



ABSTRACT and BIO

The Human Heart An Ultimate Cyber-Physical System

Dr. Radu Grosu, professor at Vienna University of Technology, Austria and the State University of New York at Stony Brook

2013-04-16

This talk discusses the opportunities and research challenges faced in the modeling, analysis and control of the human heart. Consisting of more than 4 billion communication nodes, interconnected through a very sophisticated communication structure, this ultimate cyber-physical system achieves with an astonishing reliability, the electric synchronization and the mechanical contraction of all of its nodes, in order to pump blood, during what is commonly known as a heart beat. However, even this cyber-physical system, engineered by billion years of evolution is fallible, and predicting its failure is a great challenge for our society.

Short bio

Radu Grosu is a Professor and Head of the Dependable-Systems Group at the Faculty of Informatics of the Vienna University of Technology, and a Research Professor at the Computer Science Department of the State University of New York at Stony Brook. His research interests include modeling, analysis and control of cyber-physical and biological systems and his application focus includes green operating systems, mobile ad-hoc networks, automotive systems, the Mars rover, cardiac-cell networks and genetic regulatory networks.

Grosu is the recipient of the National Science Foundation Career Award, the State University of New York Research Foundation Promising Inventor Award, the ACM Service Award, and a member of the International Federation of Information Processing WG 2.2. Before receiving his appointment at the Vienna University of Technology, Grosu was an Associate Professor in the Computer Science Department of the State University of New York at Stony Brook, where he co-directed the Concurrent-Systems laboratory and co-founded the Systems-Biology laboratory.

Grosu earned his Dr.rer.nat. in Computer Science from the Technical University of München, and was a Research Associate in the Computer Science Department of the University of Pennsylvania.