

Engineering Position in Malware detection through side-channel information

Environment The TAMIS team is among the largest security teams at IRISA, Inria Rennes - Bretagne Atlantique, including competences from hardware attacks to (post-quantum) cryptography, and from software vulnerability detection to malware analysis.

Research topic While malware detection and mitigation research is now trending, a lot of challenges and unsolved problems still remain. Recently, sophisticated malware designers invented techniques to circumvent software detection techniques, which make them unreliable in practice. A new direction consists in using unintentionally emitted hardware side-channel information such as electromagnetic emanation, power consumption, timing, performance counters as mechanism to detect malware. The big advantage of this information is the non-detection by malware designers. Still, those approaches have to be established in real-world scenarios and efficient analysis techniques developed and implemented.

You will

- infect IoT devices with malware,
- be responsible for the set-up and maintenance of the side-channel workbench,
- develop efficient implementations of analysis algorithms,
- drive top-quality research and publish in A*/A-class security and malware conferences.

Prerequisites We are looking for team players who are motivated to drive top-quality research. The area of research lies between two fields and we expect at least competences in one of them: embedded devices and/or malware analysis. An ideal candidate should have:

- MS degree in Computer Science, Computer Engineering, Electrical Engineering, or related fields,
- 1-3 years work experience (PhD is a plus),

- experience on embedded systems and/or malware analysis/detection,
- good programming skills (including parallel computation),
- good level in written and spoken English,
- motivation to save the world.

Duration/Starting date The position is initially limited to one year but can be extended (up to three years) in case of good performance. The starting date is planned to be March 2019 but negotiable.

Contact Interested candidates should send their detailed CV, cover letter and references to Annelie Heuser, annelie.heuser@irisa.fr.