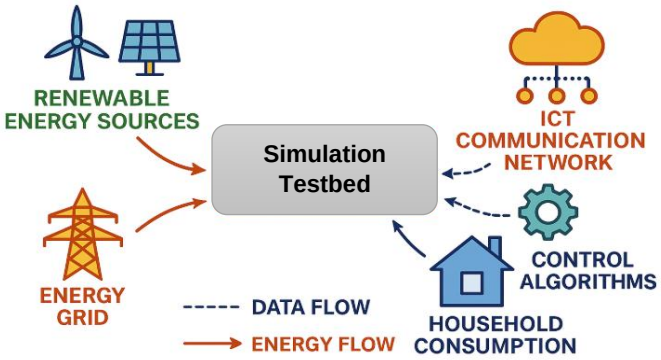
Student Assistant – Hiwi (m/f/d)

Simulation of Energy Systems for Resilience Assessment

Secure Energy Systems (SES) is a working group within the Institute for Automation and Applied Informatics (IAI). SES covers a wide range of areas in Energy Systems and Smart Grids (SGs), including cybersecurity, information security, cryptography, ML/AI, and communication structures.

The primary objective of this position is to simulate energy-related systems and applications within a smart energy management system (EMS), with a particular focus on advanced metering infrastructure (AMI), distributed energy resources (DER), and substation automation system (SAS). This will involve the design, implementation, and evaluation of emerging cybersecurity and cryptography approaches under the research topic “Zero-trust Malleable Cryptosystem for Smart Grids (ZMC-SG)”. Additionally, server configuration will be necessary to establish a testbed for these purposes.



We offer

- Opportunity to learn about some emerging technologies and topics.
- Opportunity to gain some new hands-on and lab SW/HW skills.
- Opportunity to pursue your BSC/MSC thesis within the project.

Requirements

Starting: ASAP

- Majoring in Computer Science or any related major.
- Good knowledge of simulation tools and software, MATLAB, Python, NS3, Opnet, etc.
- Hands-on experience, presentation, and academic writing skills.

Tasks

- Simulation of substation, AMI, and DER using network simulators, e.g., NS3, Opnet, MATLAB/Simulink, or any other related simulation software.
- Work on some SW/HW to evaluate the performance of some developed IT-Security approaches.
- Reliability and compatibility evaluation using KASTEL Security Lab Energy.
- *The above tasks are flexible and will be adapted based on the working hours and the project needs.*

» If you are interested, email us at ramadan@kit.edu with a current transcript of records and a resume/CV. We are glad to answer any questions you may have.

Contact

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