Università della Svizzera italiana (USI) is a young and lively university, a hub of opportunity open to the world where students are offered a quality interdisciplinary education in which they can be fully engaged and take center stage, and where our researchers can count on having the space to freely pursue their initiative. Established in 1996, USI is in constant evolution, always taking on new challenges while remaining true to its three guiding principles: quality, openness and responsibility.

The Software Institute is a center of excellence devoted to all aspects of software engineering research and development, and is part of the Faculty of Informatics. The Faculty (established in 2004) offers BSc, MSc, and PhD study programs, and has a high international standing in multiple areas of computer science research (see CSRankings and CSRankings: Computer Science Rankings for software engineering specifically).

The project
The European Horizon project Sec4AI4Sec aims at using AI to support security testing of vulnerable software and at developing novel robustness testing techniques that address the security of AI based systems.
Within such project, the TAU (Testing Automated) research group at the Software Institute of Università della Svizzera italiana (USI) will contribute novel research on: (1) the use of reinforcement learning to expose software vulnerabilities with white-box and/or black-box reward functions; (2) search-based test case generation for vulnerability exposure in deep learning based systems and creation of a robustness assessment benchmark.

The Ph.D. Position
The student will be enrolled in the doctoral program of the Faculty of Informatics and work under the scientific supervision of Prof. Paolo Tonella in a dynamic research team and in a multidisciplinary and international scientific environment.
On the teaching side, they will work as teaching assistant in courses at either bachelor or master level, helping in the preparation of teaching materials and tutoring students.
The PhD candidate is also asked to present papers at scientific conferences, and produce publications for scientific journals.

Candidates’ profile
Ideal candidates should satisfy the following requirements:

- A Master (or equivalent title) in computer science by Fall 2023
- Good skills in oral and written English (official language of the Ph.D. program)
**Contract terms**

Admission to the Ph.D. program is highly competitive. Admission decisions are based on the candidate’s background, interests, attitude and potential for academic achievement. Successful enrolment in the Ph.D. program and the position as doctoral researcher are not compatible with a further professional activity.

The successful candidates will work as research assistants at the Software Institute, and will have the possibility to interact with an international network of collaborators.

Workplace is USI Università della Svizzera italiana, located in Lugano, Switzerland. Availability to travel to other parts of Switzerland and abroad (for purposes of collaboration and research) is required.

The selected candidates are expected to start on 1 October 2023. The duration of the PhD contracts will be 4 years.

**The Application**

Applications should contain: (1) a letter in which the applicants describe their research interests and the motivation to apply, (2) a curriculum vitae, (3) and exam transcripts.

Please send your application in electronic form or requests for further information to Prof. Paolo Tonella (paolo.tonella@usi.ch).

Applications will be received until the position is filled but priority will be given to earlier applications, especially if received by 30 June 2023.

As an institution that values diversity, USI particularly encourages applications from women and from all individuals from underrepresented groups.

Lugano, 17 March 2023