

# **2020 17th Biennial Baltic Electronics Conference (BEC 2020)**

**Tallinn, Estonia  
6 – 8 October 2020**



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## **TUESDAY, October 6**

Tallinn University of Technology, Mektori House,  
Raja 15, 12616 Tallinn, ESTONIA

### **OPENING PLENARY SESSION – Session chair Dr. ANTS KOEL**

- 13:00–13:15 Opening Plenary Session  
General Chairman Dr. Ants Koel
- 13:15–13:30 Welcoming Address from Otto Richard Pukk  
President and CEO of INCAP Corporation, Estonia
- 13:30–14:30 Dr. Elena-Ioana Vatajelu  
**Versatility of Emergent Memory Technologies: Friend or Foe?.....N/A**  
CNRS in TIMA Laboratory TIMA – CNRS / Universite Grenoble Alpes, France
- 14:50–15:50 Péter Fürjes  
**Integrated MEMS tactile sensors in Minimal Invasive Surgery.....N/A**  
Centre for Energy Research, Institute of Technical Physics and Materials Science, Microsystems Laboratory, Budapest, Hungary
- 15:50–16:50 Andreas Grimm  
**Rohde & Schwarz Oscilloscopes overview and Power measurements.....N/A**  
Rohde & Schwarz International GmbH, Germany
- 17:00–18:00 **Tutorial: Public Safety Communication in the Context of Terrorist Attacks.....N/A**  
Muhammad Mahtab Alam, Tallinn University of Technology  
Ahmad Rizwan – National University of Sciences and Technology (NUST)  
Maurizio Magarini – Politecnico di Milano

## **WEDNESDAY, October 7**

Hotel L'Embitu, Lembitu 12, 10114, Tallinn, ESTONIA

### **INSTRUMENTATION AND SIGNAL PROCESSING – MEASUREMENT**

Session Chair – PAUL ANNUS, Tallinn University of Technology

- 10:00–10:20 Margus Metshein, Ksenija Pesti, Mart Min, Paul Annus and Olev Märtsens  
**Feasibility of Utilizing Air Gapped Toroidal Magnetic Cores for Detecting Pulse Wave in Radial Artery.....1**  
Tallinn University of Technology, Estonia
- 10:20–10:40 Maryna Lazouskaya<sup>1</sup>, Martti Tamm<sup>1</sup>, Ott Scheler<sup>2</sup>, Kiranmai Uppuluri<sup>3</sup> and Krzysztof Zaraska<sup>3</sup>  
**Nafion as a protective membrane for screen-printed pH-sensitive ruthenium oxide electrodes.....6**
- <sup>1</sup>Center of Food and Fermentation Technologies, Estonia  
<sup>2</sup>Tallinn University of Technology, Estonia  
<sup>3</sup>Institute of Electron Technology, Poland
- 10:40–11:00 Matti Huotari, Kari Määttä and Juha Röning  
**Merged Poincaré plot based heart rate analysis.....10**  
University of Oulu, Finland
- 11:00–11:20 Denis Arruga<sup>1</sup>, Serge Dos Santos<sup>1</sup> and Morgan Brochard<sup>2</sup>  
**Advanced Excitation Symmetry Analysis Method (ESAM) for improved automated ultrasonic testing within NDT4:0.....14**
- <sup>1</sup>INSA Centre Val de Loire, France  
<sup>2</sup>Inspection et Techniques de Contrôles Spécialisées (ITCS) – CETIM, France

### **INSTRUMENTATION AND SIGNAL PROCESSING – IMAGINE**

Session Chair – OLEV MÄRTENS, Tallinn University of Technology

- 11:40–12:00 Juris Sinica-Sinavskis<sup>1</sup>, Romans Dinuls<sup>1</sup>, Juris Zarins<sup>2</sup> and Ints Mednieks<sup>1</sup>  
**Automatic tree species classification from Sentinel-2 images using deficient inventory data.....19**
- <sup>1</sup>Institute of Electronics and Computer Science, Latvia  
<sup>2</sup>Latvian State Forest Research Institute "Silava", Latvia

- 12:00–12:40 Ali Zahavi, Shahriar Najafi Haeri, Dhanushka Chamara Liyanage and Mart Tamre  
**A Dual-Arm Robot for Collaborative Vision-Based Object Classification.....25**  
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- 12:40–13:00 Daniels Justs, Rihards Novickis, Kaspars Ozols and Modris Greitāns  
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- 13:00–13:20 Rihards Novickis, Aleksandrs Levinskis, Roberts Kadīķis, Vitālijs Feščenko and Kaspars Ozols  
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Institute of Electronics and Computer Science, Latvia

