

PhD: Integration of LODs of 3D City Models

Department/faculty: OTB Research Institute for the Built Environment

Level: Master degree

Working hours: 38 hours per week

Contract: 1 year initially with prospect of extension to 4 years

Salary: €2,042 to €2,612 per month gross

OTB Research Institute for the Built Environment

OTB Research Institute for the Built Environment specialises in independent research and consultancy in the field of housing, construction and the built environment. The institute is part of Delft University of Technology. The policy areas of OTB Research Institute are centred around various aspects of the built environment. For example, research is carried out into such areas as housing, urban renewal, transport and infrastructure, urban and regional development, sustainable building and building policy, land policy, geo-information resources and GIS technology. The institute's research draws on the knowledge and skills of various disciplines: public administration, architectural engineering, social geography, planning, economics, sociology, computer science and civil engineering.

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OTB's GIS Technology programme focuses on providing and/or developing the technology, including the knowledge behind it, needed for the realisation of a Spatial Information Infrastructure (SII). The increased use of geographic information systems has introduced new questions, including in the field of geo-information sciences. Complex problems arise concerning geographic databases, quality description of geographic data and the visualisation and query of geographic data. In fact, GIS technology forms a bridge between processing techniques of spatial data and the use of geo-information.

Job description

The PhD project will investigate the integration of different levels of detail (LODs) of a 3D city model into one consistent 4D data model (i.e. a 3D+LOD hypercube), and their creation using automatic generalisation algorithms. Three-dimensional models often have different LODs for different applications, but these are not explicitly linked. This makes the storage, maintenance and analysis of these models problematic. The project includes a conceptual part (what are the requirements of each identified LOD?) and a development part (how do we develop the 4D data model and algorithms that integrate the LODs in one model, and what generalisation algorithms are needed for buildings, trees and other city objects?). The developed prototypes will be tested on real-world data. In addition, there is a close link with the international developments of the 3D standards of the OGC

(CityGML).

The PhD candidate will be part of a research team working on the project "5D Data Modelling (3D space+time+scale)", which is closely related to another project about variable-scale (i.e. 2D+scale) maps. Both projects are funded by the Netherlands Organisation for Scientific Research (NWO). The research team is composed of three senior researchers and two other PhD students. The PhD student will be able to further define the project based on his/her interests and background.

Requirements

Applicants should hold an MSc degree in computer science, applied mathematics, geoinformatics/geomatics or a related discipline. They are expected to have good programming skills, a good command of English (spoken and written) and a strong interest in 3D data modelling. Experience with GIS, CityGML or generalisation algorithms for geographical datasets is highly desirable.

Conditions of employment

TU Delft offers an attractive benefits package, including a flexible work week, free high-speed Internet access from home (with contracts of two years or longer), and the option of assembling a customised compensation and benefits package (the 'IKA'). Salary and benefits are in accordance with the Collective Labour Agreement for Dutch Universities.

Information and application

For more information about this position, please contact Jantien Stoter, phone: +31 (0)15-2781664, e-mail: j.e.stoter@tudelft.nl. For general information about the application procedure, you are welcome to contact Mrs. C.A. Moualed, peno@otb.tudelft.nl. To apply, please send a detailed CV, a letter of application, the names of two references, and your MSc thesis or any publications you have authored (a URL to a PDF is fine). Please e-mail your materials by 14 February 2012 to Mrs. C.A. Moualed, peno@otb.tudelft.nl.

When applying for this position, please refer to vacancy number OTB 12001.

Enquiries from agencies are not appreciated.