

UCL DEPARTMENT OF COMPUTER SCIENCE

UCL Adastral Park Postgraduate Research and Teaching Campus

PhD Studentship

Optimisation Techniques for Network Control

UCL and BT wish to advertise the availability of an EPSRC CASE studentship, offered in conjunction with the India-UK Advanced Technology Centre Virtual Graduate Research School (IU-ATC VGRS). The VGRS is a collaborative activity between leading universities and companies in India and the UK and its intention is to foster cooperative research between our two countries, specifically in the field of Next Generation Networking. It is in part supported by both UK and Indian government funding.

The aim of the proposed research project is to apply optimisation theory to real control problems in large scale networking. It will require development of the theoretical framework, as well as relating this to the particular network context and technology in mind. Application areas of particular interest include:

- 1) Quality of Service specification and provision, specifically bandwidth allocation techniques in backhaul networks.
- 2) Admission control mechanisms and their relationship to capacity planning
- 3) Overload management for call control servers
- 4) Resilient routing

All such control systems must operate (and remain stable) in the presence of the uncertainty arising from loss and variable delays and must seek to optimise operational parameters on timescales that are appropriate to the application in hand. Such requirements mandate the development of a solid theoretical base, on the basis of which experiments can be planned, conducted and the results analysed.

The successful candidate will have good mathematical skills and inclination. A background in optimisation theory, machine learning, stability analysis or stochastic processes is desirable, as is a solid grounding in networking technologies and protocols. Experience in experimental design and data analysis would be welcome. The candidate is expected to work closely with BT's research department, and would be expected to spend time at both UCL's Adastral Park location, near Ipswich, and in visiting our VGRS partners in India.

Please note that all applicants must comply with the eligibility guidelines set out in the EPSRC's "Guide to EPSRC Directly-Funded Postgraduate Training" (<http://www.epsrc.ac.uk/CMSWeb/Downloads/Publications/Other/GuideToEPSRCDirectlyFundedPostgraduateTraining.doc>). This mandates a close connection to the UK, typically meaning that unless you have been resident in the UK for a number of years you will not be eligible.

Applicants must complete a standard UCL post-graduate application form. Guidelines and application forms are available here: <http://www.ucl.ac.uk/prospective-students/graduate-study/application-admission>. Make sure you specify **PhD - "Optimisation Techniques for Network Control"** on the part of the form that asks what you are applying for. After you fill in this form, please send it to the Postgraduate Administrator (PhD), Department of Computer Science, University College London, Gower Street, London, WC1E 6BT.

Details of the PhD program at UCL are on the UCL Department of Computer Science web site: http://www.cs.ucl.ac.uk/research/students/phd_info.html. For inquiries about the project itself, please contact Dr. Stephen Hailes (s.hailes 'at' cs.ucl.ac.uk).

For enquiries about the application process please email postgradadmin@cs.ucl.ac.uk

The closing date for applications is Friday, 23 May 2008.