

Reference: R210068

Salary: (with family allowance) £39,500.00; (without family allowance)
£36,000.00

Contract Type: Fixed Term, 3 yrs

Basis: Full time

Closing Date: 03.05.2021

Interview Date: 26.05.2021

Early Stage Researcher (PhD student)

Candidate brief



Job description

Job Purpose: MENTOR ESR1: Complexity reduction and data augmentation for deep machine learning-based optical transmission systems.

Applications are invited by Aston Institute of Photonic Technologies (AIPt) for prestigious three year postgraduate position (leading to a PhD) as Early Stage Researcher within the European Industrial Doctorate Training Network project MENTOR. The project is supported through the Horizon 2020 Marie Skłodowska-Curie Actions (MSCA) and includes a fee bursary to fully cover the PhD tuition fees.

Notably, 50% of the study and research period to be spent in the industrial sector with the project industrial partners in Infinera (Germany, Portugal), Orange (France), and Telecom Italy.

Main Duties and Responsibilities

- To simulate single-channel and WDM optical transmission systems
- To collect synthetic and experimental data
- To design, train, and test the equalizers based on deep neural networks for the optical line impairments mitigation
- To optimise of the most promising neural network designs
- To develop the augmentation techniques for the efficient neural networks training
- To perform quantization and binarisation of neural networks for the complexity reduction
- To develop transfer learning methods for improving the generalizability of the neural network-based equalizers
- To contribute to publications of research outcomes in high impact journals and major international conferences.
- To contribute to the delivery of reports associated with assigned projects.
- To contribute to research initiatives with colleagues in and beyond the project as appropriate.
- To engage in training and professional development programmes in the University consistent with personal needs and aspirations and with the strategic goals of the Institute.
- To support the development of further research proposals.
- To undertake such other duties as reasonably requested by the supervisor(s).

Additional responsibilities

- Engage in continuous personal and professional development in line with the demands of the role, including undertaking relevant training and development activities to develop themselves and support the development of others.
- Ensure and promote the personal health, safety and wellbeing of staff and students.
- Carry out duties in a way which promotes fairness in all matters and which engenders trust.
- Promote equality of opportunity and support diversity and inclusion as well as working to support the University's environmental sustainability agenda and practices.

Person specification

	Essential	Method of assessment
Education and qualifications	<p>BSc or MSc qualification in Electrical and Electronic Engineering, Physics, Applied/Numerical Mathematics, Computer Science, or equivalent.</p> <p>Applicants must be Early Stage Researchers</p>	Application form
Experience	Exceptional skills in engineering, or physics, and/or computer science, with the knowledge of machine learning and/or some expertise in the areas related to nonlinear optics and photonics, or electrical engineering.	Application form and interview
Aptitude and skills	<p>Creative problem solving skills</p> <p>Excellent English Language: Minimum requirements can be found in the section “English Language Entry Requirements”</p> <p>Ability to contribute and coordinate collaborative project reports and deliverables</p> <p>Ability to present data in both a clear and concise manner</p> <p>Ability to prepare written and oral communications to a high standard</p> <p>A willingness to undertake further training as appropriate and to adopt new procedures as and when required</p>	Application form and interview

	Desirable	Method of assessment
Education and qualifications	MSc qualification in Physics, Electrical Engineering, Applied Mathematics, Computer Science, or equivalent	Application form
Experience	Experience in optical communications, machine learning, deep neural networks, knowledge of scientific programming and computing, physical optics, information theory, statistical analysis, communications	Application form and interview

	Desirable	Method of assessment
	<p>Experience of initiating and conducting research up to doctoral level</p> <p>Experience of writing up/contributing to the write up of research of high quality publications</p> <p>Experience of producing papers, posters, reports presenting at seminars, conferences etc.</p> <p>Experience of positive collaboration within and outside the immediate research team</p>	
Aptitude and Skills	Python, TensorFlow, statistical analysis	Interview

How to apply

You can apply for this role online via our website <https://www2.aston.ac.uk/staff-public/hr/jobs>. Applications should be submitted by 23.59pm on the advertised closing date. All applicants must complete an application form, along with your CV.

