



**TRACK: Monitoring and Resilience of Critical Infrastructure in the hyper-connected society**

**14<sup>th</sup> International Conference on  
INFORMATION SYSTEMS FOR CRISIS RESPONSE AND MANAGEMENT**

***“AGILITY IS COMING”***

**Workshops and Doctoral Symposium May 21<sup>th</sup>, 2017  
Conference May 22<sup>nd</sup>-24<sup>th</sup>, 2017**

**ALBI (FRANCE)**  
Ecole des Mines d’Albi-Carmaux



## INTRODUCTION TO THE TRACK

Critical Infrastructure<sup>1</sup> (CI) operational disruptions and/or failures may cause severe malfunctions to society, rapidly affecting citizens' wellbeing and economies at large. Natural disasters (e.g. earthquakes, tsunamis, etc.), man-provoked causes of threats (e.g. terrorist and cyber-attacks, etc.), or accidents (e.g. chemical leakages, construction errors, etc.), are often pushing critical infrastructure to their breaking points resulting to diverse, cascading and complex repercussions of large magnitude. Still today, to enable functional agility and failure tolerance to critical infrastructure requires for a comprehensive approach which capitalises on ICT advances (information systems, hyper-connectivity, sensors and actuators, command and control systems, etc.) to boost cross-organisational collaboration for planning, sense and decision making, response, recovery and reconstruction activities. Be it installation specific or more generic critical infrastructure protection approaches available today are limited to provide the necessary level of agility for efficient and cost-effective handling of disastrous incidents.

This track invites novel qualitative and quantitative studies as well as use cases presenting how Critical Infrastructure can be safeguarded from disastrous incidents (natural or man-provoked) including how various stakeholders' activities are exercised to preserve agility and failure tolerance. Contributions on new tools and methods for enabling efficient and cost effective assessment and evaluation of Critical Infrastructure conditions, at all phases of crisis management life-cycle, are warmly encouraged. Efforts showcasing transboundary collaboration of relevant actors (Critical Infrastructure Operator, Civil Protection Community, National Authorities, Insurance companies and Assessment Experts) that upgrade the present interoperability framework (technical and organisational) targeting resilience of Critical Infrastructure, are also considered of importance in the context of this track. The common denominator of this track remains presenting human efforts under complex, dynamic and stressful environments aided by novel ICT technologies that facilitate planning, assessment and ultimately decision making.

## TRACK TOPICS

- *Case studies and reflections from practice*
- *Crisis research methods and modeling approaches*
- *Collaborative and intelligent systems*
- *Studies of novel monitoring system deployments (quantitative, qualitative, and use cases)*
- *Methods for assessing and evaluating functional and non-functional integrity of Critical Infrastructure*
- *Resilience and Mitigation strategies*
- *Data fusion, representation, and visualization*
- *Decision support systems and judgment*
- *Disaster risk reduction, risk management, ad-hoc, and sensor networks*
- *Early warning systems*
- *Emergency response systems*
- *Systems interoperability information systems infrastructures*

**Keywords:** *Critical Infrastructure Monitoring, Critical Infrastructure Resilience, Disaster Management Platform, Assessment and Evaluation, Agile and Collaborative Response, Recovery and Reconstruction, Collaborative Planning, Early warning and rapid assessment, Mitigation of consequences, Integrated tools for crisis management (training system, information system, command and control system)*

## AUTHORS AND REVIEWERS RECRUITEMENT

The chairs are either coordinating or participating in numerous FP7 and H2020 Security Projects whose research and implementation goals share similarities with the scope touched by the proposed track.

