EESMS 2015 - FINAL PROGRAM

July 9, 2015

Department of Sociology, Via Verdi 26 – Trento

13.00 – 14.15	REGISTRATION	
14.15 – 14.25	WELCOME AND OPENING SESSION (Kessler room)	
14.25 – 15.00	**KEYNOTE LECTURE** (Kessler room) **Algorithm fusion, novelty detection, density estimation and all that** *Prof. Dionisio Bernal - Northeastern University, Center for Digital Signal Processing, Boston, USA* **Abstract -** Algorithm fusion has received significant attention in the machine learning community in supervised learning mode but not much has been done at this point in a novelty detection framework. This presentation discusses the merit of a fusion strategy wherein metrics from multiple algorithms are treated as entries of a vector whose probability density is subsequently estimated and used for detection. The framework is general but will be discussed in the particular case of two algorithms: 1) a whiteness test on Kalman filter innovations and 2) a subspace scheme that operates with residuals from an orthogonality test. The presentation discusses also the issue of density estimation and shows that in many instances it is necessary, due to limitations on the available data, to replace explicit estimation with an approach that gives a decision boundary directly. The talk briefly outlines the Kernel PCA algorithm as an effective candidate for decision boundary selection and highlights the advantages of operating with the probability of a sequence of measurements instead of point values.	
15.00 – 16.20	**BRIDGE HEALTH MONITORING** (Kessler room) *Chair: Daniele Zonta, University of Trento, Italy*	**ICT SOLUTIONS FOR MONITORING APPLICATIONS** (Room 5) *Chair: Stefano Ferrari, University of Milan, Italy*
15.00 – 15.20	**Cross Validation-based Novelty Detection Of Bridge Group** *Shaoyi Zhang (Harbin Inst. of Technology, China)* *Yang Liu (Harbin Inst. of Technology, China)* *Changxi Yang (Harbin Inst. of Technology, China)*	**A dashboard and decision support tool for the energy governance of smart cities** *Raffaele Carli (Polytechnic of Bari, Italy)* *Vito Albino (Polytechnic of Bari, Italy)* *Mariagrazia Dotoli (Polytechnic of Bari, Italy)* *Giovanni Mummolo (Polytechnic of Bari, Italy)* *Mario Savino (Polytechnic of Bari, Italy)*

15.20 – 15.40	**Structural Health Monitoring of the Colle Isarco Viaduct** *Angela Beltempo (University of Trento, Italy)* *Carlo Cappello (University of Trento, Italy)* *Daniele Zonta (University of Trento, Italy)* *Alessio Bonelli (University of Trento, Italy)* *Oreste Bursi (University of Trento, Italy)* *Carlo Costa (Autostrada del Brennero, Italy)* *Walter Pardatscher (Autostrada del Brennero, Italy)*	**Crowdsourcing And Mobile Device For Wide Areas Monitoring** *Andrea Guerriero (Polytechnic of Bari, Italy)* *Federico Giuliani (Polytechnic of Bari, Italy)* *Davide Oscar Nitti (Geophysical Applications Processing, Italy)*
15.40 – 16.00	**Evaluating the State of a Section under Bending Using the Location of Neutral Axis** *Xi Li (Princeton University, USA)* *Branko Glisic (Princeton University, USA)*	**Knowledge Management Framework for Monitoring Systems improving Building Energy Efficiency** *Mathias Kadolsky, (Technical University of Dresden, Germany)* *Ronny Windisch, (Consulting Engineers & Architects, Germany)* *Raimar J. Scherer, Technical University of Dresden, Germany)*
16.00 – 16.20	**Mechanical equivalent of logical inference: application to monitoring data analysis** *Denise Bolognani (University of Trento, Italy)* *Carlo Cappello (University of Trento, Italy)* *Daniele Zonta (University of Trento, Italy)*	**Engineering Competitive Education Using Modern Network Technologies in the NRNU MEPhI** *Dmitry Yakovlev (National Research Nuclear Univ. MEPhI, Russia)* *Andrey Pryakhin (National Research Nuclear Univ. MEPhI, Russia)* *Sergey Korolev (National Research Nuclear Univ. MEPhI, Russia)* *Yulia Shaltaeva (National Research Nuclear Univ. MEPhI, Russia)* *Nikolay Samotaev (National Research Nuclear Univ. MEPhI, Russia)* *Evgeniy Yushkov (National Research Nuclear Univ. MEPhI, Russia)* *Alexandra Avanesyan (National Research Nuclear Univ. MEPhI, Russia)*

