

Robotics and autonomous systems will become the decisive innovation drivers of the coming years. **ROBOTICS** has committed itself to play a leading role in this development and wants to generate pioneering innovations. Our research institute founded in 2015 is well on its way to fulfil this role in Europe.

Within the next decade, robots are expected to reach a pervasiveness similar to smartphones today. This strong presence in public and private spaces along with the high degree of interconnectivity will also require strong cybersecurity measures. Within our strategy of securing robots for their future use, we are looking for a **part time (50%, 4 months)**

MASTER'S THESIS STUDENT „Robotic Systems“

In modern robotic systems, authentication and authorization of participating nodes is required as well as the integrity and confidentiality of the exchanged data. For this, cryptographic keys and certificates must be distributed and managed in an appropriate way. This includes especially the signing process for public keys by trusted instances and the storage of private keys on secured hardware like trusted platform modules or smart cards. Further, workflows have to be developed to securely update, revoke and destroy cryptographic key material. Due to the fact that flexibility and scalability are highly demanded in many robotic applications, a decentralized approach for the previously described workflows has to be developed.

Depending on your skills and preferences, possible topics include:

- Design and implementation of one of the following concepts:
 - Secure storage of cryptographic key material (Smart Cards, Trusted Platform Modules)
 - Decentralized key distribution and management
 - Usable application of key management workflows

Requirements:

- Background in computer science or information technology
- Strong interest in research and technology development
- Ability to work in a self-organizing team
- Skills in embedded programming and/or high-level languages
- Basic knowledge in system security
- Experience in working with Linux based systems

We offer an attractive, team-oriented environment with state-of-the-art infrastructure. This position is subject to the collective agreement for employees in non-university research and remunerated with a gross salary of € 1.343,00 (38.5 h/week) for master's thesis students.

We are looking forward to receiving convincing applications via e-mail by **robotics-office@joanneum.at**.