[Please see: INACHUS (<http://www.inachus.eu/>), RECONASS (<http://reconass.eu/>), ZoneSEC (<http://www.zonesec.eu/>), eVACUATE (<http://www.evacuate.eu/>), NEXES (<http://nexes.eu/>),

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<sup>1</sup> Critical Infrastructure mainly targeted but not limited to Transport Infrastructure, Energy Infrastructure, Critical Buildings, Water Systems, Communication Infrastructure and Health Infrastructure

SENSKIN(<http://www.senskin.eu/>), SAFERtec (H2020 project about to start on cyber-security for transport infrastructure)]

In that sense, the track will be announced and promoted, inter alia, via the dissemination and communication channels of each of the projects partners, which are composed by: Large Industrial Corporations and SMEs, Research Institutions and Universities, Stakeholders and End-Users. The track will be also announced and promoted via the already established dissemination and communication channels of each of the above mentioned projects. These channels include the projects' web sites, social networking accounts, newsletters, as well as mailing lists of targeted audiences. Additionally, promotional posters and leaflets will be distributed in other events, such as IEEE main conferences in the related topic of the track.

A tentative (to be confirmed upon approval) Technical Program Committee (TPC) follows:

Organising chair and co-chairs:

Angelos Amditis, Institute of Communication & Computer Systems (ICCS) & National Technical University of Athens (NTUA), [A.Amditis@iccs.gr](mailto:A.Amditis@iccs.gr)

Evangelos Sdongos, Institute of Communication & Computer Systems (ICCS) and National Technical University of Athens (NTUA), [esdongos@iccs.gr](mailto:esdongos@iccs.gr)

George Athanasiou, Institute of Communication & Computer Systems (ICCS) & National Technical University of Athens (NTUA), [george.athanasiou@iccs.gr](mailto:george.athanasiou@iccs.gr)

Publicity chair:

Stephanos Camarinopoulos, RISA Sicherheitsanalysen GmbH, [s.camarinopoulos@risa.de](mailto:s.camarinopoulos@risa.de)

Technical Program Committee (to be further completed):

Konstantinos Loupos, Institute of Communication & Computer Systems, Greece

Lazaros Karagiannidis, Institute of Communication & Computer Systems, Greece

Frank Ellinger, Technical University of Dresden, Germany

Niko Joram, Technical University of Dresden, Germany

Rickard Forsen, Swedish Defense Research Agency, Sweden

Dimitis Bairaktaris, DBA, Greece

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Norman Kerle, University of Twente, Department of Earth Systems Analysis, Faculty of Geo-Information Science and Earth Observation, The Netherlands

Markus Gerke, University of Twente, Department of Earth Systems Analysis, Faculty of Geo-Information Science and Earth Observation, The Netherlands

Hassan Shirvani, Anglia Ruskin University, UK

Klaus-Dieter Buttgen, Federal Agency for Technical Relief, Germany

Dimitris Kanakidis, EXUS S.A., Greece

Arjen Boin, Crisisplan, The Netherland

## TRACK CHAIR AND CO-CHAIR

**Dr. Angelos Amditis [male]:** He is Research Director in the Institute of Communication and Computer Systems (ICCS), and member of its Board of Directors. He is the founder and the Head of the I-SENSE Group (<http://i-sense.iccs.gr>). Dr. Amditis received his MSc in Electrical and Computer Engineering in 1992 and his Ph.D. in Electrical and Computer Engineering (Telecommunications) in 1997 from the National Technical University of Athens (NTUA) and has been teaching in various courses (communication and computer networks, communication theory) of the Electrical and Computer Engineering Department of NTUA, of ICCS and of the Hellenic Naval Academy. He acted as an EU evaluation expert and as reviewer in a number of scientific journals. He is the writer of several peer reviewed journal articles, book chapters and many conference papers. He has participated in more than 60 projects in the last 10 years and he is currently the coordinator of the following projects: SAFERtec, NeMo, AutoNet2030, FABRIC, SENSKIN, RECONASS, ROBO-SPECT and INACHUS.

No previous experience with running tracks at ISCRAM, however Dr. Angelos Amditis has been regularly chairing at various renown conferences in the fields of security and critical communications, transport and

automated vehicles, electro-mobility, virtual reality and robotics. Dr. Angelos Amditis shall participate (upon track approval) to the conference to contribute to the session(s) that might be connected with the proposed track herein.

