PhD or Medical Research Developer position for Augmented Reality in Surgery

The department of Electronics & Informatics – Vrije Universiteit Brussel (VUB) is looking for a highly motivated software Developer with experience and interest in augmented reality (AR). The position is open for both early stage and more experienced software developers, preferably with relevant experience in AR application development for the hololens. Depending on the profile and preferences, a PhD position or a medical research developer position can be opened. The opening is in the context of the AIM project on Automated Intraoperative Measurements for AR-Guided Surgery, and organized between the departments of orthopedic and neurosurgery of the University Hospital Brussels (UZ Brussel), and the Department of Electronics and Informatics ETRO of the Vrije Universiteit Brussel (VUB). Within the AIM project, collaboration with industrial partners (Materialise, ORSI and Cronos) is foreseen.

The project focuses on AR-based methods for guidance, navigation and quantification during surgery. A prototype for highly accurate AR guidance through visualization of preoperative imaging has previously been developed within the UZ Brussel-VUB consortium (https://vimeo.com/466559886). We aim to extend the functionality of latter system by adding markerless tracking and assessment of relevant structures. To this end, we will employ surface scanning hardware such as time-of-flight infrared imaging and LiDAR. The obtained point clouds will be processed using state-of-the-art neural networks and transformers. The developed tools will be tested in preclinical and clinical experiments for cranio-maxillofacial, orthopedic, and neurosurgical procedures.

The selected candidate will be mainly responsible for the development of the novel AR applications. We are preferably looking for candidates with prior experience in AR programming, and computer visualisations. The fellow will also contribute to the experimental testing of the AR guidance, collaborate with other researchers, contribute the teaching (limited) and aid in the preparation manuscripts for publication.

Requirements:

- Master’s degree in computer science, biomedical engineering, electronics and informatics engineering, or related field.
- Excellent programming skills (Python, C#, C++, etc.), preferably for machine learning and signal processing, and demonstrated experience in software development.
- Candidates with development experience in programming AR applications will be privileged.
• Experience in unit testing, quality control management and medical device certification is considered and asset.
• Knowledge of computer graphics, visualization techniques and game development is considered valuable
• Strong interpersonal, organizational, and mentoring skills.
• Keen interest in development of biomedical and AI applications. The main development areas relevant for this position are (medical) image analysis, (soft) real-time programming, machine learning, computer graphics, image and signal processing.

Offer
We offer a position for two years (extendable), in an inspiring, challenging and flexible research environment. Depending on the profile and preferences, a PhD position or a medical research developer position can be opened. You will join a dynamic team of developers, researchers, post-docs and professors; and closely collaborate with medical physicists and medical doctors. We offer the possibility to follow various advanced training courses in Belgium or abroad.

You will be hired at ETRO, and your main place of work will both ETRO on VUB campus Etterbeek (Pleinlaan 2, 1050 Brussel), and UZ Brussel on VUB campus Jette (Laarbeeklaan 101, 1090 Brussel). You will receive a competitive salary with additional benefits covering holiday pay, hospital insurance and public transport; and generous holiday entitlement. The position is available immediately.

About IMEC-ETRO-VUB and UZ Brussel
ETRO, the department of Electronics and Informatics (http://www.etrovub.be/) of the Vrije Universiteit Brussel (VUB) performs fundamental and applied research in Micro- & Optoelectronics, multidimensional signal processing, and audiovisual computing. We are a core member of IMEC, the world-leading research and innovation hub in nano-electronics and digital technologies. Our team is currently a fruitful mixture of people from different nationalities. The main working language is English.

ETRO closely collaborates with UZ Brussel, the university hospital of the VUB, a top-rated medical institute that has gained recognition at national and international level. UZ Brussel conducts both fundamental and translational clinical research in a large variety of biomedical domains.

Applications should include detailed resume and a motivation letter
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Further information
http://www.etrovub.be/
http://www.uzbrussel.be/
http://www.imec.be