

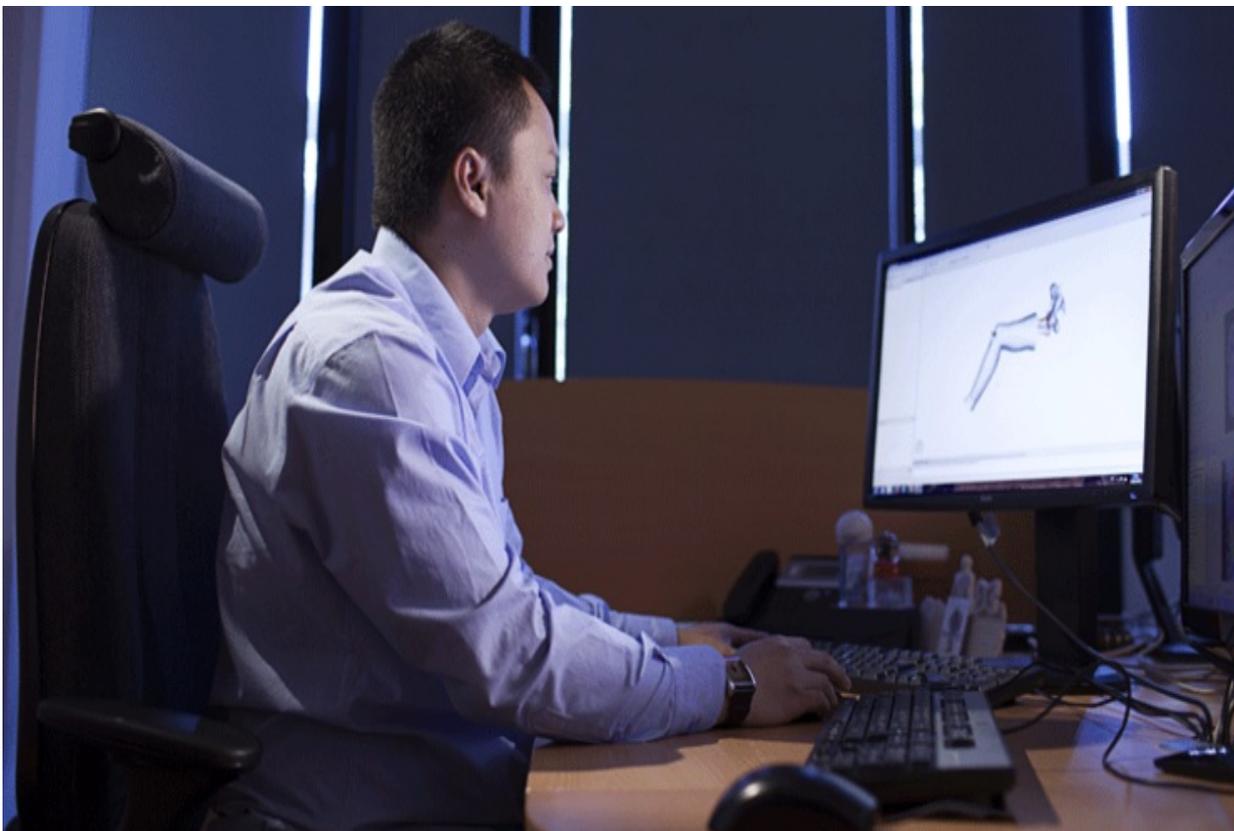
Interactions UTC

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E-Biomed: a new academic chair for connected biomedical objects

Créer de nouveaux outils biomédicaux connectés : c'est la mission de la nouvelle chaire e-Biomed, qui réunit l'UTC et l'UPMC. Dan Istrate, enseignant-chercheur du laboratoire Biomécanique et Bioingénierie de l'UTC, est titulaire de la chaire.

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Dan Istrate sets the scene "This Chair is part of the context for the creation of a new University Institute for Health Engineering (IUIS) proposed by UTC and UMPC in the Sorbonne Universities cluster. IUIS will be placing health concerns at the heart of a research/innovation/technology transfer/training 'package' designed to meet and resolve new challenges in this field. So-called "e-health", is indeed one of the 4 priorities assigned to IUIS with the e-Biomed Chair (connected biomedical tools) offering both a host structure and the tools". The e-Biomed Chair will be connected to the BMBI lab at UTC, but also with UMPC laboratories and is currently building up links with the UTC Heudiasyc lab, the MDS2T "labex"*, etc. [*French Government certified 'excellence' laboratory].

From well-being to biomedical fields

Dan Istrate has noted that connected objects today increasing address questions of well-being and biomedical engineering. Joggers can read and store real-time measurements of the number of calories 'burned' during the run, their pulse rate and even the O₂ concentration in their blood-stream ... However, these new tools were not designed as biomedical applications and indeed they do not necessarily comply with medical/sanitary standards. "The main challenge for the e-Biomed Chair is to introduce the connected devices into the medical world, following 3 clearly identified development axes: an ageing population, increased occurrence of chronic illnesses and risk pregnancies", details Dan Istrate. The question is: how can connected biomedical tools contribute to allowing elderly patients to stay at home? To facilitate monitoring of diabetes patients or accompany a patient during recovery from a cerebrovascular accident (CVA)? To monitor and manage risk pregnancies?

A technology-intensive shop-window at UTC

In order to design and test connected biomedical tools, an integrated platform is being installed at the UTC Innovation Centre.

The Centre provides “a scale one simulation, with a “house” equipped with the tools we want to assess and this house will gradually become our technology-intensive show-room”, adds Dan Istrate. In keeping with the same logic the Chair will contribute to thinking about a Living Lab in Picardie Region, supported by the Sanitary Co-operation Group (GCS) for e-Health in Picardie. The e-med Chair will be organizing the 5th edition of the ‘TeleHealth’ Day, May 27-28, 2015 at UTC on the thematic “Connected biomedical tools for e-health”. Research scientists, industrialists, public authorities, device-users and health sector professionals have been invited to exchange on 4 topics – connected e-health tools, handicapped persons and tele-health, tele-health and care schemes.

Integrating sound in monitoring systems

Moreover, the new e-med chair – in collaboration with the GCS-e-Health Picardie Region - will be organizing 6-day primer training courses, on “telemedicine basics”. The first course was given in January 2015 at UT6 in the framework of the Master’s degree “Health-related Technologies and Territories, and a second course will be proposed in December 2015. Dan Istrate is himself a specialist in sound sensors and has thereby introduced a new field of research which is not integrated to any significant degree as yet in connected devices, making use of the sound environment. “Thanks to sound sensors, it is possible to detect a ‘potential emergency situation’ consequent to a fall, to a sudden discomfort – where specific, unusual, stressful sounds can be made by the person in suffering. Sounds carry lots of information and a microphone is far less invasive than a camera: potentially at risk persons will accept a microphone more readily to help monitor their case on a daily basis”. The Chair is planned for an initial tenure of two years. The objective is to successfully complete one or two projects including the associate technology transfer aspects and then extend the tenure of the Chair.