



PhD Studentship in collaboration with HUBER+SUHNER Polatis: Towards 1000-times capacity increase for Self-x Cloud network infrastructure

Duration of study: Fulltime - four years fixed term

Starting date: October 2019

Application deadline: Closing date for application is 31st May 2019

Primary Supervisor: Dr George Zervas, University College London

Industrial Supervisor: Dr Michael Enrico, HUBER+SUHNER Polatis

Project Description:

Data Centres of different sizes form the backbone of the Cloud, Edge and Mobile Computing. They shape the digital infrastructure for next generation applications and services across Internet of Things, 5G, artificial intelligence, virtual and augmented reality as well as Tactile Internet among others.

The PhD project will investigate optical switching technologies, systems and networks to support next generation Data Centres. Of particular focus and interest to be explored are elements on scalable optical switching fabrics (from single switches to reconfigurable topologies) to support 1000s of optical channels (by looking into ultra-wideband wavelength division multiplexing as well as space division multiplexing) and expanding to accommodate millions of end points (servers, disaggregated compute/memory/accelerators). For example, the integration of advanced optical and signal monitoring capabilities into optical switch fabrics will be investigated. Machine-learning methods and algorithms will be explored to deliver dynamic *self-x* (configuring, monitoring, planning, learning, repairing and optimising) systems and networks.

The activities will be supervised by Dr. George Zervas (University College London), as well as Dr. Michael Enrico (HUBER+SUHNER Polatis). The successful candidate will be based at the Department of Electronic and Electrical Engineering at UCL enjoying the benefits of world leading Optical Networks Group expertise and experimental facilities while expected to frequently visit HUBER+SUHNER Polatis in Cambridge, to develop realistic test conditions. Considering the under 1-hour distance between UCL and HUBER+SUHNER Polatis, the successful applicant will benefit from frequent face-to-face meetings with industrial researchers.

Funding: This is a fully funded 4-year iCASE PhD studentship to cover the **Home/UK and EU students** tuition fees plus a stipend of £16,777/year (2018/2019) tax-free for living costs (increasing with inflation) as well as a generous top-up contribution towards travel and consumables.

Qualifications required: Candidates should have or expect to achieve an excellent degree(s) (BEng/MEng/MSc) in Electronic Engineering, Computer Science or related discipline. The ideal candidate would have the following skills:

- Understanding of optical communications and networks.
- Machine learning and optimization algorithms for resource allocation and data transport.

How to apply: Applications must be made using the UCL [online application system](#) and indicate the name of “primary supervisor” and “Polatis-iCASE”. This includes entry and English language requirements.

<https://www.ucl.ac.uk/prospective-students/graduate/research-degrees/electronic-electrical-engineering-mphil-phd>

The application must be accompanied by a research proposal that also includes a literature review. It will also describe how your profile, knowledge and skills will suit the project. Two references should be included.

Contact: For informal enquires please contact Dr. George Zervas, g.zervas@ucl.ac.uk