

17J001_INTERNSHIP PROPOSAL F/M

Title: Development of a multi-touch 3D web-based dynamic decision-support tool for analytical visualization of energy related simulation results

EIFER/ Europäisches Institut für Energieforschung EDF-KIT EWIV was established in 2001 as collaboration between the Karlsruhe Institute of Technology (KIT) and Electricité De France (EDF). Today EIFER has an international team of more than 100 researchers.

Internship description

The Energy Planning and Geo-simulation group at EIFER is researching and developing solutions for the spatial simulation of energy systems. The fields of application range from the simple identification of potential renewable energy sources to the simulation of the energy demand in urban areas. In this regard, the workgroup develops different simulation tools and methods that are visualized through desktop, web-based or augmented reality based geo-information systems (both 2D and 3D). A software architecture based on open source geospatial technologies and CityGML data standards is dedicated for this purpose.

Within the framework of the proposed research, we aim to improve the functionalities of the visualization capabilities of energy simulation results e.g., by integrating spatio-temporal analytical capabilities. In this regard, the concept of spatial citizenship or data-driven citizen participation approaches will be studied. A web-based platform will deploy multiple technologies (PC, Tablet, Multi-touch table). This platform will help citizens and decision makers to analyze energy related problems such as reduction of non-renewable energy sources through optimum energy concepts etc. in an interactive way.

Tasks

- Understand existing energy modelling and simulation methods and tools
- Explore spatial citizenships and data-driven citizen participation approaches
- Review state of the art of 3D web and multi-touch technologies
- Develop an open source web based 3D platform for analytic decision making
- Develop multi-touch interactions for analytic decision making
- Integrate spatio-temporal analytical functions in the platform

Proposed tasks can also be accomplished within a Bachelor/Master thesis, with a supervision of a Professor at a University.

Required qualifications

- Students in Computer Science, Business Informatics, Geo-informatics or related topics
- Working experience in web technologies and services (Java Scripts, HTML5, D3)
- Knowledge of 3D web technologies (WebGL, openGL or Cesium)
- Basic understanding in GIS software (such as QGIS, ArcGIS, etc.)
- Knowledge in any object oriented programming language

Conditions

- Duration: 6 months, starting as soon as possible
- Working hours: 39.5 hours per week
- Working place: EIFER, Emmy-Noether-Str. 11, 76131 Karlsruhe, Germany
- Monthly Compensation: 450 Euro

Contact

If you want to join a highly motivated international research group, please forward your application including all relevant information (curriculum vitae and cover letter, in English or German) to jobs@eifer.org. **Please refer to the offer number 17J001!** For additional information concerning the work, please contact Dr. Syed Monjur Murshed (murshed@eifer.org) or Dr. Jochen Wendel (wendel@eifer.org).