

Munich, January 2026

*Opportunities
for Talents*

The Chair of Theoretical Information Technology at TUM offers a position as

Research Associate / PhD Student (f/m/d)

Secure Communication for AI-Driven Applications

Communication for AI applications in sensitive domains such as medicine and robotics requires the highest levels of security and data protection. Classical cryptographic techniques face inherent limitations, especially regarding future threats from quantum computers or AI-driven adversarial strategies. Physical layer security offers a promising information-theoretic approach that embeds security directly into the physical transmission layer, ensuring resilience against future attack methods, e.g., by quantum computers.

We are seeking a highly motivated research associate (m/f/d) for our research project focused on developing secure communication systems for AI-driven applications. The objective is to investigate, design, and experimentally validate information-theoretically secure coding schemes tailored to the demanding requirements of safety-critical domains such as medicine and robotics.

Your responsibilities

- Conduct research on physical layer security, considering different attack methods
- Develop and mathematically analyze information-theoretic coding schemes
- Investigate and define privacy and security metrics (KPIs)
- Implement and experimentally validate solutions in the ACES testbed
- Analyze the impact of AI-based attack scenarios and develop countermeasures
- Publish research results and contribute to the development of a demonstrator

To be qualified for this position, you should have

- Excellent master's degree in Electrical Engineering, Communications Engineering, or a related field
- Strong knowledge in wireless communication systems and basic knowledge in information theory
- Proficiency in at least one programming language (e.g. Python)
- Interest in AI-based attack models and security research

The following points are considered a bonus

- Knowledge in cryptography
- Experience with SDR platforms (e.g., USRP, NI VST, Ettus devices)

Our offer

- Participation in a cutting-edge research project with high societal impact
- Access to state-of-the-art lab facilities at the TUM ACES Lab
- Collaboration with leading researchers at TUM and TUD
- A dynamic, international research environment and support for publication at top conferences/journals
- Subject to personal qualifications, employees are remunerated in salary group E 13 TV-L

How to apply

Please send us your application by e-mail (jobs.lti.cit@tum.de with "SEC-AI" in the subject line), including the following documents:

- CV, copies of relevant certificates and diplomas, transcript of records
- Short description of your research interests and your motivation for the application
- Master's thesis and up to 3 publications (if available)
- Contact information for two references

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General Information

The Technical University of Munich (TUM) is aiming to increase the number of women employees, and applications from women are expressly welcomed. Applicants with disabilities, with essentially the same suitability and qualification, will be preferred. As you apply for a position at TUM, you will provide personal data; please note our data protection information according to Art. 13 Data Protection Basic Regulation (DSGVO) on the collection and processing of personal data in connection with your application, <http://go.tum.de/554159>. By submitting your application, you confirm that you have taken note of the data protection information of the TUM.

Contact

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