*MSCA Doctoral Student in SecReSy4You Network*
*on Critical Cyber-Physical Systems Security and Resilience*
*with a Focus on Advanced Tracking for Situational Awareness*

Are you interested in working in a European doctoral network on the security and resilience of critical infrastructure, supported by leading researchers across Europe? Are you looking for an employer that invests in its people and offers excellent working conditions in an international research environment? We welcome you to apply for PhD positions in the SecReSy4You Doctoral Network, funded by the Marie Skłodowska-Curie Actions (MSCA).

This advertisement focuses on the position hosted by the Computer Science Department of the University of Malaga (UMA) located at Malaga (Andalusian, Spain), and more specifically by the research group Network, Information and Computer Security Laboratory (NICS Lab).

UMA is a public higher education institution that provides university education. Since its foundation in 1972, the UMA has rapidly expanded its presence and international prestige, comprising two campuses with 23 faculties and schools and 200 educational programmes (including undergraduate programmes, master's programmes, and PhD programmes). Within UMA, Computer Science School is located at the Campus de Teatinos, collaborating with various faculties to participate in a total of 16 Master's Degrees and 34 undergraduate and dual-degree programmes, as well as with enterprises to promote technology transfer and its dissemination.

Regarding NICS Lab, in which the PhD candidate will join, it is located at the Ada Byron Research Institute comprising more than 30 members. NICS Lab is a group of experts in the field of cybersecurity with extensive experience in research, both nationally and internationally. The group presents academic excellence and practical expertise in project management and leadership, having contributed to multiple R&D projects (both international and national) and doctoral theses with extensive experience in MSCA projects. Among the research fields, industrial cybersecurity stands out as one of the research team's most promising areas. It is in this area, in which the doctoral thesis will focus, will be supported by the extensive experience of its members, as also evidenced by the number of publications in the JCR and their active involvement in numerous projects in the research field.

For more information about NICS Lab, please visit the official website www.nics.uma.es and for a complete list of available positions beyond UMA, please visit the network's website www.secresy4you.eu.

## About the MSCA Doctoral Network

Critical infrastructures and cyber-physical systems face increasing risks from cyberattacks exploiting vulnerabilities in digital communication networks, embedded hardware, and software. These attacks have far-reaching consequences, including the potential to collect sensitive information, cause physical damage, and endanger human lives.

In response to these challenges, the European MSCA Doctoral Network SecReSy4You aims to train a new generation of 10 researchers in cybersecurity and resilience for Cyber-Physical

Systems (CPS). The 10 Doctoral Candidates (DC) will collaborate on modeling threat actors, developing scalable AI-based monitoring and control systems, and designing strategies to ensure long-term CPS protection. Through a comprehensive training program combining technical expertise with transferable skills, they will be well-prepared for careers in this rapidly evolving field. SecReSy4You will drive innovation in CPS security through cutting-edge research, industry collaboration, and the development of practical tools tailored to real-world challenges.

The network brings together leading research institutions and companies from Austria, Cyprus, Estonia, Germany, Italy, Spain, Sweden, and the Netherlands. It comprises 10 closely connected research projects and a joint doctoral training program.

## What is the Doctoral Project about

The aim of this PhD project is to improve situational awareness and its usefulness in critical control systems by applying a range of emerging technologies, theories, and approaches. Using digital twins, multi-agent systems, and artificial intelligence, amongst other disruptive technologies, combined with advanced tracking techniques, we intend to apply new strategies to locate, track and, where necessary, counter the source of a threat in the shortest possible time, providing robust solutions against potential attacks.

The PhD project therefore aims to provide proven approaches that identify a set of active cyber-defence measures and enable control systems to always monitor the cybersecurity statuses, so that the system itself can derivate threats and trigger security measures in advance against specific types of adversaries and attacks.

The specific details of the project will be provided once the applicant has successfully completed the selection process. As part of an MSCA Doctoral Network, the project includes extended research visits abroad of up to 6 months in total, including 3 months in University of Padova (Italy) and 3 months in S2Grupo (industry, Spain).

