Real-time landmark-based image modality fusion

Description

In cardiology and cardiac surgery several foldable devices are used e.g. for the implantation of heart valves or the closure of orifices and defects in the heart. The aim of this project is to improve the planning and the stability of the optimal patient individual implant position on the basis of preoperative image data. In a first step the relevant anatomical structures should be identified in the image data. By simulating the device structure and its deformation properties the robust insertion of the devices should be improved and the optimal position of deployment should be defined.

This will require good programming, image processing and materials understanding. You will be collaborating with a team of experienced scientists and engineers from the MiMed Institute (Prof. Lüth) at TUM and the Micro Structures Integration group at GE. You will have unique access to the latest rapid prototyping hardware, as well as an extensive internal and external network of collaborating sites. The European GE Global Research Center provides excellent infrastructure and insight into the application of cutting-edge research.

References

Lanzer, P. (2013): *Catheter-Based Cardiovascular Interventions: A Knowledge-Based Approach*, Springer, Heidelberg, pp. 1 – 1046.

Swaans, M.J. (2013): Mitral Valve Devices. *Cardiac Valvular Medicine*, Dordrecht: Springer, pp. 187-210.

Qualifications

The applicant should possess a master's degree or equivalent in computer science from a renowned university. The successful candidate is expected to have following interests and preferably also initial experience in these areas: (I) good knowledge in programming, in particular MATLAB, (II) experience in processing of medical images and (III) knowledge in material properties. It is a prerequisite that the applicant has resided during the past three years in total at most one year in Germany.

Our offer

She/He will become part of the Marie Curie Initial Training Network BERTI and a member of TU München. The program will actively assist the candidate in achieving a doctoral degree. She/He will obtain an interdisciplinary training, a solid knowledge of areas adjacent to the core research filed, as well as business competences. Guest research stays (for several months) at renowned international partner universities are part of the program. Another important aspect of the program is the close cooperation with the industrial partner GE. The payment and the conditions of employment follow the specifications of European Projects at TU München.

Application Details

TUM is an equal opportunity employer. TUM aims to increase the proportion of women and therefore particularly welcomes applications by women. Applicants with severe disabilities will be given priority consideration given comparable qualifications. The EU provides specific rules for applicants (http://www.mediasres-itn.eu/info/eligibility). Applications will be accepted until February 17th, 2015, or until positions have been filled.

Applications should include curriculum vitae, certificates and transcript of BA/MA/Diploma or equivalent degree, summary of the previous work, letter of motivation, proof of fluency in English and names of two references. Please send your application within **one pdf-document** to andrea.glogger@tum.de

BERTI

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