Marie Curie Early Stage Researcher
ETN Lowcomote
Department of Computer Science

Closing date: 24 April 2019
Interview date: To be confirmed
Vacancy reference: 7423
INTRODUCTION

The CS department has been granted 2 PhD positions ("Early Stage Researchers" or "ESRs") to be funded by the Marie-Sklodowska-Curie Innovative Training Network "Lowcomote - Training the Next Generation of Experts in Scalable Low-Code Engineering Platforms" within the Horizon 2020 Programme of the European Commission. Lowcomote is a consortium of high profile universities, research institutions and companies located in UK, France, Spain, Italy, Austria and Hungary.

Each ESR will carry out research in a specific sub-area of low code engineering platforms, supporting the department's range of existing work in this area.

The ESRs will have regular contacts with the other 13 ESRs in the Lowcomote ETN and their supervisors.

Both ESRs will be managed, and their PhDs primarily supervised, by Professor Dimitris Kolovos.

ESR 11 — Intelligent Run-Time Partitioning of Low-Code System Models

ESR 12 — Heterogeneous Low-Code Model Query Optimisation
Main purpose of the role

Each of the ESRs will carry out research on low-code engineering platforms, in a specific area determined by the project they choose to apply for:

- **ESR 11: "Intelligent Run-Time Partitioning of Low-Code System Models"** will design and implement next-generation execution engines for model management (e.g., model transformation, code generation, model validation) languages, which will leverage sophisticated static program analysis to identify, load, process, and transparently discard relevant partitions of low-code system models, instead of naively loading such models into memory and keeping them loaded for the duration of the execution of the program.

- **ESR 12: "Heterogeneous Low-Code Model Query Optimisation"** will produce novel techniques and algorithms for optimisation of queries operating on low-code system models captured using different modelling languages and model representation formats. They will also produce an open-source prototype that will implement the identified algorithms and techniques on top of existing model query languages.

Both ESRs are required to enrol on a full-time PhD degree. In pursuing this they will be supported by a carefully chosen supervisory team that maximizes both scientific excellence as well as interdisciplinary and intersectoral collaboration.

In addition to their individual scientific projects, all fellows will pursue further continuing education, which includes secondments, a variety of training modules as well as transferable skills courses and active participation in workshops and conferences.

Key responsibilities

(Role holders will be required to undertake some or all of the duties below)

- To enrol in and meet the requirements of York’s full-time PhD programme in Computer Science
- To conduct individual and collaborative research projects, duties to include: analysis and interpretation of research data; use of appropriate research techniques and methods; writing up of research results and dissemination through publications, seminar and conference presentations and public engagement and outreach activities; contributing to the identification of possible new areas of research
- To contribute to the preparation of research proposals and applications to external bodies
- To undertake appropriate organisational and administrative activities connected to the research project, including conference organisation, and the development of promotional or educational material including website maintenance and development
- To develop and initiate collaborative working internally and externally, duties to include: the building of internal contacts and participation in internal networks; collaboration with colleagues on joint projects as required; participation in and identification of external networks in order to share information and identify potential opportunities for collaboration and possible sources of funding; attendance at and contribution to relevant meetings
- To provide guidance to other staff and students, as required, as well as coordinating the work of small research teams
- To assist with undergraduate teaching in own area of expertise

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**JOB DESCRIPTION**

**At a glance**

<table>
<thead>
<tr>
<th>Salary</th>
<th>£43,130 a year or £47,200 (Family allowance if applicable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hours of work</td>
<td>Full time, 37 hours a week</td>
</tr>
<tr>
<td>Contract type</td>
<td>Fixed term for 36 months</td>
</tr>
<tr>
<td>Based at</td>
<td>Heslington Campus East</td>
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</tbody>
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# PERSON SPECIFICATION

<table>
<thead>
<tr>
<th>Qualifications</th>
<th>Essential / Desirable</th>
</tr>
</thead>
<tbody>
<tr>
<td>First degree in Computer Science or a closely-related discipline</td>
<td>Essential</td>
</tr>
<tr>
<td>Master's degree in Computer Science or a closely-related discipline</td>
<td>Desirable</td>
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## Knowledge

<table>
<thead>
<tr>
<th>Knowledge</th>
<th>Essential / Desirable</th>
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<tbody>
<tr>
<td>Knowledge of software engineering sufficient to engage in high quality research</td>
<td>Essential</td>
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<tr>
<td>Knowledge of at least one object-oriented programming language</td>
<td>Essential</td>
</tr>
<tr>
<td>Knowledge of data structures and algorithms</td>
<td>Essential</td>
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<tr>
<td>Knowledge of relational databases</td>
<td>Essential</td>
</tr>
<tr>
<td>Knowledge of non-relational databases</td>
<td>Desirable</td>
</tr>
</tbody>
</table>

