

Research Assistant - PhD Student

in Computer Science (Geographic Visualization)



Job Summary

Open position for a PhD student in the area of geographic visualization at the University of Zürich. This position is for a PhD student participating in a Swiss National Science Foundation funded project.

Description

The open position is for a research assistantship in a PhD program in computer science with a focus on foveated perceptual levels-of-detail (LODs) in geographic feature visualization.

For geo-spatial data analysis using interactive visualization, large scale geographic feature data, such as vector maps, need to be managed effectively. In particular it has to be processed to fit computational as well as human cognitive information processing limits. Using multiresolution LOD and generalization techniques allow the effective display of complex multi-dimensional datasets. Focusing on vector feature data, in this project we will combine geometric simplification as well as cartographic generalization concepts to come up with efficient techniques to interactively visualize large geographic vector maps in 3D, e.g. over digital terrain elevation models. Hence this project brings the two areas of expertise together and explores a novel gaze-contingent design framework to manage the LOD of massive geo-spatial feature data in interactive visualization applications with both computational and human factors in mind.

We anticipate the project to have three phases: conceptual development, software implementation and an empirical user evaluation. The empirical evaluation phase will be hosted at the Geographic Information Visualization and Analysis unit at the UZH Department of Geography, and will be advised by Dr. Çöltekin.

The project requires strong interest not only in visualization and graphics but also in cartography, perception and in experimental user studies. Furthermore, good software programming skills are required as well as a strong interest and ability in learning new mathematical methods and complex software frameworks is highly recommended, as the targeted research project also builds on previously developed results and geo-visualization frameworks. Good C++, 3D graphics and geometry programming skills are needed.

The activities of the position not only include research and continuing education for PhD students, but also support in teaching and administrative tasks. The main goal is to conduct excellent research which is published and presented in top international journals and conferences, and to eventually work towards achieving a PhD degree through the writing and defense of a doctoral dissertation.

Company

The University of Zurich (UZH) is a top internationally recognized research university with faculties in medicine, humanities, economics as well as mathematical and natural sciences. UZH is the largest university in Switzerland and ranked among the top world leading research universities, e.g. according to the Academic Ranking of World Universities by Shanghai Jiao Tong University, and has recently been ranked top 15 in Europe. The Department of Computer Science (Institut für Informatik – IFI) covers major computer science, software engineering and information management research and teaching topics, it offers BSc, MSc as well as PhD degrees in informatics/computer science.

Workplace

The Visualization and MultiMedia Lab (VMML) and IFI, are located in the vibrant city of Zürich as part of the university's new Nord-Campus in Oerlikon in a renovated modern office building. The UZH Nord-Campus is conveniently located a short walk off the Max-Bill Platz, center of the new trendy living, shopping and business district in Oerlikon, as well as near the Oerlikon train, S-Bahn and tram stations. Also the Zürich international airport (ZRH) is reachable within minutes with public or private transportation.

Benefits

Research assistants, PhD students are remunerated according to local university regulations and standards from the funding agencies. Appointments will be made with respects to standard university rules, same applies for fringe benefits and vacation days. Appointments are expected to involve a full-time effort in research, teaching and administration.

It is the goal of UZH to offer an equal opportunity workplace environment and as part of this we strongly encourage women to apply. Specific benefits include flexible working hours, young scientist promotion opportunities, parental leave benefits, nursery services and care for dependents and much more.

Comment/web site for additional job details

For application and further information contact: Prof. Renato Pajarola, pajarola@ifi.uzh.ch

See also our research groups website at <http://vmml.ifi.uzh.ch/>.

Requirements

A Master degree in computer science or closely related area with a strong CS component from a research university is required to enter the PhD program of UZH. A prior focus on visualization, graphics, imaging or geography, as well as experience in programming is also required.

Specifically, prospective candidates are supposed to have an excellent background in computer science and programming, as well as good mathematical skills and practical experience in interactive visualization and 3D graphics. Significant exposure to cartography, geographic information systems and visual perception is explicit in this project, and prior experience a significant plus. Strong interests in geometric algorithms, numerical methods as well as experimental studies and collaboration with other researchers and scientists is of further importance.

Applications must include a detailed CV/resume, information of university level educational background, brief description of practical work and research experience in computer science, clear exposition of prior graphics experience, as well as a short statement of motivation and goals. Certified copies of transcripts, degrees and reference letters may eventually be required for admission to the PhD program.

Dates and More

- Entrance is as soon as possible but subject to the successful evaluation of candidates
- Duration is expected to be about 4 to 5 years for PhD students

Contact

Prof. Dr. Renato Pajarola
Visualization and MultiMedia Lab
Department of Informatics, University of Zürich
Binzmühlestrasse 14
8050 Zürich
URL: <http://vmml.ifi.uzh.ch/>
email: pajarola@ifi.uzh.ch

