to be completed by 30 September 2021. In this scheme a final year PhD student or an early career researcher can have a funded placement (up to £25k) with the Getting It Right First Time (GIRFT) programme. GIRFT is funded by the UK Department of Health and Social Care and is a collaboration between NHS England & NHS Improvement and the Royal National Orthopaedic Hospital NHS Trust. GIRFT uses comprehensive benchmarking data analysis to identify unwarranted variation in healthcare provision and outcomes in National Health Service (NHS) hospitals in England and combine this with deep dive visits to the hospital by clinicians with follow up on agreed actions by an improvement team. The programme covers the majority of healthcare specialities.

You have to be working on research that falls within the STFC remit in order to qualify for the placement; however, you can be funded by other organisations besides STFC, as long as the subject area is identifiable as being in Particle Physics, Astronomy & Cosmology, Solar Physics and Planetary Science, Astro-particle Physics, and Nuclear Physics.

To check your eligibility please contact Jeremy Yates (j.a.yates@ucl.ac.uk) and Maria Marcha (m.marcha@ucl.ac.uk).

You must get your Supervisor or PIs permission before applying for this placement. It is allowed under UKRI's rules, but only with your supervisor/PIs consent.

We will do our best to be flexible; part time working can be arranged as long as the placement does not exceed 9 months.

This should be looked on as an opportunity to learn new skills and contribute outside of your research area.

The deadline for applications is 10am on Monday 11th January 2021.

We are pleased to offer the following DIRAC Innovation Placement with GIRFT

Developing common approaches to apply to English hospital activity data to facilitate a deeper understanding of issues related to the COVID-19 pandemic in the UK.

This provides a unique opportunity to work with one of the most detailed healthcare datasets in the world, to develop common approaches which provide insight into the COVID-19 pandemic. The areas of work will also be relevant to other healthcare areas beyond the current pandemic, providing long term benefit to both GIRFT and the wider health community.

Candidates will be expected to apply the tools and techniques they have learnt or used during their studies from areas with an advanced approach to data science, into an applied healthcare project. This approach can lead to both disruptive innovation within the NHS and promotes the upskilling of both clinicians and healthcare researchers. After their placement, candidates should be able to apply this experience to future

work, reinforcing the two-way cross-fertilisation between the different organisations and provide opportunities for future collaboration.

The placement will consist of two phases:

1. Initial short project to orientate the candidate with healthcare data and explore data quality. Understanding errors and gaps in the data will inform future analyses and highlight data inconsistencies which may contribute to health inequality.
2. Proposed main projects utilising advanced analytical techniques are:
    a. Identification of patients who caught COVID-19 in a hospital setting
        i. What are the impacts at both patient and system level of being infected by COVID-19 in a hospital setting versus infected within the community?
        ii. What are the important variables for clinical outcomes for those patients who were infected with COVID-19 in hospital? How can this inform clinical practice?
    b. Frailty describes a decline in function across several organ systems, linked to ageing, but progressing at different rates in different people; it is characterised by increased risk of poor outcomes. Is there a link between frailty & poor outcomes for those infected with COVID-19?

This project will be largely based upon the Hospital Episodes Statistics (HES) dataset which includes data for all NHS funded hospital activity in England. The standard dataset includes data from 2012 onwards, with around 20 million annual hospital admissions. With regards to COVID-19, initial analysis suggests the number of cases were approximately 110,000 patients before the start of wave 2 in September and this data set is constantly refreshed approximately 2 months in arrears. The dataset is linked to the Office for National Statistics dataset on deaths in England and deprivation.

As a host organisation, GIRFT is able to provide national level clinical datasets; prominent clinical leads and healthcare data specialists with access to a variety of national NHS bodies. You will be line managed by an experienced senior research associate within GIRFT and will be required to participant in regular project development sessions with a combined clinical, healthcare researcher and academic group. In addition, you will have access to a community of practice including previous and existing DiRAC fellows working on healthcare data. With support from this team, the candidate will be expected to produce work of sufficient quality that it will suitable for publication in peer-reviewed journals.

A suitable candidate should have a good grounding in python. Knowledge of random forest, data linkage and curation, and error propagation is desirable, but not essential. Training will be given in these areas if required.

The main mode of working within the GIRFT analytics team is home working with remote access. As this model pre-dates the COVID-19 pandemic, a well-developed infrastructure is in place to support this. However, office space is available in central London, and potentially at regional NHS England sites across the country if home working is not suitable.

- Who will you work with?
    - Clinical Supervisor: Dr Adrian Hopper (https://www.gettingitrightfirsttime.co.uk/medical-specialties/geriatric-medicine/)
    - Healthcare Research Supervisor and Line Manager: Dr William K. Gray, Senior Research Associate, GIRFT
- What should you do if you are interested?
    - Speak to your current supervisor and get their views BEFORE applying.
    - Contact katie.tucker@gstt.nhs.uk for further information
    - Send a CV and a 200-word statement on why you would want to do this Placement to j.a.yates@ucl.ac.uk to and m.marcha@ucl.ac.uk by 10am on Monday 11th January 2021.

Dr Jeremy Yates, Dr Maria Marcha DiRAC