Any CV sent direct to the Recruitment Team and Recruiting Manager will not be accepted. If you require a manual application form then please contact the Recruitment Team via jobs@aston.ac.uk.

Contact information

Enquiries about the vacancy:

Name: Sergei Turitsyn

Job Title: Professor, AIPT Director

Email: s.k.turitsyn@aston.ac.uk

Enquiries about the application process, shortlisting or interviews:

Recruitment Team via jobs@aston.ac.uk or 0121 204 4500.

Additional Information

Visit our website <https://www2.aston.ac.uk/staff-public/hr> for full details of our salary scales and benefits
Aston University staff enjoy

Salary scales: <https://www2.aston.ac.uk/staff-public/hr/payroll-and-pensions/salary-scales/index>

Benefits: <https://www2.aston.ac.uk/staff-public/hr/Benefits-and-Rewards/index>

Working in Birmingham: <https://www2.aston.ac.uk/birmingham>

Employment of Ex-Offenders: Under the Rehabilitation of Offenders Act 1974, a person with a criminal record is not required to disclose any spent convictions unless the positions they applying for is listed an exception under the act.

Eligibility to work in the UK:

Post-Brexit transition period / EU Settlement Scheme

The post-Brexit transition period ended on 31 December 2020. If you are an EU/EEA citizen and you were a resident in the UK before 31 December 2020, you and your family members (including non-EU citizens need to apply to the EU Settlement Scheme to continue to live, work and study in the UK beyond 30 June 2021. The deadline for applying to the EU settlement scheme is 30 June 2021. You can apply via the Government webpage <https://www.gov.uk/settled-status-eu-citizens-families>

Irish Nationals do not need to apply for settlement as they retain the right to work in the UK.

New immigration system for EU/EEA and Swiss Nationals who were not resident in the UK before 31 December 2020

A new immigration system has been introduced for people arriving in the UK from EEA countries with effect from 1 January 2021. In addition to those who have always required a visa, EU citizens moving to the UK to work will need to get a visa in advance. You can find more information on the following website. Candidates should check their eligibility to enter or remain in the UK in advance of making any job application via the UKVI website <https://www.gov.uk/browse/visas-immigration/work-visas>. Before applying you should ensure that you meet the requirements. If you do not meet the eligibility criteria, any application for a work visa would be unsuccessful.

If you require a visa to work in the UK the most common types of visa are:

Skilled Worker Visa

<https://www.gov.uk/skilled-worker-visa>

Global Talent Visa

If you are a leader or potential leader in one of the following fields you may be eligible to apply for a Global Talent Visa:

- Academia or Research
- Arts and Culture
- Digital Technology

Please click the following link for further information and to check your eligibility for this visa.

<https://www.gov.uk/global-talent>

Equal Opportunities: Aston University promotes equality and diversity in all aspects of its work. We aim to ensure, through our admissions policies for students, and our staff recruitment and selection processes that we encourage applications from all groups represented in the wider community at a local, national and international level.

The University will endeavour not to discriminate unfairly or illegally, directly or indirectly, against student or potential students, staff or potential staff. This commitment applies to all functions of the University and to any stage of an individual's career.

An Equal Opportunities Monitoring Form is included within the application form. Data you provide on the Equal Opportunities Monitoring Form will be included in a general database, for statistical monitoring purposes, enabling the University to monitor the effectiveness of its Policy, Codes of Practice and Guidelines on Equal Opportunities in Employment. Individuals will not be identified by name.

Data Protection: Your personal data will be processed in compliance with the Data Protection Act 2018 and the General Data Protection Regulation ((EU) 2016/679) ("GDPR"). The University's Data Protection Policy and Privacy Notices, including the Job Applicant Privacy Notice can be found at <https://www2.aston.ac.uk/data-protection>. Your application will only be used to inform the selection process, unless you are successful, in which case it will form the basis of your personal record with the University which will be stored in manual and/or electronic files. Information in statistical form on present and former employees is given to appropriate outside bodies.

Full details of our terms and conditions of service and associated policies and procedures are available online at <https://www2.aston.ac.uk/staff-public/hr/policies>