Conferences (and other events/organisations) Dr. Angelos Amditis chaired recently (not exhaustive list):

- 23<sup>rd</sup> ITS World Congress 2016 (<http://www.itsworldcongress2016.com/>), Session: Smart Cities and New Urban Mobility (Organiser and Moderator), Session: Automated Vehicles and Cooperative ITS (organiser and Moderator), Session: Environmental Sustainability (Organiser)
- euroVR Conference 2016 (<http://www.eurovr-association.org/conference2016/>), General Chair
- VISIGRAPP 2016, (<http://www.visigrapp.org/Home.aspx?y=2016>), Special Session: RBG and Spectral Imaging for Civil/Survey Engineering, Cultural, Environmental, Industrial Applications - RGB-SpectralImaging (VISAPP), Chair
- Representative (2007- present) of ICCS at ERTICO ITS Europe - The European association on the development and promotion of ITS technologies, where he is also a member of its Supervisory Board, of its Strategy Committee, of the ITS Congress European Programme Committee - EPC and of the Electromobility and Automation Task Force and TM2.0 platform.

Relevant Publications (not exhaustive list):

- E. Sdongos, A. Amditis, “Monitoring Critical Buildings”, Article on CRJ, Crisis Response Journal - Protection, Prevention, Preparedness, Response, Resilience, Recovery (Commercial), Issue CRJ 11:2 - December 2015
- G. Athanasiou, A. Amditis, N. Riviere, E. Makri, A. Bartzas, A. Anyfantis, R. Werner, D. Axelsson, E. di Girolamo, O. Balet, M. Schaap, N. Kerle, N. Bozabalian, G. Marafioti, J. Berzosa, A. Gustafsson, “INACHUS: Integrated Wide Area Situation Awareness and Survivor Localisation in Search and Rescue Operations”, to appear in Springer Book “Geo-information Technologies and Earth Observation Systems for Global Changes and Natural Disaster Management., 2016
- Angelos Amditis and Panagiotis Lytrivis, PART VI "Towards Automated Transport Systems: European Initiatives, Challenges and the Way Forward" In: Road Vehicle Automation 2, Lecture Notes in Mobility, ISBN: 978-3-319-19077-8 (Print) 978-3-319-19078-5 (Online), pp 215-224; editors: G. Meyer and S. Beiker; Publisher: Springer International Publishing Switzerland, 2015; DOI 10.1007/978-3-319-19078-5\_19.
- Amditis, Y. Stratakos, D. Bairaktaris, M. Bimpas, S. Camarinopolos, S. Frondistou-Yannas, V. Kalidromitis, M. Pozzi, J. Santana, N. Saillen, T. Torfs, D. Ulieru, B. Wenk, D. Zonta, "Wireless sensor network for seismic evaluation of concrete buildings", Proc. " 5th European Workshop on Structural Health Monitoring (EWSHM 2010)", Sorrento, Italy, 29 Jun - 02 Jul, 2010.
- Angelos Amditis, Katia Pagle, Elina Theodoropoulou, K. Filis, Ilias Andrikopoulos, Stratis Konakas, “Pilot Application of the eCall System in Greece”, ITS European Congress Dublin, Ireland, 2013
- Panagiotis Lytrivis, George Thomaidis, Angelos Amditis, “Sensor Data Fusion in Automotive Applications”, In: “Sensor and Data Fusion” book, ISBN 978- 3-902613-52-3, I-Tech Education and Publishing KG, pp. 133-150, 2009
- Angelos Amditis, George Thomaidis, Pantelis Maroudis, Panagiotis Lytrivis and Giannis Karaseitanidis, “Multiple Hypothesis Tracking Implementation”, In: Laser Scanner Technology, ISBN: 978-953-51-0280-9, <http://www.intechopen.com/books/laser-scannertechnology/multiple-hypothesis-tracking-implementation>.
- Panagiotis Lytrivis & Angelos Amditis, “Wireless Communications and Networks – Recent Advances”, Edited by: Ali Eksim, ISBN 978-953-51-0189-5, Hard cover, 596 pages, 14 March 2012, Publisher: IN-TECH, Chapter 17: Intelligent Transport Systems: Co- Operative Systems (Vehicular Communications)
- Angelos Amditis, Panagiotis Lytrivis, Evangelia Portouli, “Sensing and Actuation”, In: Handbook of Intelligent Vehicles, Azim Eskandarian (ed.), DOI 10.1007/978-0-85729-085- 4\_3, Springer-Verlag London Limited 2011
- Angelos Amditis, Matthaios Bimpas, George Thomaidis, Manolis Tsogas, Mariana Netto, Said Mammam, Achim Beutner, Nikolaus Moehler, Tom Wirthgen, Stephan Zipser, Aria Etemad,

