

The Chair of Geoinformatics at TUM has a vacancy for the following position (starting January 2023)

Researcher / PhD Candidate (f/m/d) 100%, Indicator modelling based on Urban Digital Twins

Your tasks

As part of the European Commission's Horizon Europe work program, TUM has been awarded funding for research in the area of positive and clean energy districts (PED, <https://jpi-urbaneurope.eu/ped/>). Within the ASCEND project consortium, the TUM Chair of Geoinformatics will be in charge of developing and implementing a framework for modeling and calculating energy and CO₂ emission related key performance indicators (KPI) based on digital twins of city districts. Key sources for the calculation of the indicators will be geospatial data sets like semantic 3D city models, static domain data like energy certificates of buildings and real-time as well as historic sensor data provided by Internet-of-Things (IoT) devices and urban data platforms.

Your research will focus on conceptual development of a KPI framework and technical implementation a KPI calculation engine. The KPI engine shall allow domain experts of various fields to express their indicators and relate them to geospatial data sets and IoT sensor data using a graphical notation such as the Unified Modeling Language (UML). Using a model-driven approach, the KPI engine is intended to automatically derive programs for calculating indicator values from the graphically described indicator models.

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, urban energy planning, statistics and data science
- Good skills in programming (Python) and geoprocessing workflow tools such as ArcGIS Model Builder or FME
- Skills in UML modeling are 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 Indicator modelling" for the attention of Prof. Dr. rer. nat. Thomas H. Kolbe by December 18th, 2022 at the latest.