



Innovation in Medicine and Healthcare – InMed'13

July 18-19, 2013, University of Piraeus, Greece

INVITED SESSION SUMMARY

Title of Session:

“Ambient TeleCare” 2013 (InMed Invited Session)

Submission deadline:

June 5, 2013

Name, Title and Affiliation of Chair:

- **Prof. Jenny Benois-Pineau**
Universite de Bordeaux 1, LABRI (UB1/LABRI)
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- **Dr. Alexia Briasouli**
Information Technologies Institute, Centre for Research and Technology, Hellas (CERTH)
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Dem@Care: Dementia Ambient Care: Multi-Sensing Monitoring for Intelligent Remote Management and Decision Support (<http://www.demcare.eu/>)

Details of Session (including aim and scope):

Healthcare systems are depending on increasingly sophisticated and ubiquitous technology, while tele-health is rapidly gaining importance with the advent of low-cost and effective technological solutions in medicine. The increase in the worldwide elderly population and the burden this is inflicting upon the workforce, societies and economies are making remote care and independent living at home a necessity.

Ambient TeleCare will investigate the State of the Art in remote monitoring and care of elderly people and assisted living solutions which enable people that are incapacitated in some regard to continue living independently at home and remain active members of society. The areas that will be investigated include unobtrusive remote monitoring via the latest sensing technologies, such as RGBD cameras, High definition and wearable cameras, microphones, pressure sensors through out the home and also basic health monitoring devices. The fusion of the data coming from these devices and resulting interpretations and feedback are of particular interest, since they determine the effectiveness and accuracy of these solutions. User interfaces and generally the manner in which feedback is provided, both to carers and individuals, comprises an entire research area of its own, as communication needs to be user-friendly in order for the technology to become an integral part of a person's daily life or a doctor's workflow. Finally, issues regarding potential ethical and legal/privacy issues as well as the marketing of ambient assisted living and tele-health-care systems will be examined. These aspects are extremely timely, as multitudes of cost-effective and high quality care solutions are already being developed and marketed, rendering the examination of new medical, healthcare paradigms an absolute necessity.

Themes of interest in Ambient Telecare include, but are not limited to:

1. Multimodal information retrieval and indexing for remote care
2. Design of smart-homes focusing on remote health monitoring
3. Feedback solutions for remote healthcare
4. Ethical and Legal Aspects of at home multimodal health monitoring
5. Marketing of ambient telehealth solutions

Invited Talk, July 18, 2013:

Assistive technologies for the blind and visually impaired: challenges and achievements within the AAL ALICE project Speakers: Titus ZAHARIA, Andrei BURSUC

In this talk, we will tackle the issue of assistive technologies for the blind and visually impaired. In the first part, we will present the specific needs of the visually impaired community, detailed in terms of both in-door and out-door navigation: precise localization, obstacle detection, landmark recognition, appropriate and non intrusive feedback methodologies are the high priority challenges that need to be accomplished with the help of both computer vision techniques and advanced positioning systems. Then, we will present the achievements within the framework of the ALICE project (AAL-2011-4-099) (www.alice-project.eu), supported by the European AAL (Ambient Assisted Living) program. After a short description of the project's main challenges, objectives and adopted approach, we will detail the various technological advances that are considered for development, together with the first achievements that will be demonstrated. Some user-centric development/evaluation-related issues will also be discussed.

Short bio - Titus ZAHARIA

Titus Zaharia received an Engineer degree in Electronics and Telecommunications, and a MSc. degree from University POLITEHNICA (Bucarest, Romania) in 1995 and 1996, respectively. In 2001, he obtained a Ph.D. in Mathematics and Computer Science from University Paris V – Rene Descartes (Paris, France). He joined the ARTEMIS Department at Institut Mines-Télécom, Télécom Sudparis as Associate Professor in 2002, became a full Professor in 2011. His research interests include visual content representation methods, with 2D/3D compression, reconstruction, animation, recognition and indexing applications. Since 1998, Titus Zaharia actively contributes to the ISO/MPEG-4 and MPEG-7 standards. Titus ZAHARIA has been involved in more than 20 European and French research projects and is currently contributing to the AAL ALICE project.



Short bio – Andrei BURSUC

Researcher in computer vision, image processing and machine learning applied to content-based multimedia indexing and retrieval, large scale video retrieval, object detection and pattern recognition. He has participated in the AAL ALICE project, whose objective is to improve the quality of life of ageing people with impaired vision by providing a navigational assistant with cognitive abilities. People that have an impaired visual cognitive system face problems with an overall contextual understanding of space semantics, interaction with surrounding objects and have serious difficulties with planning, orientation, communication and navigational skills. The navigational assistant developed within the ALICE project will be able to offer visually impaired users a cognitive description based on a fusion of perceptions gathered from a range of sensors. ALICE project is combining research developments in cognitive sciences, psychology, computer vision, artificial intelligence and robot navigation. Interested in computer vision, machine learning, data structures and algorithms and in helping computers to "see"



Main Contributing Researchers / Research Centres (tentative, if known at this stage):

- **Francois Bremond** (computer vision,)

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- **Philippe Robert** (clinician at Memory Resource and Research Centre of CHUN)
Centre Hospitalier Universitaire Nice (CHUN)
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- **Magda Tsolaki** (neurology, clinician specialized in AD and related disorders)
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Short CV of Invited Session Chairs

Prof. Jenny Benois-Pineau, is professor of Computer Science at University Bordeaux1, France, chair of video analysis and indexing research group, deputy scientific director of theme B of French national research unit GDR CNRS ISIS, and director of the CS dept. of the faculty of Mathematics and CS. She works on image/video analysis, indexing, content based multimedia retrieval, multimedia analysis for health. She has served in numerous program committees in conferences/workshops: ACM MM, CIVR, CBMI, AMR, etc. She was co organizer of "Information Fusion in Computer Vision", ECCV'2012, Video Program, ACM MM 2010, she is in the steering committee of CBMI, which she chaired in 2007. She is an expert for the European Commission in her field of research on multimedia analysis, indexing, retrieval.

Dr. Alexia Briasouli received the Diploma in Electrical, Computer Engineering in 1999 from the National Technical University of Athens, her Masters at the University of Patras in 2001 and her PhD on Electrical and Computer Engineering from the University of Illinois at Urbana-Champaign in 2006. She is co-author/main author of 12 journal publications and 26 conference publications and has served as a program committee member and reviewer for numerous international journals and conferences. Her research interests include image/video processing, activity recognition, crowd motion analysis.