## Your Responsibilities and Duties

- Interdisciplinary research on cyber-physical system security, with a focus on secure control systems supported by situational awareness mechanisms under realistic threat scenarios.
- Publication of scientific results in top journals and at flagship conferences.
- Contributions to network-wide events and performing (transnational) academic and/or industrial secondments within Europe.

## Your Qualifications and Requirements

- To be eligible as a Doctoral student within Marie Skłodowska-Curie Actions, applicants must not have a doctoral degree at the time of recruitment[1]. Likewise, the MSCA mobility rule requires applicants not to have resided or carried out their main activity (work, studies,

[1] Researchers who have successfully defended their doctoral thesis but who have not yet formally been awarded the doctoral degree will not be considered eligible.

etc.) in the country of their host organization for more than 12 months in the 3 years immediately prior to the recruitment date.

- The applicant must hold a Master's degree in **Cybersecurity or Computer Science with a specialisation in cybersecurity**, where clearly have acquired substantially knowledge in the field of cybersecurity.
- Very good academic performance in previous studies.
- Strong and solid background in cybersecurity including detection, response, cryptography and control access; also, strong background in artificial intelligence, networks and its secure management, cyber-physical systems, and control.
- High proficiency in programming (C, C++, Python, MQTT, Matlab, among others) and dominance with industrial communication protocols such as ModbusTCP, OPC-UA, among others.
- Knowledge in digital twins, digital shadow systems, and/or multi-agent systems will be considered an advantage.
- High proficiency in English, both written and spoken.

Additional qualifications:

- Demonstrated high-quality analytical ability.
- Interpersonal and intrapersonal skills, such as initiative, creativity, communication and critical thinking for problem-solving both individually and in a group, maintain a strong sense of responsibility and compliance, and autonomy to work independently and as part of a team.

## Your application

Your application should include:

- **Cover letter** (maximum two pages) describing the applicant's motivation for applying for the position . The letter should include a section titled "*Suitability for this position*", in which the applicant briefly explains how their background, skills, and experience match the requirements and assessment criteria.
- **Curriculum vitae** (CV), clearly identifying the background in the required disciplinary fields.
- **Copies of degrees and transcripts of records**, for both the **bachelor's and master's degrees**, including grades (with translations into English or Spanish if the original documents are in another language).
- **Master's thesis** (or a draft, if not yet completed) and/or one other self-produced technical or scientific writing that demonstrates the applicant's research and analytical abilities. If applicable, applicants may also include publications or other relevant documents.
- **Contact information for two references** (names, email addresses, and telephone numbers). Applicants may also include up to two letters of recommendation.

## About the employment and what we offer

- Full-time employment contract starting (approximately) September 1st or as agreed with the NIC Lab members and the University of Malaga.

- Doctoral students employed through the Marie Sklodowska-Curie programme will receive a salary in accordance with the Marie-Skłodowska Curie rules for doctoral students for the duration of the scholarship (36 months). This means that the gross salary (i.e., after deduction of employer contributions but before employee taxes) is approximately 3,350 Euro/month (not including family allowance).
- Work in an interdisciplinary network of national and international collaborators at an outstanding research institution.
- Active supervision and promotion of your scientific development toward a PhD.
- A close integration of fundamental research and applications.
- Access to state-of-the-art research facilities and resources, including high performance compute clusters.
- A collaborative and supportive research environment with an international, friendly, and dedicated team.
- A balanced and family-friendly work-life relationship.

**For further information about the position, please contact:**

Cristina Alcaraz
Associate Professor
email: alcaraz@uma.es
phone: *+34 951 952 915*
URL: https://www.nics.uma.es/cristina-alcaraz/

**Please submit your application by completing the form at the following link and uploading all required documents in .zip format.**

***SecReSy4You application form***

**Or via email (alcaraz@uma.es) by ***1 May 2026*** with reference UMA-DC *2026*/3055.**