Smart Sensing – An International Approach

One Event – Three Forums at the Center for Sensor Systems (ZESS)
January 27th to 29th 2021

Wednesday, 27th January 2021
ATHENA Forum

10:00 Welcome

10:00 Opening of ATHENA Forum
Prof. Hubert Roth

10:05 Opening speeches
Chair: Prof. Hubert Roth, Prof. Kristof Van Laerhoven

10:05 ATHENA all-inclusive sustainable education
Nuno Escudeiro

11:00 How Internationalization can boost your Research: From Soft Skills to Shared Facilities - The ATHENA Case Study
Dr Konstantinos Petridis

12:00 Session 1
Chair: Prof. Hubert Roth, Prof. Kristof Van Laerhoven

12:00 Deep Learning-based Swimming Style Recognition from Differently Mounted IMU Sensor Data
Deividas Tarasevičius

12:20 The Quest for Raw Signals: A Quality Review of Publicly Available Photoplethysmography Datasets
Florian Wolling

12:30 Digging Deeper: Towards a better Understanding of Transfer Learning for Human Activity Recognition
Alexander Hoelzemann

12:40 Break

13:20 Tutorial
Chair: Dr. Anne Friederike Delouis, Dr. Konstantinos Petridis

13:20 DeepTech Research at University of Siegen - Nanotechnology paves the way for the Tera Era
Prof. Peter Haring Bolívar

14:10 Session 2
Chair: Dr. Anne Friederike Delouis, Dr. Konstantinos Petridis

14:10 The O-ZNS Observatory – A new concept for monitoring the Vadose Zone dynamics and the pollutant transfers in the Villamblain agricultural area (Beauce Aquifer, France)
Bouamama Abbar

14:30 Cold plasma for medicine: target mimicking circuit for better treatment control
Augusto Stancampiano

14:50 Development of graphene derivatives for photovoltaics
Katerina Anagnostou

15:10 Automatic Sign Language Translation with Data Gloves and Motion Sensors
Tiago Oliveira

Thursday, 28th January 2021
ZESS PhD Research Forum

10:00 Welcome

10:00 Opening of the ZESS PhD Research Forum
Prof. Thomas Seeger

10:05 Tutorial 1
Chair: Prof. Thomas Seeger

10:05 One-Bit Time-Resolved Imaging
Dr. Miguel Heredia Conde

10:50 Session 1
Chair: Prof. Thomas Seeger

10:50 Enhanced sensory identification in arrays of coupled resonant sensors
Tongjun Liu

11:10 Detecting User Respiration from Environmental Depth Cameras
Jochen Kempfle

11:30 Break

12:30 Tutorial 2
Chair: Prof. Michael Möller

12:30 Explorable Image Restoration
Dr. Yuval Bahat

13:20 **Session 2**
Chair: Prof. Michael Möller

13:20 Lifting based convex approximations of non-convex coupled problems
Hartmut Bauermeister

13:40 Progressive Refinement Imaging using RGB-D Data
Markus Kluge

14:00 **Break**

14:30 **Session 3**
Chair: Prof. Otmar Loffeld

14:30 Functional and Safety Limits of Camera-Based Advanced Driver Assistance Systems
Matthias Lehmann

14:50 Two and Three Dimensional ISAR Autofocus Based On Sparsity Driven Estimation of Relative Motion
Ahmad Hamad

15:10 O_2 CARS Thermometry in Oxy-fuel Flames Established in a Swirled Combustion Chamber
Evaggelos Sidiropoulos

15:30 Texture Classification based on Convolutional Neural Network
Aya Souliman

Friday, 29th January 2021
MenelaosNT Forum

9:00 **Welcome**

9:00 Opening of MenelaosNT Forum
Prof. Otmar Loffeld

9:05 **Tutorial 1**
Chair: Prof. Bhaskar Choubey, Dr. Andreas Bablich

9:05 3D Reconstruction with RGB-D Cameras – Geometry, Dynamics and Appearance
Prof. Andreas Kolb

9:50 **Session 1**
Chair: Prof. Bhaskar Choubey, Dr. Andreas Bablich

9:50 Efficient very-wide-area ToF 3D sensing by means of Adaptive Compressive Sensing
Alvaro Lopez Paredes

10:05 Pseudo-passive indoor ToF 3D sensing exploiting light-based wireless communications infrastructure
Faisal Ahmed

10:20 Fabrication of CMOS ToF sensors with 2D/3D capabilities
Peyman Fayyaz Shahandashti

10:35 **Break**
Location: Dr. Andreas Bablich

10:55 **Tutorial 2**
Chair: Dr. Andreas Bablich

10:55 Event based vision: depth estimation as an application case
Prof. Paula López Martínez

11:40 **Session 2**

11:40 Design of an AIC CMOS vision system for spatio-temporal event detection
Marko Jaklin

11:55 Civil works, operation and maintenance of urban infrastructures
Rabia Rashdi

12:10 Mobile mapping applications of CS techniques
Zhouyan Qiu

12:25 **Break**

13:05 **Tutorial 3**

13:05 Design of sparse radar arrays and processing using Compressive Sensing methods
Dr. Maria Gonzalez

13:50 **Session 3**

13:50 Tomographic SAR Reconstruction
Prithvi Laguduvan Thyagarajan

14:05 Sparse Reconstruction for high-resolution inverse SAR imaging
Muhammad Amjad Iqbal

14:20 Coded waveforms for colocated MIMO radar using sparse modelling
Saravanan Nagesh

14:35 Adaptive compressed sensing methods for more efficient radar detection and localization
Sanhita Guha

14:50 **Break**

15:10 **Tutorial 4**

15:10 Artificial Intelligence Training and Benchmark for Earth Observation: Data Sets and Procedures
Prof. Mihai Datcu

15:55 **Session 4**

15:55 Deep Depth from Defocus (Deep DFD) for near range and in-situ 3D exploration
Saqib Nazir

16:10 Learning with adversarial samples for EO multi-spectral images
Omid Ghozatlou

16:25 Deep learning for SAR data in presence of adversarial samples
Reza Mohammadi Asiyabi