Vacancies: 2 PhD and 1 Postdoc Positions in "Secure, Performant, Dependable, and Resilient Wireless Mesh Networks"

The Institute of Technical Informatics at Graz University of Technology is looking for motivated PhD students and Postdocs to fill three open positions in the area of "Secure, Performant, Dependable, and Resilient Wireless Mesh Networks" starting from July 1, 2021.

Context and scope. The open positions are linked to an international project focusing on the latest advances in wireless networking, localization, collaborative awareness, and machine learning, towards the development of secure, resilient, and highly-performant wireless mesh networks.

Aspects that will be investigated within this project are, among others:
- Dependable and highly-performant WiFi and BLE mesh networking solutions;
- Fault-tolerant and attack-resilient WiFi and BLE mesh networking solutions;
- Secure and low-latency communication over mesh-cloud environments;
- UWB-based localization and communication;
- RF context-, and location-aware wireless systems able to autonomously detect, identify, and mitigate security threats, network anomalies, and coexistence issues (e.g., using machine learning techniques);
- Distributed awareness and collaborative strategies;
- Real-time localization and tracking of mobile agents using WiFi- and UWB-based systems;
- Hardware platforms embedding multiple RF interfaces supporting different physical layers;
- Benchmarking of IoT/mesh networking solutions.

We hence expect candidates to have interest in (and, ideally, some prior experience with) some of the aforementioned topics and on wirelessly-networked embedded systems (Internet of Things, Cyber-Physical Systems, Sensor Networks) with high quality of service and dependability requirements.

Candidate profile and requirements. Applicants for the PhD position must hold a Master degree (or equivalent) in information/computer/software engineering, computer science, information science, telematics, electrical engineering, or related studies. Applicants for the Postdoc position must also hold a Doctoral degree in the aforementioned areas.

Good candidates have:
- knowledge about wireless communications and (low-power) wireless systems, e.g., IEEE 802.11, B.A.T.M.A.N. (or other such mesh routing protocols), IEEE 802.15.4, BLE, and UWB;
- solid C programming skills and moderate Linux experience (fluency in other languages such as Python and Matlab is considered an asset);
- very good proficiency in written and spoken English, which is the language of the research group and of external collaborators;
- high motivation, self-initiative, as well as strong passion and commitment to research;
- ability to work collaboratively in an interdisciplinary and international team with both senior and junior people;
- willingness to do scientific research, publish research results, and complete a dissertation at Graz University of Technology.

Knowledge about machine learning and hands-on experience with the programming of networked embedded systems as well as localization and mesh networking technologies is considered an asset. Knowledge of German is not required, and Graz University of Technology offers basic language courses for all its employees.

Postdoc candidates are additionally expected to show an established research record, including publications in major conferences and journals in research fields related with the aforementioned topics.

TU Graz aims to increase the number of female employees and therefore specifically invites qualified women to apply. Applicants at TU Graz are not discriminated in personnel selection procedures on the grounds of gender, ethnicity, religion, age, sexual orientation.

Research team and working environment. The PhD and Postdoc positions will reinforce and extend the research activities of the "Networked Embedded Systems" group at the Institute of Technical Informatics. The group has a long-standing track record in the area of networked embedded systems, and is one of the leading European groups on low-power wireless networking and IoT research.

The high quality of the research output is supported by several awards and by numerous conference papers at prestigious venues ranked CORE A/A*, such as SenSys, IPSN, NDSS, EWSN, ICDCS, INFOCOM, ICNP, and RTSS. Furthermore, several group members are co-chairing or serving as TPC members in leading conferences in the field.

The group also leads the "Dependable Internet of Things in Adverse Environments" research excellence center (https://www.tugraz.at/projekte/dependablethings/home/), and is internationally renowned for its benchmarking infrastructure used to organize a dependability competition quantitatively comparing the performance of low-power wireless protocols (https://bit.ly/3sPzsmJ). This infrastructure will also play a crucial role in the international project targeted by this call.

The team's activities can be broadly characterized as "systems and application-driven research" at the intersection of wireless networking, embedded systems, and IoT applications. To get a better idea of the type of research performed in the group, please browse the publications listed at http://www.carloalbertoboano.com.

Location. Graz University of Technology (TU Graz), with more than 12.700 students and 7 faculties, is the second largest university in Styria and one of the three leading universities of technology in Austria.

Graz, the second largest city in Austria, is a young and lively city with more than 50.000 students situated at the south-eastern foot of the Alps. It enjoys an almost Mediterranean climate & lifestyle and its medieval old town (one of the largest and best-preserved in central Europe) is a UNESCO world heritage site. The city itself has a very high quality of life, and offers plentiful recreation opportunities.

Contractual details. The PhD and Postdoc positions are remunerated according to the collective contract (Kollektivvertrag) for Austrian Universities. The salary amounts to roughly 41.601€/year before taxes for the PhD position, and to 55.242€/year before taxes for the Postdoc position. This corresponds to approximately 29k€ and 36.2k€ per year after taxes, health insurance, and social security deductions (see https://bruttonetto.arbeiterkammer.at/). The annual salary may increase in case of relevant prior work experience. Note that, compared to other major central-European cities, cost of housing and living in Graz is relatively low. The initial appointment for both PhD and Postdoc positions will be of 24 months and can be renewed. Both positions are available from July 1, 2021.

How to apply. To apply for the available PhD or Postdoc positions, please prepare a single PDF file (max. 15 MB) containing:
- motivation letter;
- curriculum vitae;
- a recent certificate about the level of proficiency in English, if available;
- a copy of your Master or PhD degree;
- a link to the online version or a copy of your Master thesis (respectively PhD thesis for Postdoc applicants);
- any recommendation letters of your former advisor(s);
- additional documents such as a list of publications, transcript of records, and other relevant certificates.

Applications must be submitted within 31.05.2021 (23:59 CEST) using http://lampz.tugraz.at/~dependablethings/. Please follow the instructions provided on the site and note that this is the only way to apply: applications sent via e-mail will not be considered. Please ensure that your application makes a direct reference to the aforementioned topics: generic applications will be rejected.

Inquiries and contact persons. Candidates interested in either positions can contact Prof. Carlo Alberto Boano <cboano(at)tugraz(dot)at> or Prof. Kay Römer <roemer(at)tugraz(dot)at> for further information.