## Skills, abilities and competencies

<table>
<thead>
<tr>
<th>Skills, abilities and competencies</th>
<th>Essential / Desirable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ability to undertake academic research</td>
<td>Essential</td>
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<tr>
<td>Ability to organise own research activities to agreed deadlines and quality standards</td>
<td>Essential</td>
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<tr>
<td>Strong written communication in order to contribute effectively to the production of research reports and publications</td>
<td>Essential</td>
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<tr>
<td>High level oral communication skills to enable the effective presentation of research progress and outcomes to key stakeholders</td>
<td>Essential</td>
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<tr>
<td>Ability to work as part of a team and also to work independently using own initiative</td>
<td>Essential</td>
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</table>
# PERSON SPECIFICATION

## Experience

<table>
<thead>
<tr>
<th>Experience</th>
<th>Essential / Desirable</th>
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<tbody>
<tr>
<td>Experience of undertaking an extensive project in Computer Science or a related field</td>
<td>Essential</td>
</tr>
<tr>
<td>Experience of carrying out both independent and collaborative research</td>
<td>Desirable</td>
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<tr>
<td>Experience of writing up research work for publication</td>
<td>Desirable</td>
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</table>

## Personal attributes

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Essential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attention to detail and commitment to high quality</td>
<td>Essential</td>
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<tr>
<td>Collaborative ethos</td>
<td>Essential</td>
</tr>
<tr>
<td>Interest in and enthusiasm for the subject matter of the specific ESR</td>
<td>Essential</td>
</tr>
<tr>
<td>Positive attitude to colleagues and students</td>
<td>Essential</td>
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<tr>
<td>A passion for conducting high quality research with impact</td>
<td>Essential</td>
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<tr>
<td>Willingness to work proactively with colleagues in other work areas/institutions</td>
<td>Essential</td>
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<tr>
<td>Ability to plan and prioritise own work in order to meet deadlines</td>
<td>Essential</td>
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<tr>
<td>Commitment to personal development and updating of knowledge and skills</td>
<td>Essential</td>
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</table>
The Department of Computer Science has a very strong international research record. The Research Excellence Framework (REF) 2014 results ranked York’s Computer Science 7th overall in the UK, 5th for impact and 6th for environment. 90% of our academic staff were rated as “world leading” or “internationally excellent”. This result confirms the longstanding global reach and real-world significance of the Department’s research and makes us one of the best departments in the country for nurturing excellent research and achieving economic, social and cultural impact from research. All aspects of our impact and environment were judged to be of world-leading or international standard.

The Department has strong and longstanding links with industry, including strategic partnerships with several large companies including IBM. The Department is also highly regarded for its Continuing Professional Development courses.

The Department has four key research themes that are central to our expertise and understanding of interdisciplinary computer science research: Critical Systems; People, Health and Wellbeing; Analytics; and Beyond Human Vision. The themes are supported by researchers specialising in Cyber-Security, Real-Time and Embedded Systems, Enterprise Systems, High Integrity Systems, Computer Vision and Pattern Recognition, Human Computer Interaction, Artificial Intelligence, High Performance Computing and Computer Architecture.

The Department also has four unique research centres which span several departments and reflect the interdisciplinary approach of our work: York Cross-disciplinary Centre for Systems Analysis; Digital Creativity Labs; Quantum Communications Hub; and the Assuring Autonomy International Programme. These centres are tackling some of the major challenges currently facing computer science including how to assure and regulate robotics and autonomous systems that learn as they operate, and how to advance quantum communication technologies, so they can be launched and adopted.

The Department is housed in modern, purpose-built accommodation within the Heslington Campus East. We have 59 members of academic and teaching staff and 37 research associates and fellows employed on research grants and contracts. Seven specialist teaching staff deliver modules to industry as part of our highly regarded CPD programme in safety critical systems. We have a vibrant graduate school of approximately 180 research students, and over 640 undergraduate and approximately 220 full-time and part-time taught postgraduate students. The Professional Support Service comprises 27 administrative staff and 12 technical and computing staff.

The Department of Computer Science and the University is committed to promoting a diverse and inclusive community - a place where we can all be ourselves and succeed on merit.
THE DEPARTMENT

We offer a range of family friendly, inclusive employment policies, flexible working arrangements, staff engagement forums, campus facilities and services to support staff from different backgrounds.
The University of York opened in 1963 with just 230 students. In 2019 it is the home of more than 18,000 students across more than 30 academic departments and research centres. Since opening over fifty years ago, we have become one of the world's leading universities and a member of the prestigious Russell Group.