16.20 – 16.50	Coffee break	
16.50 – 18.30	**STRUCTURAL HEALTH MONITORING - I** (Kessler room) *Chair: Dionisio Bernal, Northeastern Univ., USA*	**ENERGY MONITORING SYSTEMS - I** (Room 5) *Chair: Marco Cozzini, EURAC, Italy*
16.50 – 17.10	**Continuous strain prediction for fatigue assessment of an offshore wind turbine using Kalman filtering techniques** *Kristof Maes (KU Leuven, Belgium)* *Guido De Roeck (KU Leuven, Belgium)* *Geert Lombaert (KU Leuven, Belgium)* *Alexandros Iliopoulos (Vrije Universiteit Brussel, Belgium)* *Danny Van Hemelrijck (Vrije Universiteit Brussel, Belgium)* *Christof Devriendt (Vrije Universiteit Brussel, Belgium)* *Patrick Guillaume (Vrije Universiteit Brussel, Belgium)*	**Impact of PMUs on State Estimation Accuracy in Active Distribution Grids with Large PV Penetration** *David Macii (University of Trento, Italy)* *Grazia Barchi (EURAC, Italy)* *David Moser (EURAC, Italy)*
17.10 – 17.30	**Damage detection in an operating Vestas V27 wind turbine blade by use of outlier analysis** *Martin Ulriksen (Aalborg University, Denmark)* *Dmitri Tcherniak (Brüel & Kjær Sound and Vibration, Denmark)* *Lars Damkilde (Aalborg University, Denmark)*	**Forecasting and monitoring wet-snow sleeve on overhead power lines in Italy** *Matteo Lacavalla (RSE SpA , Italy)* *Pietro Marcacci (RSE SpA , Italy)* *Antonella Frigerio (RSE SpA, Italy)*
17.30 – 17.50	**Dynamic monitoring of guardrails: approach to a low-cost system** *Daniele Davino (University of Sannio, Italy)* *Maria Rosaria Pecce (University of Sannio, Italy)* *Ciro Visone (University of Sannio, Italy)* *Carmine Stefano Clemente (University of Sannio, Italy)* *Angelo Ielardi (University of Sannio, Italy)*	**Long term measurement accuracy analysis of a commercial monitoring system for photovoltaic plants** *Dario Bertani (RSE SpA, Italy)* *Salvatore Guastella (RSE, Italy)* *Giorgio Belluardo (EURAC, Italy)* *David Moser (EURAC, Italy)*

17.50 – 18.10	**Identifying fabrication defects of metal packaged fibre Bragg grating sensors for smart pre-stressing strands** _Iain Mckeeman (University of Strathclyde, UK)_ _Pawel Niewczas (University of Strathclyde & Synaptec Ltd, UK)_ _Michael W. Johnston (EDF Energy Nuclear Generation Ltd., UK)_	**Towards the integration of monitoring systems to support the evaluation of nearly Zero Energy Buildings through Key Performance Indicators** _Roberto Sanz (Fundación CARTIF, Spain)_ _Alvaro Corredera (Fundación CARTIF, Spain)_ _Jose Hernández (Fundación CARTIF, Spain)_ _Jesus Samiengo (Fundación CARTIF, Spain)_ _Julia Vicente (Fundación CARTIF, Spain)_ _Luis A. Bujedo (Fundación CARTIF, Spain)_
18.10 – 18.30	**Implementation of UAV Localization Methods for a Mobile Post-Earthquake Monitoring System** _Mitsuhito Hirose (University of Michigan, USA)_ _Yong Xiao (University of Michigan, USA)_ _Zhiyuan Zuo (University of Michigan, USA)_ _Vineet Kamat (University of Michigan, USA)_ _Dimitrios Zekkos (University of Michigan, USA)_ _Jerome Lynch (University of Michigan, USA)_	**Model of scalable future consumer grid with residential power routing** _Syed A. Mustufa Younus (University of Trento, Italy)_ _Davide Brunelli (University of Trento, Italy)_
19.45	**Bus departure to "_Castel Toblino_" – Conference dinner**	