Mauro Da Lio and Renzo Cicilloni, “A Situation-Adaptive Lane-Keeping Support System: Overview of the SAFELANE Approach” □□□□ Transactions on Intelligent Transportation Systems, Vol. 11, No. 3, September 2010, p.617-629.

**Mr. Evangelos Sdongos [male]:** He holds a MSc. in Telecommunications and Information Technology from the ECE Dpt. of Patras University and has extensive experience in the design, implementation and integration of mobile communication networks, embedded systems and sensors, security and emergency communication systems. Moreover, his recent research activities include automation capabilities of complex sensor networks for security applications. He has worked in several industrial projects and is actively participating in several FP7 and H2020 projects, such as PPDR-TC, eVACUATE, NEXES, PASSME and RECONASS as project/technical and quality manager. He has obtained an MBA from Hellenic Open University (2016) and he is currently PhD candidate at National Technical University of Athens. He has published several articles in conference proceedings and journals.

No previous experience with running tracks at ISCRAM, however Mr. Evangelos Sdongos has been regularly serving in TCPs at renown conferences in the fields of security and critical communications. Mr. Evangelos Sdongos shall participate (upon track approval) to the conference to contribute to the session(s) that might be connected with the proposed track herein.

Conferences (and other events/organisations) Mr. Evangelos Sdongos served recently (not exhaustive list):

- IEEE WiMob 2016 - 3rd Workshop on Emergency Networks for Public Protection and Disaster Relief (<http://en4ppdr.ing.unimo.it/>) , Technical Program Committee
- Second International Workshop on Emergency Networks for Public Protection and Disaster Relief (EN4PPDR 2015), , Technical Program Committee
- European Conference on Networks & Communications (EUCNC 2015), Technical Program Committee

Relevant Publications (not exhaustive list):

- E. Sdongos, A. Amditis, “Monitoring Critical Buildings”, Article on CRJ, Crisis Response Journal - Protection, Prevention, Preparedness, Response, Resilience, Recovery (Commercial), Issue CRJ 11:2 - December 2015
- Maurizio Casoni, Carlo Augusto Grazia, Martin Klapez, Natale Patriciello, A. Amditis and E. Sdongos, Integration of Satellite and LTE for Disaster Recovery, IEEE Communications Magazine 53(3):47-53 · March 2015, DOI: 10.1109/MCOM.2015.7060481
- E. Sdongos et al., A novel & practical approach to structural health monitoring - The RECONASS vision: Local positioning, sensor networks, secure communications and remote sensing at the service of structural monitoring to assess construction damage and related needs, Conference: 2014 IEEE Workshop on Environmental, Energy, and Structural Monitoring Systems - 2014 IEEE Workshop on Environmental, Energy, and Structural Monitoring Systems, At Naples, Italy, DOI: 10.1109/EESMS.2014.6923261
- E. Sdongos, A. Bolovinou, M. Tsogas, A. Amditis, B. Guerra and M. Manso, Next Generation Automated Emergency Calls, 14th Annual IEEE Consumer Communications & Networking Conference, 8-11 January 2017, Las Vegas, USA

