# 2018 IEEE Workshop on Environmental, Energy, and Structural Monitoring Systems (EESMS 2018)

Salerno, Italy 21-22 June 2018



IEEE Catalog Number: CF ISBN: 978

CFP1866H-POD 978-1-5386-6406-3

## Copyright © 2018 by the Institute of Electrical and Electronics Engineers, Inc. All Rights Reserved

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

\*\*\* This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.

 IEEE Catalog Number:
 CFP1866H-POD

 ISBN (Print-On-Demand):
 978-1-5386-6406-3

 ISBN (Online):
 978-1-5386-6405-6

#### **Additional Copies of This Publication Are Available From:**

Curran Associates, Inc 57 Morehouse Lane Red Hook, NY 12571 USA Phone: (845) 758-0400

Fax: (845) 758-2633

E-mail: curran@proceedings.com Web: www.proceedings.com



#### **TABLE OF CONTENTS**

Welcome Message
EESMS Organizing Committeevi
Keynotevii
Thursday, June 21
10:30 – 11:00 Welcome Message Speakers: Matteo Gaeta, University of Salerno, Italy Alfonso Cantarella, President of Fondazione Carisal
11:00 – 13:00 Session 1   Environmental Monitoring Session Chair: Angelo Genovese, University of Milan, Italy
Intelligent Monitoring Internet of Things based System for Agri-food Value Chain Traceability and Transparency: a framework Proposed
Angelo Corallo (University of Salento, Italy) Anna Lisa Guido (University of Salento, Italy) Maria Elena Latino (University of Salento, Italy) Marta Menegoli (Naica srl, Italy) Roberto Paiano (University of Salento, Italy) Andrea Pandurino (University of Salento, Italy)
Independent Component Analysis as a monitoring tool in geophysical environment: the case of Campi Flegrei (Italy)
A multi-perspective aerial monitoring system for scenario detection
Danilo Cavaliere (University of Salerno, Italy) Sabrina Senatore (University of Salerno, Italy) Vincenzo Loia (University of Salerno, Italy)
Land cover and Crop Classification using Multitemporal Sentinel-2 Images Based on Crops Phenological Cycle
14:15 – 15:00  Keynote Speech Session Chair: Vincenzo Loia, University of Salerno Speaker: Francesco Roca (ENEA - DTE Energy Technologies Department) 15:00 – 16:00 Session 2   Structural Health Monitoring I Session Chair: Gordon Morison, Glasgow Caledonian University, UK
Structural health monitoring of a historic masonry bell tower by radar interferometric measurements

A	Low-Cost	Wireless	Sensor	Node	for	Building	Monitorin	ıg				 30
Fa Sa Ma Le Pa All	assimo Conti abrizio Gara ( andro Carbor arco Regni (I onardo Zapp aola Pierleon berto Belli (M mone Valenti	(Marche Poly nari (Marche Marche Poly pelli (Univpm i (Marche Polyt Marche Polyt	ytechnic U Polytechn technic Un Italy) plytechnic echnic Uni	niversity ic Unive niversity, Universi iversity,	r, Italy ersity, Italy) ity, Ita Italy)	v)   Italy)     Italy)						
Dy	namic In Si	tu Tests for	the Calib	ration o	of an	Infilled R.	C. Building	g F.E. Mo	del			 36
Fa Ma Sa	anni Nicoletti abrizio Gara ( arco Regni (N andro Carbor igino Dezi (N	Marche Poly Marche Poly nari (Marche	ytechnic U technic Un Polytechn	niversity niversity, nic Unive	r, Italy Italy) ersity,	() ) Italy)						
16	:15 – 17:30											
	ession 3   St ession Chair					nic Universi	ty, Italy					
Ro	oad Crack D	etection us	ing a Sing	jle Stag	e Det	tector Bas	ed Deep N	eural Net	twork			 42
Ma Ma To	nomas Arthur ark David Jel aria Insa Igle om Buggy (G ordon Moriso	nkins (Glasg sias (Glasgo lasgow Cale	ow Caledo ow Caledo edonian Ur	onian Ur nian Un niversity,	nivers iversii Unite	sity, United ty, United I ed Kingdon	Kingdom ( Kingdom (G m (Great Br	Great Brit Great Brita ritain))	tain)) ain))			
Ma Fa Sa	fects of envi arco Regni (la abrizio Gara ( andro Carbora avide Arezzo	Marche Poly Marche Poly nari (Marche	technic Un ytechnic U Polytechn	niversity, niversity ic Unive	Italy) , Italy ersity,	) /) Italy)	erties of a	10-story	R.C. sq	uare tov	ver	 47
Ac	laptive Clus	ter Heads S	Selection f	or Fan-	shap	ed Cluster	s in WSNs	·				 53
Da	ın Sun (Quee an Liu (Beijing nangchuan Y	g University	of Posts a	nd Tele	comm	nunications	, P.R. Chin	a)	a)			

### Friday, June 22

9:30 – 11:00 Session 4   Sensors and Instrumentation
Session Chair: Marcello Chiaberge,Polytechnic University of Turin, Italy
Sensor data collection and analytics with ThingsBoard and Spark Streaming
Roberto Paiano (University of Salento, Italy) Lucio T. De Paolis (University of Salento, Lecce, Italy) Valerio De Luca (University of Salento, Italy)
Improving Sensing Action via Multi-Agent Based System with Statistical and Granular Approach
Analysis of the Collective Perception using Granular Computing and Virtual Sensors
On the depth of a thermomechanical signal in a dual-phase lag deformable medium77
Vittorio Zampoli (University of Salerno, Italy) Stan Chirita (Al. I. Cuza University of lasi and Romanian Academy, Romania)
11:30 - 13:00 Session 5   SMART CITIES MILLENNIUM
Session Chair: Francesco Orciuoli, University of Salerno, Italy
IoT based cooperative agents architecture. Lightweightapplications for Smart Cities
Vincenzo Di Lecce (Polytechnic University of Bari, Italy) Cataldo Guaragnella (Polytechnic University of Bari, Italy) Dian Palagachev (Polytechnic University of Bari, Italy) Giuseppe Dentamaro (Polytechnic University of Bari, Italy) Alessandro Quarto (MYHERMES Srl & AeFLab - Polytechnic University of Bari, Italy) Domenico Soldo (MyHermes Srl & Polytechnic University of Bari, Italy)
An Agent Based Approach for Improvised Explosive Device Detection, Public Alertness and Safety89
Kennedy E. Ehimwenma (Sheffield Hallam University, United Kingdom (Great Britain)) Paul Crowther (Sheffield Hallam University, United Kingdom (Great Britain)) Martin Beer (Sheffield Hallam University, United Kingdom (Great Britain)) Lyuba Alboul (Sheffield Hallam University, United Kingdom (Great Britain)) Kennedy John Offor (The University of Sheffield, United Kingdom (Great Britain)))
Enabling Technologies for Distributed Temperature Monitoring of Smart Power Cables95
Guido Coletta (University of Sannio, Italy) Giovanni Vito Persiano (University of Sannio, Italy) Alfredo Vaccaro (University of Sannio, Italy) Domenico Villacci (University of Sannio, Italy)
A Methodology for a Complete Simulation of Cyber-Physical Energy Systems