PhD position on AI for multimodal SLAM

Work environment

The Robotics research group in Brubotics: BruBotics is the Brussels Human Robotics Research Center of the Vrije Universiteit Brussel. 8 research groups strive together to improve the quality of life and working conditions of people through Human Robotics. BruBotics uniquely combines expertise on robotics, AI, rehabilitation sciences, movement sciences, social sciences, retail marketing, ageing and eHealth and is as such one of the only truly interdisciplinary robotics research centers in Europe. Together with industrial and societal partners we strive to take the next step in Human Robotics by breaking boundaries.

The Electronics and Informatics department (ETRO) performs research on the representation, processing, transmission and visualization of multidimensional signals. ETRO has built a large international collaboration network with a wide variety of academic institutions, industrial partners and R&D centres, and participates in numerous fundamental, strategic and applied research projects in these domains.

Both groups are core research groups of imec.

Research area

The research focuses on the design of innovative algorithms for simultaneous localization and mapping (SLAM) based on artificial intelligence (AI) enabling robot navigation in indoor and outdoor environments. Research topics include the design of deep learning methods for point cloud processing, multimodal sensor fusion (e.g. UWB, RGB, LIDAR), collision avoidance, semantic segmentation and scene understanding. Research in these areas aims at developing innovative algorithms as well as practical deployments on embedded platforms and integration with robot hardware (drones and UGVs).

Besides scientific challenges, this research position provides a great opportunity to work closely together with experienced researchers active in robot navigation, signal processing and artificial intelligence as well as to closely collaborate in running projects with prestigious academic and industrial partners active in these fields. A particularly important opportunity will be to closely collaborate with imec research groups active in these areas.

Prerequisites

Candidates for a PhD position (4 years) must prove strong academic record in engineering, mathematics, physics or computer sciences. The ideal candidate has a strong background in electromechanical engineering and digital signal processing, coupled with good programming skills (Python, C/C++ and MATLAB). Relevant works in ROS (Robot Operating System), embedded programming and mechatronics are a plus. You have excellent oral and written communication skills. Fluency in English is a must, given the international character of the involved research groups.

Interested candidates should submit their application, including a motivation letter, a CV, the BSc and MSc transcripts of grades, the MSc thesis, a list of relevant projects and publications, a two page research proposal, and the names of two people who could provide references.

The application should be jointly sent to:

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