

## RESOURCING/

### JOB DESCRIPTION:

#### Early Stage Researcher



<b>Ref Number:</b>	<b>STM-105-20</b>
<b>Salary Scale:</b>	<b>Minimum £35,000 per annum - total salary will include living and mobility allowances in accordance with the Marie Skłodowska-Curie action financial regulations, family allowance may also be payable (if applicable)</b>
<b>Contract:</b>	<b>Fixed period of 36 months and Full-time</b>
<b>School/Department:</b>	<b>School of Engineering and Digital Arts</b>
<b>Location:</b>	<b>University of Kent, Canterbury Campus</b>
<b>Responsible to<sup>1</sup>:</b>	<b>Professor Farzin Deravi</b>
<b>Closing Date for applications:</b>	<b>9 February 2020</b>
<b>Interviews are expected to be held on:</b>	<b>TBC – at the Network-wide Selection Event</b>
<b>Expected start date:</b>	<b>1 October 2020</b>

#### The Role

PriMa (Privacy Matters) is an Innovative Training Network (ITN) funded by the EU through the Horizon 2020 Framework. PriMa is a collaboration between 7 research locations and 7 industrial partner organisations with a focus on the analysis and mitigation of privacy risks in a rapidly digitalising society. One factor contributing to the erosion of privacy is the growth in recognition technologies that not only facilitate the recognition of individuals but also the inference from biometric data of emotional state, gender, health, age, and even profession. Another factor is the fast advancement of artificial intelligence, allowing for extensive data mining, and aggregation, linkage and inference of personal information. Hence, there is a real possibility that acceptable privacy may become unattainable unless technological and societal steps are taken to allow citizens to regain control of their personal information.

The overall objectives of PriMa are:

- to train 14 creative, entrepreneurial, and innovative researchers as privacy protection experts

<sup>1</sup> Line Manager may be subject to change and will be confirmed in the employment contract issued to the successful candidate.



- to contribute to a full understanding of the multidisciplinary nature of privacy protection in a digitalised society and
- to contribute to the development of solutions that address this important societal challenge.

PriMa is currently recruiting for 14 PhD positions (i.e. 14 ESRs: Early Stage Researchers) across its 7 sites in 7 European countries. We are recruiting for two positions at the University of Kent.

***Shortlisted applicants will be invited to a Network-wide Selection Event scheduled to take place in Brussels in March 2020.***

The specific post at Kent is to undertake work in the following area:

*Mobile Device Background Sensors: Authentication vs Privacy*

Objectives: This project will study the data-richness of background sensor data elements obtained from mobile devices in a continuous authentication scenario. We shall explore how 'personalised' data elements are, thereby providing an analysis as to which elements can enable accurate authentication, and by extension require the most privacy protection. In particular, we shall examine the sensitivity of combinations of data elements, the ability to infer one data element from another and how individuals and groups may be able to resist such challenges to their privacy. To facilitate this research, we shall both use existing datasets and collect background sensor data from devices across a representative population, conducted under an ethically approved protocol. Subsequently we shall analyse the data channels using temporal assessment techniques such as dynamic time warping to assess both intra- and inter-person variation. Our privacy analysis will use these variation data to assess both the quantity and type of samples needed to cause privacy concerns in the ability to be able to recognise a user. Finally, we shall explore a range of mitigation/hiding methods to protect these data from exposure, whilst enabling the possibility of a contribution to continuous authentication.

Expected results: 1) A dataset of mobile platform background sensor channel data. 2) A statistical methodology defined and applied to data channel data-richness, as well as performance assessment of single and multiple sources of authentication information. 3) Methods for mitigating data leakage to ensure privacy protection balanced against usable continuous authentication demands.

Planned secondments: two secondments would take place within this project.

- A 4-month to Universidad Autónoma de Madrid, Spain where the ESR will interact with the research team working on mobile device interaction (e.g., swipe and signature) for continuous authentication and assess privacy metrics.
- A 4-month secondment with Callsign, London wherein the ESR would trial a series of commercial behavioural solutions with the collected data. The expected outcome of this secondment is a commercially-focused set of results quantifying privacy in different combinations of behavioural biometrics.

