



Job Description

Senior Research Fellow in Artificial Intelligence and Natural Language Processing

Department: Information Studies

Grade: 8 £45,610 to £53,757 per annum (including London Allowance)

Location: Bloomsbury Campus

Reports to

Professor Julianne Nyhan (PI Sloane Lab)

Start date: as soon as possible

End date: 30th September 2024

The post is funded until 30th September 2024 in the first instance.

Context

We are seeking to appoint a Research Fellow to contribute to "The Sloane Lab: Looking back to build future shared collections", led by UCL in partnership with the British Museum and Natural History Museum. The Sloane Lab project has been funded under the 'Towards a National Collection' call, which has seen the Arts and Humanities Research Council (AHRC) award £14.5m to 5 research projects to connect the UK's cultural artefacts and historical archives in new and transformative ways. The aim of the programme is to use new technologies, including artificial intelligence (AI) to reveal the first insights into how thousands of disparate collections could be explored by public audiences and academic researchers in the future.

The Sloane Lab will focus on the vast collections of Sir Hans Sloane in public institutions, and work with expert and interested communities including museum audiences to link the present with the past to allow the links between Sloane's collections and catalogues to be re-established across the Natural History Museum, the British Library, and the British Museum (plus others that have relevant material). The main outcome of the project will be a freely

available, online digital lab – the Sloane lab – that will offer researchers, curators and the public new opportunities to search, explore, and engage critically with key questions about our digital cultural heritage.

The Sloane Lab aims to enrich debate on issues such as: the contested nature of museum collections, the role of digital tools in foregrounding overlooked or ignored processes, like imperialism, colonialism, slavery, loss and destruction, that have shaped the UK's national collections.

This advertised role offers an exciting opportunity for researchers to work with experts and communities to link up Sloane's collections, to put them in context for the 21st century, and open new opportunities to search, explore and engage critically with the UK's cultural heritage online.

We encourage applications from those who are underrepresented in the sector and at UCL including but, not exclusive, to disabled, D/deaf and neurodiverse people, LGBTQ+ people, people from Black, Asian and ethnic minority backgrounds, especially women.

Main purpose of the job

The role is responsible for undertaking research on Natural Language Processing and Artificial Intelligence to implement solutions for information extraction, automatic handwritten text recognition and semantic enrichment of museum data and cultural heritage collections. The post holder will undertake key research on the contributions of AI to cultural heritage collections and is expected to be able to follow Machine Learning (ML) and Deep Learning

(DL) methodologies and to research ethical issues and algorithmic bias resulting from the use of AI models with rigor.

Duties and responsibilities

Main Duties

- Develop handwritten text recognition models for analysing historical catalogues and manuscripts.
- Implement Natural Language Processing pipelines for the purposes of information extraction, Named Entity Recognition and similar tasks.
- Develop and validate rule-based vocabulary enabled, and data-driven Machine Learning (ML) / Deep Learning (DL) models.
- Implement methods of semantic enrichment and entity linking of cultural heritage and museum data.
- Ensure ethical approaches and set the project's framework for addressing implications and algorithmic biases resulting from AI technologies.
- Implement AI-based techniques for inference and visualization of museum data.
- Collaborate with research colleagues across the project to support the aims of the Sloane Lab.
- Engage with cultural heritage institutions and community representatives for requirements gathering and specification.
- Develop co-authored contributions, present findings to conferences and seminars and publish to peer-reviewed academic journals.

Other Duties

- Contribute to report writing and documentation of digital outputs.
- Contribute to the public engagement activities of the project.
- Complete mandatory training courses that may be required to comply with UCL policy for research fellows.
- Actively follow UCL policies, including Equal Opportunities.
- Contribute to the overall activities of the Department and collaborate with other UCL initiatives as appropriate

- Comply at all times with UCL policies including Equal Opportunities, Race Equality, and regulations on Fire, Health and Safety, Data Protection and Research Ethics.
- Carry out any other duties within the scope, spirit and purpose of the project as may be reasonably required by the Principal Investigator and the DIS Head of Department.

Person Specification

Criteria	Essential or Desirable	Assessment method (Application/Interview)
Knowledge and Experience		
Demonstrable expertise in natural language processing and knowledge representation.	Essential	Application/Interview
Sufficient knowledge of computational linguistics to extract and classify text according to the types of meanings they express and evaluate the results	Essential	Application/Interview
Experience implementing Handwritten Text Recognition models	Essential	Application/Interview
Experience implementing AI models and the application of AI methodologies including Machine Learning (ML) and Deep Learning (DL)	Essential	Application/Interview
Knowledge of the ethical implications of AI and issues related to algorithmic bias	Essential	Application/Interview
Familiarity with inference and data visualisation tools	Desirable	Application/Interview
Experience working with museum and/or cultural heritage data collections	Desirable	Application/Interview
Skills and Abilities		
Proven ability and commitment to carry out high quality original research	Essential	Application/Interview
Proven research aptitude	Essential	Application/Interview
Demonstrate excellent interpersonal, oral, and written communication skills	Essential	Application/Interview
Manage own academic research and administrative activities. This involves small scale project management, to co-ordinate multiple aspects of work to meet deadlines.	Essential	Application/Interview
Experience of presenting research to variety of academic and public audiences	Essential	Application/Interview
Ability to write research reports clearly and quickly	Desirable	Application/Interview
Willingness to learn new technologies independently and look for solutions	Desirable	Application/Interview
Personal attributes		
Ability to work as part of a multidisciplinary team, collaborate with researchers in different disciplines, and engage with non-academic partners	Essential	Application/Interview
The highest ethical and professional standards in research	Essential	Application/Interview
Highly self-motivated and hard working	Essential	Application/Interview
Continually update knowledge and understanding in field or specialism, and engage in continuous professional development.	Essential	Application/Interview

Criteria	Essential or Desirable	Assessment method (Application/Interview)
Ability to exercise a degree of innovation and creative problem-solving.	Desirable	Application/Interview
Education and Professional Qualifications		
PhD degree in Computer Science, Information Science, or related discipline (or about to complete) or equivalent research experience	Essential	Application/Interview
Postdoctoral research experience	Essential	Application/Interview