

Research Project

Name of Institution and department:

King's College Hospital – Neurointerventional Imaging Research Group

Link to website:

<https://www.kch.nhs.uk/>

<https://www.kcl.ac.uk/people/thomas-booth>

City and Country of Institution:

London, United Kingdom

RESEARCH GROUP

The Neuroimaging & AI Research Group at King's College London, led by Dr. Thomas Booth, operates at the intersection of neuroradiology, artificial intelligence, and clinical decision support. The group's mission is to harness state-of-the-art machine learning and imaging technologies to improve the detection, characterization, and prognostication of neurological diseases. Through collaborative, translational research, the group aims to bridge the gap between algorithm development and real-world clinical deployment, ultimately enhancing diagnostic accuracy, workflow efficiency, and patient outcomes in neuroimaging.

TITLE OF PROPOSED RESEARCH PROJECT

AI vs. Radiologist: A Comparative Study of Brain MRI Reporting for Abnormality Detection

OBJECTIVES

- Complete a report detailing the concordance rates between AI and radiologist interpretations.
- Identify specific cases where AI outperformed or underperformed compared to human

analysis.

- Identify recommendations for integrating AI tools into routine radiological workflows.

APPLICANT'S DUTIES

- o Select a dataset of anonymized brain MRI scans with corresponding AI-generated reports.
- o Have participating radiologists independently review the same scans without access to AI interpretations.
- o Compare the findings to assess agreement rates, discrepancies, and potential areas of improvement.

APPLICANT'S BENEFITS

- o Participation on scientific outcomes of the project i.e. presentations to congresses or publications of papers
- o Opportunity to co-author peer-reviewed research manuscripts based on the study's findings.
- o Opportunity to contribute to and potentially present at radiology or neuroimaging meetings such as ECR or RSNA with appropriate mentoring support.

• Project Leader:

Dr Thomas Booth, Consultant Interventional Neuroradiologist at King's College Hospital and Reader in Neuroimaging at King's College London.

• Members:

The team consists of professionals from the School of Biomedical Engineering & Imaging Sciences, the Institute of Psychiatry, Psychology & Neuroscience (IoPPN), and King's Health Partners (KHP). This includes academics, researchers, PhD students, and clinicians contributing to the development and validation of AI models in neuroimaging.