As a Marie Curie Early Stage Researcher, you shall at the time of recruitment be in the first four years (full-time equivalent research experience\*) of your research career and have not yet been awarded a doctoral degree. **At the time of recruitment, you shall not have resided or carried out your main activity (work, studies etc.) in the country of the host institution**



**(UK) for more than 12 months in the 3 years immediately prior to the reference date.**  
Compulsory national service and/or short stays such as holidays are not taken into account.  
**The Early Stage Researcher will be eligible to receive a family allowance as appropriate.**

*Informal enquires may be made directly to the ESR supervisor, Richard Guest, at r.m.guest@kent.ac.uk*

### Key Accountabilities / Primary Responsibilities

The position will be research based within the School of Engineering and Digital Arts. The primary responsibility will be to undertake the research programme as outlined by the PriMa grant. The post-holder will also:

- Interact with the supervisors at University of Kent and the other members of the consortium, coordinating activity across the consortium
- Write regular reports to the supervisor, transform research outcomes into high quality research papers and other project deliverables, communicate the results during regular meetings
- Maintain an up to date/detailed log of the research activity undertaken and of the results obtained

### Key Duties

The post holder will be expected to undertake the programme of work described for Kent as detailed in the work section of the PriMa consortium agreement and grant programme. Key duties include:

- Progress the research theme with diligence, independently and as part of the wider PriMa consortium, with constant reference to innovation
- To work closely with other researchers in the collaborating network. This may include travel to other sites for short-term research visits, in addition to the planned longer placements.
- Provide training support and advice to graduate and postdoctoral scientists and technicians as outlined by the grant holder.
- Attend and present at PriMa training activities and meetings as outlined in the wider programme, including at national/international conferences relevant to the research.
- Undertake secondments as indicated
- Report on progress regularly to the network and the rest of the research group.
- Write up their research findings for publication in leading peer-reviewed international journals.
- Help plan regular meetings between the network partners and present updates at these meetings.
- Engage in outreach activities.

The post holder will also be expected to undertake such other duties, commensurate with the grading of the post, which may be assigned by the grant holder or the Head of School or their nominee.

### Health, Safety & Wellbeing Considerations



This role involves undertaking duties which include the Health, Safety and wellbeing issues outlined below. Please be aware of these, when considering your suitability for the role.

- Regular use of Screen Display Equipment

### Internal & External Relationships

**Internal:** Students and staff in the School of Engineering and Digital Arts and other Schools

**External:** Externally the post holders will be expected to interact with the 14 ESRs across the consortium and the staff at these institutions. The post-holders will also interact with designated co-supervisors when on secondment at the relevant sites.

### Person Specification

The person specification details the necessary skills, qualifications, experience or other attributes needed to carry out the job. Applications are assessed against each of the criteria either at application or interview stage. Applications will be deemed unsuccessful if an essential criterion is not met. This may also help you self-select if you are suitable for the role.

Qualifications / Training	Essential	Desirable	Assessed via*
A minimum of a Masters degree (awarded or near completion) or equivalent in a relevant subject (e.g. computer science, electronics, mathematics or engineering). Your Masters Degree must be completed prior to the start date.	✓		A
English language proficiency	✓		A, I

Experience / Knowledge	Essential	Desirable	Assessed via*
Experience in writing and publishing scientific papers in computer science or other relevant disciplines		✓	A, I
Basic knowledge of security and biometric systems	✓		A, I
Experience of interdisciplinary research		✓	A, I

Skills / Abilities	Essential	Desirable	Assessed via*
Good interpersonal skills and ability to communicate technical information	✓		I
Good skills with software for presenting research results in publications and presentations	✓		A, I
Good general organisational skills	✓		I

Additional Attributes	Essential	Desirable	Assessed via*
Commitment to deliver within deadlines	✓		I
Interest in increasing skills across multiple disciplines within the broad field of cyber security	✓		I

**\*Criterion to be assessed via:**

- A** = application form or CV/cover letter
- I** = interview questions
- T** = test or presentation at interview

\*'Research Experience' means any professional or academic research activity acquired in any research field in the public or private sector. It does not include taught classes (such as, e.g., modules of a Master's programme), but only independent research activity. The duration of research experience is measured from the date when ESRs obtained a degree entitling them to embark on a doctorate (either in the country in which the degree was obtained or in the first country in which the ESR is recruited on this project), even if a doctorate was never started or envisaged. The period of the 'four years' is calculated not with reference to calendrical time but on the basis of full-time equivalent workloads. This means, for example, that if an ESR spent two years working or studying as a part-time researcher in any field at 50% of time, these two years count as one year of research experience. The limit of four years is to be understood as the maximum period of early research experience allowed at the point of application. If ESRs have fewer years of research experience, or none at all, they are eligible to apply. The cut-off point for the calculation of the length of prior research experience is the date of recruitment.

