PhD studentship: Web-based Rendering and Visualisation of 2D and 3D Medical Image Data

In the context of our Maria de Maeztu subproject “Bio Image and Signal Analysis” the PhD student will carry out a research project on Web-based Rendering and Visualisation of 2D and 3D Medical Image Data.

Description

While many different methods for the rendering and visualisation of 2D and 3D medical data (for example, from MRI, CT or ultrasound scans) exist, few of them harness the possibilities enabled by modern information workflows. The rise of the cloud, connected devices, and web-based interfaces has revolutionised the workplace in many industries, allowing collaborative working between remote colleagues, and the gradual disappearance of individual storage media.

This project intends to bring these workflow models to the medical domain by rendering and visualising 2D and 3D medical data in a web-based context. From a research perspective this field is particularly interesting, as web-based graphics is a relatively new field, and important questions regarding data distribution are still yet to be resolved. This PhD proposal is subsequently framed in two aspects:

- The research trend of using large scale medical and experimental multi-modal data (e.g. from MRI, CT, ultrasound, light, synchrotron X-ray and electron microscopy acquisitions) for educational, clinical and biological purposes.
- The research into the 3D web, which would allow workflows based on rich integration of multiple modalities and sharing (besides platform independence).

Within this context, the PhD will address the issues of web visual integration of multiple modalities, up to 5D, of medical and microscopy data, including addressing transmission issues, such as compression, progressive visualization, etc. The PhD will address as well other visualization and interaction perspectives, the challenging data coming from the Biomedical research field.

The PhD will benefit from the resources developed during the MdM project as well as other research projects from the PhySense and GTI research groups.
Contact

To apply you should send an email to oscar DOT camara AT upf DOT edu and josep DOT blat AT upf DOT edu with the subject 'FPI - BIAS PhD'.

Please attach your curriculum, letters of recommendation, as well as a letter of motivation (maximum 1 page). In this letter you should explain why you find our type of work interesting and how it is related to your previous work and studies. The position will be open until the official launch of the FPI call, expected Summer 2016

Benefits

The position is funded under the FPI Grants (Formación de Personal Investigador – Research Personnel Training) programme of the Spanish Ministry of Economy and Competitiveness (call to be launched in April), for a position already secured to this project. The student will receive a fellowship salary according to FPI rules (up to 4 years - if she / he defends the thesis before the end of the 3rd year, the 4th year as a postdoctoral fellow, see conditions for last year here, this link will be updated when this year's conditions appear.)

About DTIC-UPF

Universitat Pompeu Fabra (UPF, http://www.upf.edu/en/) is a public university located in Barcelona. It is the best Spanish university according to the London Times higher education index, 2011, and it's the number one Spanish university in number of ERC grants. The Department of Information and Communication Technologies (ICT, http://www.upf.edu/etic/) is the best in Computer Science in Spain, according to the Shanghai index 2009. The accreditation Units of Excellence Maria de Maeztu 2016-19 recognizes the units in Spain that perform cutting-edge research and are among the world's best in their Universitat Pompeu Fabra (UPF, http://www.upf.edu/en/) is a public university located in Barcelona. It is the best Spanish university according to the London Times higher education index, 2011, and it's the number one Spanish university in number of ERC grants. The Department of Information and Communication Technologies (ICT, http://www.upf.edu/etic/) is the best in Computer Science in Spain, according to the Shanghai index 2009. The accreditation Units of Excellence Maria de Maeztu 2016-19 recognizes the units in Spain that perform cutting-edge research and are among the world's best in their Universitat Pompeu Fabra (UPF, http://www.upf.edu/en/) is a public university located in Barcelona. It is the best Spanish university according to the London Times higher education index, 2011, and it's the number one Spanish university in number of ERC grants. The Department of Information and Communication Technologies (ICT, http://www.upf.edu/etic/) is the best in Computer Science in Spain, according to the Shanghai index 2009. The accreditation Units of Excellence Maria de Maeztu 2016-19 recognizes the units in Spain that perform cutting-edge research and are among the world's best in their Universitat Pompeu Fabra (UPF, http://www.upf.edu/en/) is a public university located in Barcelona. It is the best Spanish university according to the London Times higher education index, 2011, and it's the number one Spanish university in number of ERC grants. The Department of Information and Communication Technologies (ICT, http://www.upf.edu/etic/) is the best in Computer Science in Spain, according to the Shanghai index 2009. The accreditation Units of Excellence Maria de Maeztu 2016-19 recognizes the units in Spain that perform cutting-edge research and are among the world's best in their Universitat Pompeu Fabra (UPF, http://www.upf.edu/en/) is a public university located in Barcelona. It is the best Spanish university according to the London Times higher education index, 2011, and it's the number one Spanish university in number of ERC grants. The Department of Information and Communication Technologies (ICT, http://www.upf.edu/etic/) is the best in Computer Science in Spain, according to the Shanghai index 2009.
Excellence Maria de Maeztu 2016-19 recognizes the units in Spain that perform cutting-edge research and are among the world's best in their respective areas. Only 3 university departments are accredited as such in Spain, and DTIC-UPF is the only one among technology and engineering.