

IMT ATLANTIQUE
is recruiting an Associate Professor
(Maître des Conférences) in

“Computer assisted medical interventions”

Recruitment date: 2nd semester 2023

Thematic and research issues

This recruitment will reinforce the IMAGINE team of the INSERM U1101 LaTIM lab on the axis "Data-based surgical management" and the development of the operating block of the future. It aims at maintaining the current level of excellence, continuing innovative developments and hence consolidating the team's position at the international stage.

More specifically, the research activities will concern one or more of the following:

- (i) development of innovative technologies based on Virtual / Mixed Reality and their integration in the operating room in order to optimize surgical assistance through multimodal intraoperative visualization.
- (ii) development of precise interventional imaging based on the modalities of ultrasound and X-rays; this activity will be enhanced by the Averoës (US interventional imaging) and PLaTIMED (platform for the design and evaluation of innovative medical devices, <https://platimed.fr>) platforms.
- (iii) development and integration into clinical routine of new sensors to optimize each phase of surgery: personalized pre-operative planning, minimally invasive intervention and patient follow-up.
- (iv) exploitation of heterogeneous and multimodal data by artificial intelligence approaches in order to identify new signatures and new multimodal indicators allowing to evaluate or predict the evolution of a treatment or complications during the different phases of a surgical procedure (pre-, per- and post-operative).

The evaluation, optimization and validation of the various developments will be based on the LaTIM's technological and clinical research platforms, with a view to facilitating technology transfer.

Environment

IMT Atlantique, internationally recognized for the quality of its research, is a leading engineering school under the supervision of the French Ministry of Industry and Digital Technologies, ranked in the three main international rankings (THE, SHANGHAI, QS). The position is open on the Brest campus in the Image & Information Processing department. IMT Atlantique has privileged relationships with major national and international industrial partners, as well as with a large network of SMEs, start-ups and innovation networks. With 290 permanent professors, 2000 students including 300

PhD students, IMT Atlantique produces 1000 publications each year and raises 18M€ in research funds.

LaTIM's research is focusing on Multimodal Technologies and Data Science in Healthcare, aiming for the optimisation of overall patient management from prevention to diagnosis, therapy and follow-up. Within this context one of its main pillars of activity is in the field of surgical interventions where over the past two decades the laboratory has gained national and international recognition through large scale research projects and the creation of several start-ups. Different clinical applications include the musculoskeletal system, vascular, ophthalmology but also oncological diseases. The objectives are to design key technologies enabling personalised surgery, including (i). planning with the integration of multimodal information for patient modelling and design of customised implants, (ii). intervention through development of new surgical navigation and monitoring systems integrated within hybrid operating blocks, and (iii). patient follow-up via novel connected implants and monitoring of different physiological processes.

Teaching

The IMT Atlantique training program has been recognized as one of the most innovative in French higher education and research and offers broad opportunities for the development of innovative engineering programs and teaching approaches (<https://www.imt-atlantique.fr/en/study>).

The candidate will contribute to the Thematic Training Areas (TAF) "Healthcare Engineering", "Observation & Perception of the Environment", "Mathematical & Computational Engineering" and to the project "Digital Training for Health and Medicine 5P through Innovation - NSM5P", winner of the AMI CMA "Digital Health", within the framework of the Acceleration Strategy for Digital Health - France 2030.

The candidate to be recruited will be invited to propose methodological and practical training contents (Teaching Units) as well as innovations for their implementation. Specifically, he/she will be involved in the teachings related to "GMCAO", "Medical devices and sensors" and "Connected medical devices", relying on the available technological platforms favoring practical aspects and project-based learning. In addition, the objective of increasing the number of engineers trained with a "Health" culture will require the development of educational innovations: digital content, E-learning, mixed reality platform for immersive distance learning ...

Expected experience

The general skills required and expected of candidates for the position of Senior Lecturer at IMT Atlantique can be consulted at the following address:

https://www.imt-atlantique.fr/en/about/job-offers?arg=7767_2_8158

In the case of this position, a particular and complementary emphasis will be given to the skills and experience of the candidate in the field of healthcare technologies and more specifically on areas such as: data-driven interventional therapy, medical image analysis for interventional applications, connected medical devices for interventional therapies.

Timelines

Application deadline: 31 mars 2023 (announcement to appear before end of Jan 2023 here: https://www.imt-atlantique.fr/en/about/job-offers?arg=7767_1_7781)

Interviews: May 2023

Recruitment date : 2nd semester 2023

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