

The Chair of Geoinformatics at TUM has a vacancy for the following position (to be filled as soon as possible)

Researcher / PhD Candidate (f/m/d) 100%, Geo Sensor Networks and IoT for Urban Digital Twins

Your tasks

The Chair of Geoinformatics is currently providing scientific support to the City of Munich in setting up a digital twin of the entire city. Based on the Urban Digital Twin of Munich, innovative use cases for urban development and forms of participation are jointly developed in the research project Connected Urban Twins (CUT) by TUM, Hafen City University Hamburg (HCU) and the cities of Munich, Hamburg and Leipzig.

Essential components of an Urban Digital Twin are Internet-of-Things (IoT) devices that measure, for example, the air quality and traffic density at a street intersection or the current energy consumption of a building. If, in addition to the measured values, the location of these sensors or their linkage with digital models of city objects such as buildings, roads, and traffic lights is available, the current status of these city objects can be monitored. Also, historic sensor data can be used for time series analysis and for predicting future states of city objects.

Your research will focus on the integration of semantic 3D City Models and sensor data services, the integrated visualization of sensor data in the City Model, as well as the coupling of IoT sensors and urban simulations.

In addition to your research work, participation in teaching at the Chair of Geoinformatics and in the supervision of student projects is possible.

Your Profile

- M.Sc. in Geodesy, Geoinformatics, Environmental Engineering, Computer Science or similar
- Interest in the topics 3D City Models, IoT, LP-WAN networks (e.g. LoRaWAN), Microcontrollers like Arduino
- Good programming skills (e.g. Arduino/Python/Java, web development (HTML, CSS, Javascript, REST-APIs))
- Basic knowledge in Linux, server administration and virtualization technologies (e.g. Docker) are desirable
- Basics skills in statistics and data science are desirable
- Experience in Geo Sensor Networks is desirable
- Very good knowledge of the German or English language (written and spoken)

Our Offer

The Chair of Geoinformatics is internationally renowned for its work in the field of semantic 3D city and landscape models, its contributions to international standardization, namely CityGML, and its work in the field of data management for smart cities and regions. We offer a stimulating working environment at TUM, integrated in our international team of highly motivated researchers.

We are offering initially a 2-year contract with the possibility of extension as well as the possibility to do a doctorate. We offer a competitive salary and benefits depending on professional experience and seniority in accordance with the collective agreement for the public service of the State of Bavaria (TV-L E13). TUM explicitly encourages applications from women and all others who bring additional diversity dimensions to the university's research and teaching strategies. Preference is given to applicants with disabilities and essentially the same qualifications.

Application

We look forward to receiving your convincing application with a letter of motivation, curriculum vitae and academic certificates in a single PDF file by e-mail to tanja.nyc@tum.de with the subject "Researcher Sensor Networks for Urban Digital Twins" for the attention of Prof. Dr. rer. nat. Thomas H. Kolbe by December 5th, 2021 at the latest.