July 10, 2015
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8.45 – 10.25	**STRUCTURAL HEALTH MONITORING – II** (Kessler room) *Chair: Fabrizio Gara, Università Politecnica delle Marche, Italy*	**SENSORS AND SENSING TECHNIQUES FOR ENVIRONMENTAL MONITORING** (Room 5) *Chair: Alexander Baranov (MATI–Russian State Technological University, Russia)*
8.45 – 9.05	**Strain-sensitive Photonic Crystals for Sensing Applications in Structural Health Monitoring** *Anna Piotrowska (Univ. of Trento & CNR-IFN, Italy)* *Andrea Chiappini (CNR-IFN, Italy)* *Anna Lukowiak (PAS, Poland)* *Cristina Armellini (CNR-IFN, Italy)* *Alessandro Carpentiero (CNR-IFN, Italy)* *Maurizio Mazzola (CNR-IFN, Italy)* *Stefano Varas (CNR-IFN, Italy)* *Marian Marciniak (National Institute of Telecommunications, Poland)* *Maurizio Ferrari (CNR-IFN, Italy)* *Daniele Zonta (University of Trento, Italy);*	**Phytoplankton identification by combined methods of morphological processing and fluorescence imaging** *Mathieu Lauffer (CentraleSupelec, University of Lorraine, France)* *Frédéric Genty (CentraleSupelec, France)* *Jean-Luc Collette (CentraleSupelec, France)* *Samuel Margueron (University of Lorraine, France)*
9.05 – 9.25	**The Data-Driven Method for Structural Dynamic and Static Monitoring of a damaged Church** *Lisa Barbetta, (University of IUAV of Venice, Italy)* *Giosuè Boscato (University of IUAV of Venice, Italy)* *Alessandra Dal Cin (University of IUAV of Venice, Italy)* *Silvia Ientile (University of IUAV of Venice, Italy)* *Salvatore Russo (University of IUAV of Venice, Italy)*	**Pervaporation Unit with MEMS Gas Sensor for the Measurement of Methane Concentration in Water** *Alexander Viktorovich Pisliakov (National Research Center Kurchatov Institute, Russia)* *Andrey Vladimirovich Sokolov (Open Joint Stock Company NPP Delta, Russia)* *Oleg Vladimirovich Polovko (National Research Center Kurchatov Institute, Russia)* *Nikolay Nikolaevich Samotaev (National Research Nuclear University MEPhI, Russia)* *Vittorio Guarnieri (Fondazione Bruno Kessler, Italy)* *Leandro Lorenzelli (Fondazione Bruno Kessler, Italy)* *Wojciech Kujawski (Nicolaus Copernicus University in Torun, Poland)* *Anna Kujawska (Nicolaus Copernicus University in Torun, Poland)* *Alexey Andreevich Vasiliev (St. Petersburg ITMO University, Russia)* *Andrey Vladimirovich Legin (St. Petersburg ITMO University, Russia)*

