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Ubiquitous Health: Wearable Computing Systems that Promote Healthy Living and Transform Health Care

Prof. Bjoern Eskofier , PhD
Endowed Professorship of the adidas AG
Digital Sports Group, Pattern Recognition Lab
Friedrich-Alexander University Erlangen-Nuernberg

Facultad de Informática
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Entrada libre hasta completar el aforo

Abstract

The fast-growing costs of acute care are pushing the healthcare systems worldwide to a limit. Globally, we are coming to realize that we cannot afford to provide everybody with access to unlimited healthcare services in the light of current demographic changes. An alternative approach is emerging that focuses on "keeping people healthy" through primary and secondary prevention in all phases of life. This paradigm shift in the healthcare systems is demanding research in ambient assistive technologies that "keep people outside of the hospital". Therefore, a fast-growing interest exists for wearable computing systems and appropriate biomechanical modeling and machine learning concepts that aim at ubiquitous health support of individuals in the home and community settings.

The talk will focus on present research challenges that exist in the field of wearable computing systems for ubiquitous health support. Examples are the required modeling and statistical learning algorithms that need to be computationally efficient yet sufficiently accurate, but also associated ethical questions that need to be addressed when data are collected and analyzed ubiquitously. The discussion will focus on future research directions that open up with the expectable increasing amount of data generated by ubiquitous wearable computing systems.

The talk will also present several examples for associated research projects in the fields of sports and medicine. Particular examples are the miLife project aiming at promoting healthy living and the EFI Moves project aiming at objective and individualized efficacy assessment of medical diagnostics and intervention in prevention, early detection, and treatment of diseases.

Biography Bjoern Eskofier

Bjoern Eskofier studied Electrical Engineering at the Friedrich-Alexander University (FAU) Erlangen-Nuernberg (Germany) and graduated in 2006. He then studied under the supervision of Prof. Dr.-Ing. Joachim Hornegger (2006-2008) at the FAU and Prof. Dr. Benno Nigg (2008-2010) at the University of Calgary (Canada). There, he received his PhD degree in Biomechanics in 2010 for his research on "Application of Pattern Recognition Methods in Biomechanics". Since February 2011, Dr. Eskofier is assistant professor for Computer Science in Sports (endowed professorship of the adidas AG) and head of the Digital Sports Group at the Pattern Recognition Lab of the FAU. Currently, this group has 25 co-workers, working in the fields of machine learning and signal analysis for wearable computing systems in sports and health care. Bjoern Eskofier authored more than 100 peer reviewed articles and submitted 5 patent applications. His current research interest are machine learning, data mining, signal processing, biomechanical simulation, human-computer-interaction, and sensor integration methods for wearable computing systems in wellness, fitness, sports, and health care. His research motivation is generating a positive impact on human wellbeing, be it through increasing performance, maintaining health, improving rehabilitation, or monitoring disease.