

## **Call for internship: Security Testing**

**Period:** ideally, April 1<sup>st</sup>, 2018 – October 31<sup>st</sup>, 2018

**Grant (gross salary):** 1300 €/month

**Contact:** Mariano Ceccato (ceccato@fbk.eu)

### **Position description:**

An intern position is available in the Software Engineering research unit, at Fondazione Bruno Kessler. The ideal candidate is an undergraduate student, who will be working on her/his master thesis research project during the internship period. The final MSc exam must take place before October 31<sup>st</sup>. Candidates who have already obtained their MSc degree are also eligible for this position. At the end of the internship, the candidate might be invited to apply for a PhD grant.

### **Internship/thesis topic:**

When engineering secure software systems and services, software testing is one of the prominent practices to detect faults as well as security vulnerabilities. Security testing (also called penetration testing) is a branch of software testing devoted to stress programs with respect to their security features, with the aim of identifying vulnerabilities. The aspects of security testing that will be investigated during the internship include:

- generating input values (referred to as test payloads), intended to exercise vulnerabilities;
- evaluating whether such payloads manage to expose an actual vulnerability, i.e., the security oracle.

Security testing is highly expensive given the complexity of modern systems, typically providing a wide range of services, and the sophistication of attacks and exploitations. To reduce effort and cost, the focus will be on achieving a high level of automation in security testing.

### **Advisor:**

Mariano Ceccato is a tenured researcher in FBK (Fondazione Bruno Kessler) in Trento, Italy. He received the master degree in Software Engineering from the University of Padova, Italy, in 2003 and the PhD in Computer Science from the University of Trento in 2006. His research interests include security testing, migration of legacy systems, aspect oriented programming and empirical studies.

### **The Research Environment:**

The selected candidate will be working at FBK in Trento, Italy, within the Software Engineering (SE) research unit. FBK-SE (<https://se.fbk.eu>) carries out research in requirements engineering, code analysis and testing. The team consists of approximately 15 researchers, spread among senior members, postdocs and PhD students.