



## PhD Opportunity in Computer Science – [R@ISE Strategic Partnership Programme](#)

### University of Limerick

**\*\*\* Multiple positions available\*\*\***

**Keywords:** Software development platforms, model-driven development, low-code/no-code application development, Digital Thread, formal methods, software architectures

#### Supervisors: (one or more)

- ☐ Prof. Tiziana Margaria
- ☐ Prof. Mike Hinchey
- ☐ Dr. Salim Saay

#### Why choose R@ISE?

R@ISE (Research at Immersive Software Engineering) is an exciting collaborative project between University of Limerick, Analog Devices, Stripe, Tines, Johnson & Johnson, and Limerick City and County Council co-funded by Science Foundation Ireland. As a R@ISE PhD student, you will be at the forefront of software platform and application development, with a strong reliance on advanced model-driven development technologies, formal methods, and data science support.

As a R@ISE PhD student you will have the chance to make a real impact across a range of domains including industry, the public sector, and wider society.

Being part of the R@ISE ecosystem, you will have the chance to engage directly with our partner companies here in Ireland, as well as the extensive international network of R@ISE collaborators.



**Description:**

We offer an opportunity to join the exciting [R@ISE Strategic Partnership Program](#) in a collaboration between Prof. Tiziana Margaria, Prof. Mike Hinchey, Dr Salim Saay (Computer Science, UL), industry partners Analog Devices, Stripe, Tines, Johnson & Johnson, and Limerick City and County Council. R@ISE aims to create, deploy, and evaluate an advanced open-source software development framework for low-code/no-code application development of high assurance systems.

Funded by Science Foundation Ireland and the industry partners, this project is located at the nexus of software platform and application development, with a strong reliance on advanced model-driven development technologies, formal methods, AI/ML, and data science support.

You will work as part of the multidisciplinary team drawn from the specialties of Computer Science, Human-computer Interaction, Education and Innovation, and Analytics. The specific positions being currently advertised offer research, design, and development responsibilities covering the Computer Science and software aspects within the project, under the supervision of one or more of Prof. Margaria, Prof. Hinchey and Dr. Saay in UL.

Your role will cover research, software system design and development as needed to build a new generation of design, development and analytics platform for the design and evaluation of low-code/no-code application development. The new platform needs to be robust and easily evolvable, so that it can include, over time, all the services needed for modern and future customization, evolution, analysis and refinement. It is an open-source, open access platform, as we address among other goals also the ease of access and adoption, and the democratization of complex application development, lowering the barriers to access, adoption and proficiency. The platform will provide interfaces to the devices and facilitate the design of applications for the design and evaluation of the domain specific applications in a low-code approach enhanced by rigorous analysis and verification methods.

As all three supervisors are members of [Lero](#) – the Science Foundation Ireland Research Centre for Software, successful candidates may additionally be affiliated with Lero. Lero brings together expert software teams from universities and institutes of technology across Ireland in a co-ordinated centre of research excellence with a strong industry focus.

**Benefits:**

These fully funded PhD positions offer

- €22,000 stipend per annum (max 4 years), which is normally tax-exempt
- tuition fees are also covered by R@ISE
- funding for equipment, conferences (including travel costs where appropriate), & publications

The candidates will gain access to [UL's exceptional student facilities and services](#) (such as clubs, concerts, sports centre, campus pubs, etc.).



### **Job Requirements/ Experience/ Skills**

We are particularly seeking candidates who possess the following attributes/ skills:

1. A degree (level 8 NFQ – 1<sup>st</sup> class or MSc) in Computer Science or similar discipline, or proven ability in a relevant industry or research context
2. Ability to work as part of an interdisciplinary team
3. Self-motivated, output-driven candidates with good communication and presentation skills
4. Evidence of report writing skills
5. Knowledge and experience in three or more of the following areas:
  - Development in Java and other programming languages/paradigms
  - Familiarity and experience of Model Driven Design and Development concepts and tools
  - Familiarity with agile software development, agile project management, DevOps
  - Ontologies, linked data or similar domain description techniques
  - Data science/analytics, information system design and development

### **Desirable Competences:**

The following attributes are desirable, but not required:

- ☐ Experience with and understanding of cyberphysical systems; security, privacy and trust; microservice and cloud architectures
- ☐ Experience of web development (Angular JS or equivalent)
- ☐ Experience with machine learning tools (e.g., Scikit-learn, Tensorflow, PyTorch, etc.)
- ☐ Track record of publications/and conference papers in software modelling or programming, or system level design and implementation, or software design for data analytics.

### **About University of Limerick:**

The **University of Limerick (UL)** with close to 20,000 students, including more than 2,000 international students each year, is a young and enterprising university with a proud record of innovation in education and scholarship. A survey of Irish students recently voted UL Ireland's most popular university. The dynamic, entrepreneurial and pioneering values which drive UL's mission and strategy ensures that we capitalise on local, national and international engagement and connectivity.

We are renowned for providing an outstanding student experience and employability and conducting leading edge research. Our commitment is to make a difference by shaping the future through educating and empowering our undergraduate and postgraduate students. UL is situated on a superb riverside campus of over 130 hectares with the River Shannon as a unifying focal point. Outstanding recreational, cultural and sporting facilities further enhance this exceptional learning and research environment.



**Duration:** 48 Months

**Status:** Full-time

**Stipend:** €22.000 /year (normally tax free if no other sources of income) plus tuition fees

**Commencement:** July 2024 (or as soon as possible after)

**Application procedure:**

To apply, please fill out the application form here: [R@ISE PhD Application Form](#). Please note, you will be asked to sign in to your Google Account in order to submit an application. If you have any difficulties, please email [sean.obrien@ul.ie](mailto:sean.obrien@ul.ie).

Please note, as part of your application you will be required to submit the following. These documents **must be submitted as a single PDF file**:

- ☐ A cover letter describing how you meet the criteria, with a description of your previous software development experience
- ☐ Your CV outlining relevant academic and practical experience
- ☐ Details of at least two referees.
- ☐ Full transcript of records of your university-level studies so far
- ☐ Previous publications or previous significant work (thesis, final year project, or similar). Links to an online free access repository are sufficient.

Shortlisted applicants may be invited to interview.

On receiving an offer, the successful applicant will be required to submit supporting documentation (e.g., Copies of degree certificates and English language competency where required).

**Application End Date:** Applications will be accepted until all of the positions are filled. We expect to recruit **10 to 12 PhD students in this call**. Interviews will be carried out as soon as suitable candidates are identified.

For informal information enquiries please feel free to contact the R@ISE project Director [Tiziana.Margaria@ul.ie](mailto:Tiziana.Margaria@ul.ie)