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- 14:40–15:00 Igor Astrov, Andres Udal, Indrek Roasto and Heigo Mölder  
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- 15:00–15:20 Fawad Khan<sup>1</sup>, Rizwan Ahmad<sup>1</sup>, Waqas Ahmed<sup>2</sup>, Muhammad Mahtab Alam<sup>3</sup> and Micheal Drieberg<sup>4</sup>  
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- <sup>1</sup>National University of Sciences and Technology (NUST), Pakistan  
<sup>2</sup>Pakistan Institute of Engineering and Applied Sciences (PIEAS), Pakistan  
<sup>3</sup>Tallinn University of Technology, Estonia  
<sup>4</sup>Universiti Teknologi PETRONAS, Malaysia
- 15:20–15:40 Ansis Skadins, Raimonds Rava, Maksims Ivanovs and Krisjanis Nesenbergs  
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Institute of Electronics and Computer Science, Latvia

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- 16:20–16:40 Ali Hassan<sup>1</sup>, Rizwan Ahmad<sup>1</sup>, Waqas Ahmed<sup>2</sup>, Maurizio Magarini<sup>3</sup> and Muhammad Mahtab Alam<sup>4</sup>  
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- <sup>1</sup>National University of Sciences and Technology (NUST), Pakistan  
<sup>2</sup>Pakistan Institute of Engineering and Applied Sciences (PIEAS), Pakistan  
<sup>3</sup>Politecnico di Milano, Italy,  
<sup>4</sup>Tallinn University of Technology, Estonia
- 16:40–17:00 Luca Reggiani<sup>1</sup>, Mina Khalel<sup>1</sup> and Riccardo Ferrari<sup>2</sup>  
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- <sup>1</sup>Politecnico di Milano, Italy  
<sup>2</sup>Azcom Technology, Italy
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- <sup>1</sup>University of Rochester, USA <sup>2</sup>Synopsys Inc: USA

## THURSDAY, October 8

Hotel L'Embitu, Lembitu 12, 10114, Tallinn, ESTONIA

### ELECTRONIC DEVICES AND POWER CONVERSION TECHNOLOGIES

Session Chair – HAMED MASHINCHI MAHERI, Tallinn University of Technology

- 10:00–10:20 Tamas Pardy<sup>1</sup>, Rauno Jõemaa<sup>1</sup>, Ferenc Ender<sup>2</sup>, Toomas Rang<sup>1</sup>, Kristóf Hegedűs<sup>2</sup> and Diana Balogh-Weiser<sup>2</sup>  
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<sup>1</sup>Tallinn University of Technology, Estonia  
<sup>2</sup>Budapest University of Technology and Economics, Hungary
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<sup>1</sup>Tallinn University of Technology, Estonia  
<sup>2</sup>SelfDiagnostics Deutschland GmbH, Germany
- 10:40–11:00 Andreas Armstorfer<sup>1</sup>, Helmut Biechl<sup>1</sup> and Argo Rosin<sup>2</sup>  
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<sup>1</sup>Kempten University of Applied Sciences Kempten, Germany  
<sup>2</sup>Tallinn University of Technology, Estonia
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<sup>1</sup>Riga Technical University, Latvia  
<sup>2</sup>Chernihiv National University of Technology, Ukraine

### DEPENDABILITY AND SECURITY – CASE STUDIES IN EMBEDDED AND DEPENDABLE SYSTEMS

Session Chair – JAAN RAIK, Tallinn University of Technology

- 11:40–12:00 Madis Kerner<sup>1</sup>, Kalle Tammemäe<sup>1</sup>, Jaan Raik<sup>1</sup> and Thomas Hollstein<sup>2</sup>  
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<sup>1</sup>Tallinn University of Technology, Estonia  
<sup>2</sup>Frankfurt University of Applied Sciences, Germany
- 12:00–12:20 Giulio Caforio<sup>1</sup>, Davide Scazzoli<sup>1</sup>, Luca Reggiani<sup>1</sup>, Maurizio Magarini<sup>1</sup>, Yannick Le Moullec<sup>2</sup> and Muhammad Mahtab Alam<sup>2</sup>  
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<sup>1</sup>Politecnico di Milano, Italy  
<sup>2</sup>Tallinn University of Technology, Estonia
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<sup>1</sup>Infineon Technologies Austria AG, Austria  
<sup>2</sup>Infineon Technologies AG, Germany
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<sup>2</sup>Universidad Pedagogica y Tecnologica de Colombia (UPTC), Colombia
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<sup>1</sup>Tallinn University of Technology, Estonia  
<sup>2</sup>Alto University, Finland
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Airbus Defence and Space GmbH