



2018-IPR-E3-FGIV-010606

**FG IV - Project Officer - HPC Cryptanalysis
Researcher**

Position for:

**FG IV –
Project Officer – Scientific
Research**

As the science and knowledge service of the Commission, the mission of DG Joint Research Centre is to support EU policies with independent evidence throughout the whole policy cycle.

The JRC is located in 5 Member States (Belgium, Germany, Italy, the Netherlands and Spain). Further information is available at: <https://ec.europa.eu/jrc/>

The current vacancy is with the Cyber and Digital Citizens' Security Unit of the Directorate for Space, Security and Migration, located in Ispra, Italy. The mission of the Unit is to strengthen trust and security of the European Citizen in a sustainable and inclusive ICT-based European society by scientific research on how emerging Information and Communication Technologies will impact the security and privacy of citizens' daily life. The unit works on risk mitigation, cybersecurity, cybercrime, data protection, privacy and on the associated legal and regulatory frameworks.

We propose a Contractual Agent position FG IV in Ispra, Italy. The successful candidate will contribute to the activities of the Cyber and Digital Citizen Security Unit aiming at strengthening the citizen' security and privacy in the European Cyber-Space by exploring the challenge of encryption in the context of criminal investigations.

He/she will conduct scientific and technical studies in the area of cryptanalysis applied to cybersecurity and fight against cybercrime domains to support the development of the *Cyber Security Agenda*, the *European Agenda on Security*, the *Global Strategy for the European Union's Foreign and Security Policy* and the *Digital Single Market Strategy*.

The successful candidate will carry out the following tasks:

- Design and implementation of cryptanalysis techniques in the frame of forensic processes;
- Design and/or adaptation of Deep Learning (DL) models taking advantage of High-Performance Computing (HPC) environment for learning representations of various type of datasets related to encryption elements;
- Design and management of experimental testing campaigns (including data-gathering, modelling and analysis);
- Drafting of scientific papers and policy support reports.

Qualifications:

The successful candidate shall have a PhD degree - or a minimum of 5 years of full-time research or working experience after the first University degree giving access to doctoral (PhD) studies in the field of Mathematics, Information and Communication Technologies, Computer Science, Engineering, or equivalent.

The following qualifications are also required:

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| | <ul style="list-style-type: none"> • Solid knowledge of (multi-)linear algebra, number theory, probability theory, information theory, complexity theory particularly in the applied field of cryptography both symmetric and asymmetric (e.g. encryption, hash functions...); • Strong experience in programming (in C, Python, or other languages) and more broadly in computer/High-Performance Computing architecture, data structures and algorithmic; • Good knowledge of Deep Learning techniques and associated framework (e.g. Tensorflow, Keras); • Ability to work in a multi-national team; • Good level of spoken and written English (B2). <p>The following qualifications are an asset:</p> <ul style="list-style-type: none"> • Knowledge of Quantum programming languages (e.g., Q#, Cirq, QISKit...); • Familiarity with reverse engineering techniques and supporting applications such as commercial (IDA Pro, Hex-Rays, WinDb...) and Open Source (OllyDbg, Radare, GDB...) analysis tools; • Relevant publications in peer-reviewed conferences and journals; • Familiarity with cyber-security and cybercrime topics. |
| Directorate Unit | Space, Security and Migration Cyber and Digital Citizens' Security Further information: https://ec.europa.eu/jrc/ |
| Indicative duration | 36 months initial contract with possible renewals up to maximum 6 years |
| JRC Site Country | Ispra Italy |
| Rules and eligibility | <p>The candidate must be on any valid EPSO reserve list for Function Group IV contract staff.</p> <p>Applicants to the following Calls for expression of interest can also be considered:</p> <ol style="list-style-type: none"> 1. CAST Permanent - EPSO has launched in January 2017 an open-ended selection procedure to create a pool of candidates from which the institutions, bodies, offices and agencies of the European Union (EU) can recruit contract agents. Details available at the link below: https://epso.europa.eu/documents/2240_en 2. Call COM/1/2015/GFIV – Research - The JRC has launched in January 2015 a permanent call for researchers FG IV. Details available at the link below: https://ec.europa.eu/jrc/en/working-with-us/jobs/vacancies/function-group-IV-researchers <p>Auxiliary contract staff: https://ec.europa.eu/jrc/en/working-with-us/jobs/temporary-positions/contract-staff-members</p> <p>Article 3b of the Conditions of Employment of Other Servants of the European Union applies: the actual period</p> |

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| | <p>of employment within the Commission under this type of contract, including any period under renewal, shall not exceed 6 years.</p> |
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Please note that due to the high number of applications received only shortlisted candidates will be contacted.