9.25 – 9.45	**Monitoring of historical buildings: project of a dynamic monitoring system for the world's largest elliptical dome** R. Ceravolo (Politecnico di Torino, Italy) G. De Lucia (Politecnico di Torino, Italy) M. Pecorelli (Politecnico di Torino, Italy) L. Zanotti Fragonara (Cranfield University, UK)	**Analysis of NO2 absorption cross-sections at high temperature for the development of post-combustion gases optical sensor** *Thibault Mengis (CentraleSupélec and Electricfil Automotive, France)* *Frédéric Genty (CentraleSupelec, France)* *Thierry Aubert (CentraleSupélec, France)*
9.45 – 10.05	**Operational modal analysis on a r.c. building for the evaluation of the dynamic changes due to retrofitting** *Davide Roia (Univ. Politecnica delle Marche, Italy)* *Fabrizio Gara (Univ. Politecnica delle Marche, Italy)* *Elisa Speranza (Univ. Politecnica delle Marche, Italy)* *Laura Gioiella (Univ. Politecnica delle Marche, Italy)* *Luigino Dezi (Univ. Politecnica delle Marche, Italy)*	**Non-dispersive LED-based methane open pathdetector capabilities** *Sergey Fanchenko (National Research Center Kurchatov Institute, Russia)* *Alexander Baranov (MATI–Russian State Technological University, Russia)* *Alexey Savkin (Moscow Aviation Technological University, Russia)* *Andrey Petukhov (LLC LED Microsensor NT, Russia)* *Karina Kalinina (LLC LED Microsensor NT, Russia)* *Bizhigit Zhurtanov (LLC LED Microsensor NT, Russia)* *Mikhail Velikotny (LLC LED Microsensor NT, Russia)*
10.05 – 10.25	**Uncertainty evaluation of after-earthquake damage detection strategy** *Davide Trapani (University of Trento Italy)* *Andrea Maroni (University of Trento, Italy)* *Emiliano Debiasi (University of Trento, Italy)* *Daniele Zonta (University of Trento, Italy)*	**Depth Estimation Using Multispectral QuickBird Imagery: A Study in Kish Island, the Persian Gulf** *Keivan Kabiri (Iranian National Institute for Oceanography and Atmospheric Science (INIOAS), Iran)* *Biswajeet Pradhan (University Putra Malaysia, Malaysia)* *Hamid Rezai (Iranian National Institute for Oceanography, INIO, Iran)* *Masoud Moradi (Scientific Staff, Iran)* *Yasser Ghobadi (Geospatial Information Science Research Center at the University Putra Malaysia, Malaysia)*
10.25 – 11.00	**Coffee break**	

	"RISKS PREVENTION OF ARCHITECTURAL HERITAGE BY MEANS OF HEALTH MONITORING" – SPECIAL SESSION (Kessler room) *Chair: Dora Foti, Polytechnic of Bari, Italy*	**ENERGY MONITORING SYSTEMS - II** (Room 5) *Chair: David Macii, University of Trento, Italy*
11.00 – 12.40		
11.00 – 11.20	**On Damage Monitoring in Historical Buildings via Neural Networks** *Leonarda Carnimeo (Polytechnic of Bari, Italy)* *Dora Foti (Polytechnic of Bari, Italy)* *Vitantonio Vacca (Polytechnic of Bari, Italy)*	**Smart monitoring for sustainable and energy-efficient buildings: a case study** *Davide Brunelli (University of Trento, Italy)* *Ivan Minakov (University of Trento, Italy)* *Roberto Passerone (University of Trento, Italy)* *Maurizio Rossi (University of Trento, Italy)*
11.20 – 11.40	**Structural Health Monitoring for post-earthquake controls: applications in l'Aquila** *Filippo Lorenzoni (University of Padova, Italy)* *Mauro Caldon (University of Padova, Italy)* *Claudio Modena (University of Padova, Italy)* *Takayoshi Aoki (Nagoya City University, Japan)*	**Design and Implementation of a Diagnostic Device for Fuel Cell Systems Based on an Application Web Server** *Navid Torabpourshiraz (Univ. of Bozen-Bolzano, Italy)* *Michael Wenske (Otto von Guericke University of Magdeburg, Germany);* *Renato Vidoni (University of Bozen-Bolzano, Italy)*
11.40 – 12.00	**Structural Health Monitoring of a historic masonry tower** *Carmelo Gentile (Politecnico di Milano, Italy)* *Marco Guidobaldi (Politecnico di Milano, Italy)* *Antonella Saisi (Politecnico di Milano, Italy)*	**Monitoring of a Concentrating Solar Thermal Field: Energy Measurements and Uncertainty Analysis** *Marco Cozzini (EURAC, Italy)* *Mauro Pipiciello (EURAC, Italy)* *Roberto Fedrizzi (EURAC, Italy)*
12.00 – 12.20	**Seismic vulnerability assessment of a historical masonry building: Pandone Castle** *Anna Rosa Tilocca (University of Bologna, Italy)* *Barbara Ferracuti (University of Bologna, Italy)* *Claudio Mazzotti (University of Bologna, Italy)* *Marco Bovo (University of Bologna, Italy)*	**Monitoring system of thermo-solar plant based on touch-screen interface manageable locally by PC and remotely by Android-based mobile devices** *Paolo Visconti (University of Salento, Italy)* *Paolo Costantini (University of Salento, Italy)* *Giorgio Cavalera (Cavalera Sistemi Srl, Italy)*
12.20 – 12.40	**SSHM and DSHM for a better knowledge and risk prevention of historical buildings: the cases of the Two Towers in Bologna and the Cathedral in Modena** *Simonetta Baraccani (University of Bologna, Italy)* *Michele Palermo (University of Bologna, Italy)* *Stefano Silvestri (University of Bologna, Italy)* *Giada Gasparini (University of Bologna, Italy)* *Tomaso Trombetti (University of Bologna, Italy)*	**Forecasting data centers power consumption with the Holt-Winters method** *Maurizio Rossi (University of Trento, Italy)* *Davide Brunelli (University of Trento, Italy)*

