INTELLIGENT EMBEDDED SYSTEMS

Contact details

Name	**Intelligent Embedded Systems**
Acronym	**IES**
Logo	
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Areas of expertise

Intelligent embedded systems: Implementation of Intelligent embedded systems using field programmable gate areas (FPGA) having learning capabilities and adaptive behaviour
Hardware implementation of artificial neural networks in FPGA circuits
Modern technologies for distributed software systems
Intelligent sensors devices, adaptive interfaces with hardware implemented artificial neural networks
Intelligent acquisition systems
Assistive robots and ambient assisted living platforms
Information representation. Data coding and compression techniques.

Team

Assoc. Prof. Dr. Eng. Oniga Stefan, Assoc. Prof. Dr. Eng. Cosma Ovidiu, Assist. Prof. Dr. Eng. Buchman Attila, Dr. Eng. Costea Cristinel

Representative projects

Electronic Nose, "Contributions regarding the study, the synthesis and the implementation of certain applications using systems with intelligent sensors" CNCSIS Contract No. 602/2007, code TD-277.
"Research regarding the implementation of a neural network used to process signals generated by the muscular and nervous system." CNCSIS Contract No. 171/02.10.2007, TD-11.

Significant results

The most representative publications of the past 5 years

1. Suto, Jozsef; Oniga, Stefan, Efficiency investigation of artificial neural networks in human activity recognition JOURNAL OF AMBIENT INTELLIGENCE AND HUMANIZED COMPUTING Volume: 9 Issue: 4 Special Issue: SI Pages: 1049-1060 Published: AUG 2018
2. Alexan, Alexandru; Alexan, Anca; Oniga, Stefan; et al., Assisted living personal tracker framework 2018 IEEE INTERNATIONAL CONFERENCE ON AUTOMATION, QUALITY AND TESTING, ROBOTICS (AQTR) Book Series: IEEE International Conference on Automation Quality and Testing Robotics Published: 2018
3. Suto, Jozsef; Oniga, Stefan, Music Stimuli Recognition in Electroencephalogram Signal ELEKTRONIKA IR ELEKTROTECHNIKA Volume: 24 Issue: 4 Published: 2018
4. Pap, Iuliu Alexandru; Oniga, Stefan; Orha, Ioan; et al., IoT-Based eHealth Data Acquisition System 2018 IEEE INTERNATIONAL CONFERENCE ON AUTOMATION, QUALITY AND TESTING, ROBOTICS (AQTR) Book Series: IEEE International Conference on Automation Quality and Testing Robotics Published: 2018
5. Suto, Jozsef; Oniga, Stefan; Sitar, Petrica Pop, Music Stimuli Recognition from Electroencephalogram Signal with Machine Learning Conference: 7th International Conference on Computers Communications and Control (ICCCC) Location: Oradea, ROMANIA Date: MAY 08-12, 2018, Pages: 260-264 Published: 2018
6. Suto, J.; Oniga, S.; Sitar, P. Pop, Feature Analysis to Human Activity Recognition INTERNATIONAL JOURNAL OF COMPUTERS COMMUNICATIONS & CONTROL Volume: 12 Issue: 1 Pages: 116-130 Published: FEB 2017
7. Suto, Jozsef; Oniga, Stefan; Sitar, Petrica Pop, Comparison of Wrapper and Filter Feature Selection Algorithms on Human Activity Recognition Conference: 6th International Conference on Computers Communications and Control (ICCCC) Location: Oradea, ROMANIA Date: MAY 10-14, 2016 Pages: 124-129 Published: 2016
8. S. Oniga and J. Suto, "Activity Recognition in Adaptive Assistive Systems Using Artificial Neural Networks,"

Elektronika Ir Elektrotechnika, vol. 22, pp. 68-72, 2016.

9. Oniga Stefan, Jozsef Sueto, “Optimal Recognition Method of Human Activities Using Artificial Neural Networks” *MEASUREMENT SCIENCE REVIEW*, Vol. 15, Issue 6, Pp.323-327, Published: DEC 2015
10. Orha, I.; Oniga, S., Activity Recognition using an e-Textile Data Acquisition System
    Conference: 21st IEEE International Symposium for Design and Technology in Electronic Packaging (SIITME) Location: Brasov, ROMANIA Date: OCT 22-25, 2015
    Book Series: International Symposium for Design and Technology in Electronic Packaging Pages: 335-339 Published: 2015
11. Sabou Sebastian, Oniga Stefan, Lung Claudiu, “Magnetic sensors in inertial navigation system”, *20th IEEE International Symposium on Design and Technology in Electronic Packaging (SIITME),* Bucharest, ROMANIA, Oct 23-26, 2014, Pp. 211-214, Published: 2014
12. Oniga, Stefan; Pop-Sitar, Petrica, Application Possibilities of Hardware Implemented Hybrid Neural Networks to Support Independent Life of Elderly People, Conference: 8th International Conference on Hybrid Artificial Intelligent Systems (HAIS) Location: Salamanca, SPAIN Date: SEP 11-13, 2013, HYBRID ARTIFICIAL INTELLIGENT SYSTEMS Book Series: Lecture Notes in Computer Science Volume: 8073 Pages: 520-529 Published: 2013
13. Orha I., Oniga S.,"Study regarding the optimal sensors placement on the body for human activity recognition", *20th IEEE International Symposium on Design and Technology in Electronic Packaging (SIITME)*, Bucharest, ROMANIA, OCT 23-26, 2014, Pp. 203-206, Published: 2014
14. Orha, I.; Oniga, S., Automated system for evaluating health status
    Conference: IEEE 19th International Symposium for Design and Technology in Electronic Packaging (SIITME) Location: Galati, ROMANIA Date: OCT 24-27, 2013 Book Series: International Symposium for Design and Technology in Electronic Packaging Pages: 219-222 Published: 2013

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Oniga Stefan – AGEPI Medal - International Fair of Inventions and Practical Ideas "INVEST-INVENT SIR 21" – Gesture recognition system

The offer addressed to the economic environment

Research & development	Hardware implementation of artificial neural networks in FPGA circuits. Development of neural network’s specific blocks for rapid prototyping of application specific neural networks Intelligent sensors network Adaptive interfaces with learning capabilities able to adapt to the input signals changes Multi-agent systems Ontologies and evolutionary computation Computer networks, routing protocols Development of an intelligent platform (with learning capabilities and adaptive behaviour) for health condition monitoring of elderly or persons with disabilities, using wearable wireless sensor Mobile applications
Consulting	Embedded systems with microcontrollers and PLDs Data acquisition systems Computer networks Graphics and Image Processing
Training	Design with microcontrollers Design with FPGA circuits C/C++, Java, PHP programming languages Databases, Web programming, Computer networks