We are consistently recognised as one of the leading Higher Education Institutes and one of just six post-war universities to have appeared in the world top 100. We were rated 22nd in the 2019 Times & Sunday Times league table. The University of York has won six Times Higher Education (THE) Awards and five Queen’s Anniversary Prizes.

The University is proud of its association with Athena SWAN, holding multiple awards in support of gender equality, representation and success for all, with gold awards for Chemistry and Biology and a University-wide bronze award.

Of 154 universities that took part in the Research Excellence Framework (REF) in 2014, The University of York ranked 14th overall and 10th for the impact of our research. The University is consistently in the top ten UK research universities and attracts over £60m a year of funding from research alone.

Our vision is to make the University of York a world leader in the creation of knowledge through fundamental and applied research, the sharing of knowledge by teaching students from varied backgrounds and the application of knowledge for the health, prosperity and well-being of people and society.
Attractive workplace

Centred around the picturesque village of Heslington on the edge of the city of York, our colleges are set in an attractive landscaped campus. York enjoys a safe, friendly atmosphere with facilities including bars, shops, theatres and concert halls all within easy walking distance.

The University has undergone an unprecedented period of expansion and renewal since 2000. We have invested in twenty new buildings on the original campus and have completed the first and second phases of a £750m campus expansion. Our investment in new colleges, teaching and learning spaces, laboratories, research facilities and a new sports village mean there has never been a better time to join us.

During this period of change we’ve worked hard to retain our friendly, informal and collegiate atmosphere, which is important to our core values of inclusivity and interdisciplinarity.

We have a thriving international community and are committed to providing staff moving to York with as much support as possible through our Relocation Package and Welcome Officers.

The University is committed to promoting a diverse and inclusive community - a place where we can all be ourselves and succeed on merit. We offer a range of family friendly, inclusive employment policies, flexible working arrangements, staff engagement forums, campus facilities and services to support staff from different backgrounds.

For further information please visit our employee benefit pages.
THE CITY AND THE REGION

The City of York

Internationally acclaimed for its rich heritage and historic architecture, York’s bustling streets are filled with visitors from all over the world. Within its medieval walls you will find the iconic gothic Minster, Clifford’s Tower and the Shambles – just a few of the many attractions.

But York isn’t just a great place to visit - it’s also a great place to live and work. While nourishing a vibrant cosmopolitan atmosphere, York still maintains the friendly sense of community unique to a small city.

Visit www.visityork.org for more information on the city of York

Shopping, culture and entertainment

York boasts specialist and unique boutiques but also all the high street stores on its busy shopping streets. Alongside them you will find cinemas, theatres, an opera house, art galleries, a vast range of restaurants, live music venues and clubs. York is particularly renowned for its multitude of pubs and bars, from the modern to the medieval.

Housing and schools

Whether you choose to live close to the city, in one of the surrounding villages or further afield, you will find a wide range of housing within comfortable distance of York and the University. For families, the area has a range of excellent schools both in the state and independent sector.

Great location

York is one of Britain’s best-connected cities. Halfway between London and Edinburgh on the East Coast mainline, on intercity trains you can reach London King’s Cross in less than two hours and Edinburgh in two and a half hours. York is also well served by road links, and it is easily accessible from the A1, M1 and the M62.

For those travelling from overseas, Manchester Airport is two hours away and Heathrow Airport just three and a half. Flights from nearby Leeds Bradford Airport provide easy access to mainland Europe. By Eurostar from London St Pancras, Paris is just over six hours away.

Yorkshire

The Lonely Planet guide recently declared Yorkshire the third best region in the world to visit. There is something to cater to every taste, whether it be the rugged landscapes of the Moors or the Dales, the picturesque seaside towns of Scarborough and Robin Hoods Bay, the gothic architecture of Whitby or the vibrancy of cosmopolitan Leeds.
Apply online

- Go to [https://jobs.york.ac.uk](https://jobs.york.ac.uk)
- Find this job using reference 7423
- Complete the online application form

You will need to submit your completed application by midnight (local UK time) on 24 April 2019

What will I need?

You will need to upload:

- your CV
- a letter describing how you meet the requirements of the job

You will also need details of X referees.

Help and assistance

Direct any informal queries to Dimitris.kolovos@york.ac.uk

If you have any questions about your application, contact the HR Services team:

recruitment@york.ac.uk

+44 (0)1904 324835