**Dr. George Athanasiou [male]:** He received the diploma in Electrical and Computer Engineering from University of Thessaly in 2005. In 2010 he obtained his PhD degree in Electrical and Computer Engineering from the same University. He spent several years working as a researcher in Academia (KTH Royal Institute of Technology, Information Technologies Institute at the Centre for Research and Technology Hellas, Electrical Engineering School at the Polytechnic Institute of New York University, and University of Piraeus Research Centre) and in Industry (Telefonica Research and Intracom Telecom). He was also co-founder and CTO of Aukoti AB, a Swedish startup on sensor networking and building automation. He has authored more than 50 publications in international journals and refereed conferences. Since September 2014 he is with the ICCS/I-SENSE group working as a Technical Manager in EU research projects.


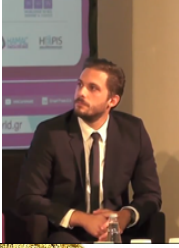

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Conferences (and other events/organisations) Dr. George Athanasiou served recently (not exhaustive list):

- The Tenth International Conference on Emerging Security Information, Systems and Technologies- SECURWARE 2016 (<https://www.aria.org/conferences2016/ComSECURWARE16.html>) , Technical Program Committee
- The 9th ACM International Conference on Pervasive Technologies Related to Assistive Environments, PETRA 2016, Technical Program Committee
- 2016 IEEE 21<sup>st</sup> International Workshop on Computer Aided Modelling and Design of Communication Links and Networks (CAMAD), (<http://nextconlab.academy/CAMAD2016/IEEE/IEEECAMAD2016.html>) , Technical Program Committee
- IEEE WiMob 2016 - 3rd Workshop on Emergency Networks for Public Protection and Disaster Relief (<http://en4ppdr.ing.unimo.it/>) , Technical Program Committee
- Second International Workshop on Emergency Networks for Public Protection and Disaster Relief (EN4PPDR 2015), Technical Program Committee

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- G. Athanasiou, A. Amditis, N. Riviere, E. Makri, A. Bartzas, A. Anyfantis, R. Werner, D. Axelsson, E. di Girolamo, O. Balet, M. Schaap, N. Kerle, N. Bozabalian, G. Marafioti, J. Berzosa, A. Gustafsson, "INACHUS: Integrated Wide Area Situation Awareness and Survivor Localisation in Search and Rescue Operations", to appear in Springer Book "Geo-information Technologies and Earth Observation Systems for Global Changes and Natural Disaster Management.", 2016
- George Athanasiou, Pradeep Chathuranga Weeraddana, Carlo Fischione, Leandros Tassiulas, "Optimizing Client Association in 60 GHz Wireless Access Networks", in IEEE/ACM Transactions on Networking, 2016
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- George Athanasiou, Pradeep Chathuranga Weeraddana, Carlo Fischione, "Auction-based Resource Allocation in 60 GHz mmW Wireless Networks", in IEEE Communications Letters, Volume 17, Issue 11, 2013
- George Athanasiou, Kostas Tsagkaris, Panagiotis Vlacheas, Dimitrios Karvounas and Panagiotis Demestichas, "Multi-Objective Traffic Engineering for Future Networks", in IEEE Communications Letters Journal, Volume: 16, Issue: 1, 2012, ISSN: 1089-7798
- Kostas Tsagkaris, Panagiotis Vlacheas, George Athanasiou, Vera Stavroulaki, Stanislav Filin, Jens Jebert, Markus Mueck, and Hiroshi Harada, "Autonomics in Wireless Network Management: Advances in Standards and Further Challenges", in IEEE Network Magazine, November 2011
- George Athanasiou, Thanasis Korakis, Ozgur Ercetin, Leandros Tassiulas, "A Cross-Layer Framework for Association Control in Wireless Mesh Networks", in IEEE Transactions on Mobile Computing, vol. 8, no. 1, pp. 65-80, Jan., 2009

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