

PhD Studentship in Advanced Database Technologies

With generous support from Neo4j (<http://neo4j.com>), we are pleased to announce the availability of a PhD studentship in the area of Advanced Database Technologies, **starting in October 2019**. Neo4j are developers the popular Neo4j graph database system and an industry leader in graph data management.

The studentship covers full-time fees at the Home/EU level for three years, as well as a stipend of around £2,300 per year.

The studentship is based at Birkbeck's Department of Computer Science and Information Systems, in collaboration with the Department of Mathematics and Computer Science at Eindhoven University of Technology and Neo Technology. The Department of Computer Science and Information Systems at Birkbeck is a leading centre of expertise in information and knowledge management, intelligent systems and data analysis; the department has major interdisciplinary activities in life sciences informatics, data analytics and technology-enhanced learning. The Department of Mathematics and Computer Science at TU Eindhoven is at the forefront of research and education in the fields of Data Science, Software & Systems, Computational Science and Fundamental Mathematics and Computer Science.

The topic of the PhD studentship will be to investigate indexing and other optimisation techniques for accelerating query evaluation and analytics in graph databases, considering both exact queries and also approximate query evaluation. Some indicative readings are the following:

- George H. L. Fletcher, Jeroen Peters, Alexandra Poulovassilis:
Efficient regular path query evaluation using path indexes. Proc. EDBT 2016: 636-639. At <http://openproceedings.org/2016/conf/edbt/paper-275.pdf>
- Jonathan M. Sumrall, George H. L. Fletcher, Alexandra Poulovassilis et al:
Investigations on path indexing for graph databases. Proc. PELGA 2016: 532-544in press. At https://link.springer.com/chapter/10.1007%2F978-3-319-58943-5_43
- Petra Selmer, Alexandra Poulovassilis, Peter T. Wood:
Implementing Flexible Operators for Regular Path Queries. Proc. EDBT/ICDT Workshops 2015: 149-156. At <http://ceur-ws.org/Vol-1330/paper-25.pdf>
- Riccardo Frosini, Andrea Calì, Alexandra Poulovassilis, Peter T. Wood
Flexible Query Processing for SPARQL, Semantic Web Journal, 2016, 8(4): 533-563. At <http://www.semantic-web-journal.net/system/files/swj1219.pdf>

This research will be part of a broader ongoing research programme involving Neo4j, Birkbeck and TU Eindhoven. The empirical work will focus on Neo4j's Cypher language (<http://www.opencypher.org>) and will be undertaken in collaboration with Neo4j.

The PhD student will be supervised jointly by Prof. Alex Poulovassilis from Birkbeck (ap@dcs.bbk.ac.uk <http://www.dcs.bbk.ac.uk/~ap/>) and Prof. George Fletcher from TU Eindhoven (g.h.l.fletcher@tue.nl <http://www.win.tue.nl/~gfletche/>), either of whom applicants may contact for further information.

Closing date for applications: 15 September 2019

Who is eligible?

The studentship is open to full-time Home or EU students.

Applicants should have a minimum of a 2.1 Bachelors degree (or equivalent) in computing, or in a branch of science or engineering with strong numerical ability and programming skills.

How to apply

Candidates must submit a college Application Form for a place in the MPhil/PhD programme and clear state in their application that they are interested in *The Neo4j Studentship in Advanced Database Technologies*.

Candidates should also submit a research statement explaining their interest in this area, and be prepared attend an interview either in person or online.

The Application Form, detailed CV, transcripts of previous studies, and research statement should be submitted online through the webpage at:

<http://www.bbk.ac.uk/study/2019/phd/programmes/RMPCOSCI>