

## Northeastern University London

### Fully Funded PhD Scholarship in Computer Science

#### Digital Twins for Administering Organisations

Northeastern University London > Faculty of Computing, Mathematics, Engineering & Natural Sciences (CoMENS)

Deadline: **16 February 2025 (applications will be considered on a rolling basis)**

Funded PhD Project (UK or International Students)

Funding provider: Northeastern University - London (NU London)

Subject areas: Large language models; Generative AI; graph databases; data systems

Project start date: **April 2025**

Supervisors (\*lead):

- Alexandros Koliouisis\* (Northeastern University - London)
- Elena Botoeva (University of Kent)

Aligned programme of study: PhD in Computer Science Mode

of study: Full-time

#### Northeastern University London

As part of a major investment, Northeastern University London (NU London) has multiple, fully-funded PhD studentships available to accelerate its interdisciplinary research in the humanities, social sciences, and computing, maths, engineering and natural sciences. Each scholarship is fully-funded for three and a half years (UKRI rates) and includes full course fees, an annual stipend (including an additional London allowance) and associated costs, such as training.

NU London is both a UK university governed by UK higher education regulations, and the European campus of Northeastern University – a large, top-tier research intensive, Boston-based institution. Founded in 1898, Northeastern University is known for its high-impact research, aimed at solving problems across the globe. Interdisciplinarity, experiential learning, and connection to partners beyond academia are at the heart of the Northeastern University ethos. Northeastern received \$230.7m of external research funding in 2022 and is the recognized leader in experience-driven lifelong learning. It has campuses across the United States and Canada (in Boston; Charlotte, North Carolina; Portland, Maine; Oakland, California; San Francisco; Seattle; Silicon Valley; Arlington, Virginia; the Massachusetts communities of Burlington and Nahant; Toronto and Vancouver). Whilst the PhD will be a UK qualification, students will have the opportunity to engage with and visit the Northeastern University network overseas as part of their London-based doctoral studies, providing a truly unique and highly sought-after dimension to their research training.

## **The Project**

We are offering a fully funded PhD scholarship to build and evaluate a novel “digital twin” framework where organisational policies and strategies, on one hand, and the oftentimes disparate data stores that support them, on the other hand, are both represented as inter-linked *knowledge graphs*. Using **generative AI** (i.e., large language models) and **probabilistic reasoning**, the project aims to automate policy monitoring and shielding stakeholders from policy violations in complex, hierarchical organisations such as universities or public services. By bridging human-readable policies with evolving data infrastructures, this research will create a next-generation toolkit for data-driven decision-making, unlocking more efficient, transparent, and adaptive management.

We seek a highly motivated candidate with a strong background in AI, or data systems, or both. Ideal applicants will be comfortable working with large language models, graph databases, semantic web, and cloud-based infrastructures; and have a passion for translating cutting-edge research into practical impact. The successful candidate will join the Responsible AI Systems Engineering (RAISE) group in London, led by Prof Koliouisis, and will have an opportunity to collaborate with researchers from Northeastern University’s Khoury College of Computer Sciences and the Institute of Experiential AI.

**The successful candidates will:**

- Have a proven, strong educational background in computer science or a related subject (see project description; and eligibility criteria)
- Be excited and inspired by the proposed project area
- Be a self-starter
- Have good communication skills
- Have an inquiring mind and be willing to challenge themselves

The successful candidates will benefit from a brand-new campus on the banks of the River Thames next to Tower Bridge. This is an interdisciplinary, vibrant research environment with international collaboration and networking opportunities and dedicated research space. It will form the hub of a highly experienced, multi-institution supervisory team from NU London, Northeastern University and the University of Kent. In addition, successful candidates will benefit from the unique connection to the wider Northeastern University network in North America, providing a range of additional research opportunities and learning resources.

Shortlisted candidates will be interviewed by **early March 2025**. Candidates are welcome to contact the NU London supervisor with informal enquiries before the application deadline: Prof Alexandros Koliouisis (alexandros.koliouisis@nulondon.ac.uk).

### **Eligibility**

- Bachelor's degree in a relevant subject - 2:1 or 1st (essential)
- Master's degree in a relevant subject (optional)

### **English Language requirements**

If applicable – IELTS 7 overall (with a score of at least 6.5 in each individual component) or equivalent.

### **Nationality**

Applications are open to UK and international students. Please indicate if you are likely to require a visa on your application. We are unable to support visa costs.

### **Funding**



This scholarship covers the full cost of tuition fees, an annual stipend and an additional London allowance (set at UKRI rates) for 3.5 years. For the 2024-25 academic year the annual stipend is £21,237. Annual increments will be in line with UKRI rates.

### **How to Apply**

Please submit a CV and a covering letter stating how you meet the requirements and why you are interested in the proposed research project by clicking on [this link](#). Please reference your application “**R131483**”