12.40 – 14.00	Luncheon	
14.00 – 15.20	**MEASUREMENT TECHNIQUES AND DATA ACQUISITION SYSTEMS** (Kessler room) *Chair: Dario Petri, University of Trento, Italy*	**ALGORITHMS FOR MONITORING APPLICATIONS** (Room 5) *Chair: Daniele Fontanelli, University of Trento, Italy*
14.00 – 14.20	**Preliminary analysis of a Real Time Segmentation and Labeling algorithm** *Francesco Abate (University of Salerno, Italy)* *Vincenzo Paciello (University of Salerno, Italy)* *Antonio Pietrosanto (University of Salerno and CEO of SPRING OFF srl, Italy)* *Gustavo Monte (UTN Facultad Regional Del Neuquen, Argentina)*	**Modeling QoS in Wireless Monitoring Systems as Markov Chains** *Marco Pellegrini (LIF Srl, Italy)*
14.20 – 14.40	**Cross-Correlation Methods for Enhanced Monitoring and Health Assessment of Wooden Poles** *Matteo Bertocco (University of Padova, Italy)* *Guglielmo Frigo (University of Padova, Italy)*	**A Cooperative Monitoring Technique Using Visually Servoed Drones** *Marco Andreetto (University of Trento, Italy)* *Matteo Pacher (University of Trento, Italy)* *Daniele Fontanelli (University of Trento, Italy)* *David Macii (University of Trento, Italy)*
14.40 – 15.00	**Dynamic identification of an ancient masonry bell tower using a MEMS-based acquisition system** *Elisa Bassoli (University of Modena and Reggio Emilia, Italy)* *Loris Vincenzi (University of Modena and Reggio Emilia, Italy)* *Marco Bovo (University of Bologna, Italy)* *Claudio Mazzotti (University of Bologna, Italy)*	**Anomaly detection in gas consumption through ARIMA and Artificial Neural Network forecast** *Marco De Nadai (University of Trento, Italy)* *Maarten van Someren (University of Amsterdam, The Netherlands)*
15.00 – 15.20	**Wireless Multi-Sensor Gas Platform for Environmental Monitoring** *Denis Spirjakin (MATI – Russian State Technological University, Russia)* *Alexander Baranov (MATI–Russian State Technological University, Russia)* *Alexey Karelin (STC MGS, Russia)* *Andrey Somov (CREATE-NET, Italy)*	**Social Isolation Monitoring System via AI Approach** *Vincenzo Di Lecce (Polytechnic of Bari, Italy)* *Antonella Giove (Polytechnic of Bari, Italy)* *Alessandro Quarto (myHermes S.r.l. and Polytechnic of Bari, Italy)* *Domenico Soldo (myHermes S.r.l. and Polytechnic of Bari, Italy)* *Francesco Di Lecce (myHermes S.r.l., Italy)*
15.20 – 15.30	**CLOSING SESSION** (Kessler room)	