zurich43

Foundation for Research on Information Technologies in Society

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IT'IS FOUNDATION

Position	**Image Processing, Meshing, and Morphing: Realization of the Virtual Patient (PhD)**
Workplace:	Zurich, Switzerland
Company:	IT'IS Foundation for Research on Information Technologies in Society, ETH (Swiss Federal Institute of Technology) Zurich
Description:	The Foundation for Research on Information Technologies in Society (IT'IS) is an independent non-profit research organization dedicated to improving and advancing the quality of people's lives. The foundation's primary activities include computational electromagnetics in complex environments, computational life sciences (CLS) applied to devices in and around the human body, and the development of medical image-based high-resolution, computable whole-body anatomical models. We are seeking a PhD candidate or a post-doctoral fellow in image processing, meshing, and morphing technologies to achieve breakthroughs in computable human model development. The position involves creation and extension of functionalities required for generating and processing complex, medical image-based anatomical models and/or CAD-based structures, including approaches to parameterize and morph anatomical models.
Your Main Tasks:	- Develop methods for - Generation of high-quality, feature-preserving volume (tetrahedral and mixed element) and surface meshes of anatomical models and/or CAD-based structures - Interactive and image-based meshing - Anatomical model posing and morphing, based on mechanical modelling and image-registration - Apply the developed methodological framework to concrete CLS problems, e.g., in the area of vascular fluid-structure interaction modelling and biomechanics

Education / Profile:	- MSc degree (or PhD for post-doctoral fellows) in Computer Sciences, Numerical Mathematics, Physics, Mechanical Engineering, or related field - Interest in and basic knowledge of algorithms, finite element analysis, geometry, medical image analysis, graph theory, optimization - Experience in advanced object-oriented programming in C++ - Experience programming in VisualizationToolkit (VTK) or Python a plus - Experience with mesh generation and/or CAD modelling tools a plus - Excellent command of English; knowledge of German a plus - Required personality traits: perfectionism, discipline, and flexibility - Excellent ability to work both independently and in a team
What IT'IS offers:	- Modern research infrastructure - Outstanding, young, interdisciplinary research teams - Cooperation with leading research laboratories worldwide - Vibrant workplace in the heart of Zurich - Flexible working hours
Beginning:	As soon as possible
Application Process:	Applications should consist of: - Cover letter including the position title and a statement addressing the selection criteria and outlining the motivation for applying for the position - Detailed CV - Copies of degree certificates and/ or diplomas, including grades - Letters of recommendation We look forward to receiving your complete resume materials as a single pdf file at: jobs@z43.swiss. For further information or to discuss the scope of this position, please contact Dr. Bryn Lloyd (lloyd@itis.swiss) (phone +41 44 245 97 46).
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