

Student Assistant Positions - Implementing and Testing a Novel Intrusion Detection System for IoT

We are offering an exciting opportunity for several student assistants to contribute to the development and testing of a groundbreaking Intrusion Detection System (IDS) tailored for the Internet of Things (IoT). As IoT devices become ubiquitous in various domains, robust security measures are needed to prevent that billions of deployed IoT devices are abused. Our project, DİOT, leverages innovative techniques, including state-of-the-art deep learning algorithms and Federated Learning, to empower users in quickly identifying and mitigating malicious activities and device malfunctions.

Responsibilities

Depending on your background and interests, you will work on one or several of the following key tasks:

Position 1- Deep Learning Model Implementation and Testing: Participate in the design, implementation, and testing of a novel deep learning-based anomaly detection model.

Position 2- Experimentation and Evaluation: Set up and conduct experiments, collect and process IoT network traffic data, test and evaluate our anomaly detection systems.

Position 3- Web-based Dashboard and User Interface Implementation: Implement an intuitive and easy-to-use web-based dashboard and user interface for the intrusion detection system.

Prerequisites

We are seeking candidates with the following qualifications:

- Good knowledge in one or several of the following domains: IT security, privacy, computer networks, and machine learning
- Motivation and capability to work collaboratively as part of a team
- Proficiency in at least one of the following areas:
 - Python and C++ programming; familiarity with ML libraries like PyTorch and Tensorflow
 - Network traffic analysis and programming; familiarity with network OSes, tools, and libraries such as OpenWrt, TCPdump, and Scapy
 - Familiarity with smart home systems and open sources such as Amazon Alexa, IFTTT, Home Assistant, and openHAB
 - Web programming and frontend development

Opportunities

By joining the DİOT startup project, you will experience a dynamic and supportive working environment with an excellent team. This role provides an opportunity to immerse yourself in new challenges and cutting-edge technologies in AI, security, and software development.

Contact

If you are passionate about IoT security and AI, and eager to contribute to a pioneering project, please send your application, CV and academic transcripts to info@trust.tu-darmstadt.de.