



10th Workshop on Positioning, Navigation and Communication 2013

20th/21st of March 2013, Dresden, Germany

Agenda for 20th/21st of March 2013

Sessions 1-6 take place at HTW Z107

Poster Sessions, exhibitions and lunch/coffee breaks take place at HTW PAB (Z110)

Day 1 - 20th of March 2013

08:00 – 09:00 Registration

09:00 – 10:00 Keynote

On the role of positioning in cyber-physical systems

Henk Wymeersch, Chalmers University of Technology

10:00 – 10:20 Coffee break

SESSION 1 – WLAN Localization and Fingerprinting

10:20 – 10:40 S1WF1: Genetic Algorithm Optimized DCM Positioning

Rafael Saraiva Campos, Universidade Federal do Rio de Janeiro
Lisandro Lovisolo, Universidade do Estado do Rio de Janeiro

10:40 – 11:00 S1WF2: Joint Time Delay and DOA Estimation Using 2-D Matrix Pencil Algorithms and IEEE 802.11ac

Abdo Gaber, University of Magdeburg
A.S. Omar, University of Magdeburg

11:00 – 11:20 S1WF3: Search Space Reduction in DCM Positioning using Unsupervised Clustering

Rafael Saraiva Campos, Universidade Federal do Rio de Janeiro
Lisandro Lovisolo, Universidade do Estado do Rio de Janeiro
Marcello L. R. de Campos, Universidade Federal do Rio de Janeiro

11:20 – 11:40 S1WF4: A Pocket Guide to Indoor Mapping

Pascal Bissig, ETH Zurich
Roger Wattenhofer, ETH Zurich
Samuel Welten, ETH Zurich

11:40 – 12:00 S1WF5: Real Time Evaluation of RF Fingerprints in Wireless LAN Localization Systems

Nuha Alkhanbashi, EBTIC, Khalifa University of Science, Technology and Research
Nayef A. Alsindi, EBTIC, Khalifa University of Science, Technology and Research
Saleh Al-Araji, College of Engineering, Khalifa University of Science, Technology and Research
Nazar Ali, College of Engineering, Khalifa University of Science, Technology and Research
Zdenek Chaloupka, EBTIC, Khalifa University of Science, Technology and Research
Vivek Yenamandra, The Ohio State University
James Aweya, EBTIC, Khalifa University of Science, Technology and Research

12:00 – 12:40 Lunch

POSTER SESSION

12:40 – 13:20 Poster talks (find a list of posters at the end of this programme)

SESSION 2 – Localization Systems Design and Applications

13:20 – 13:40 S2LS1: Design Considerations and Performance of Low-Cost Ultrasonic Ranging System

Dragan S. Zivkovic, Bitgear Wireless Design Services d.o.o
Bogdan R. Markovic, Bitgear Wireless Design Services d.o.o.
Dejan Rakic, Bitgear Wireless Design Services d.o.o.
Srdjan Tadic, Bitgear Wireless Design Services d.o.o

13:40 – 14:00 S2LS2: System Considerations and VCO Design for a Local Positioning System at 2.4 GHz for Rescue of People on Ships and in Sea

Markus Schulz, Technische Universität Dresden
Axel Strobel, Technische Universität Dresden
Frank Ellinger, Technische Universität Dresden

14:00 – 14:20 S2LS3: Analytical Localisation Method for Wireless Sensor Nodes Embedded In Industrial Processes

Michalis Antoniou, University of Manchester
P.N. Green, University of Manchester

14:20 – 14:40 S2LS4: RSS-based Localization Considering Topographical Feature for Pasturing

Kaoru Yokoo, Fujitsu Laboratories Ltd.
Takeshi Nishidoi, Fujitsu Laboratories Ltd.
Jun Sugiyama, Fujitsu Laboratories Ltd.
Makoto Yoshida, Fujitsu Laboratories Ltd.
Teruhisa Ninomiya, Fujitsu Laboratories Ltd.
Hiroo Urabe, Mobile Techno Corporation
Takayuki Ikenouchi, Mobile Techno Corporation

14:40 – 15:00 S2LS5: EasyPoint - Highly accurate Distance Measurement with Radio Wave Methods for Low Cost Localization

Rönne Reimann, Lambda:4 Entwicklungen GmbH
Arne Bestmann, Lambda:4 Entwicklungen GmbH
Mirjam Ernst, Lambda:4 Entwicklungen GmbH

15:00 – 15:20 Coffee break

SESSION 3 – Data Fusion and Indoor Navigation

15:20 – 15:40 S3DI1: Sensor fusion for relative altimetry using an hybrid Gaussian mixture filter

Lara Thomas, Airbus SAS Operation
André Monin, LAAS-CNRS
Philippe Mouyon, ONERA-DCSD
Nour-ed-din Houberdon, Airbus SAS Operation

15:40 – 16:00 S3DI2: Extensive Ultrasonic Local Positioning System for navigating with mobile robots

Daniel Ruiz, University of Alcala de Henares
Enrique Garcia, University of Alcala de Henares
Jesus Urena, University of Alcala de Henares
Daniel de Diego, University of Alcala de Henares
David Gualda, University of Alcala de Henares
Juan Carlos Garcia, University of Alcala de Henares

16:00 – 16:20

S3DI3: Pedestrian Navigation in Harsh Environments using Wireless and Inertial Measurements

Javier Prieto, University of Valladolid
Santiago Mazuelas, Massachusetts Institute of Technology (MIT)
Alfonso Bahillo, University of Valladolid
Patricia Fernandez, University of Valladolid
Ruben M. Lorenzo, University of Valladolid
Evaristo J. Abril, University of Valladolid

16:20 – 16:40

S3DI4: Block Localization Methods for Mobile Robot Tracking and Navigation

Yuiko Tanaka, Osaka City University
Shinsuke Hara, Osaka City University

16:40 – 17:00

S3DI5: Joint Motion Capture and Navigation in Heterogeneous Body Area Networks with Distance Estimation Over Neighborhood Graph

Jihad Hamie, CEA-Leti Minatec Campus
Benoît Denis, CEA-Leti Minatec Campus
Cedric Richard, Université de Nice Sophia Antipolis

17:00

Open Meeting

Invited Session – WHERE2 and COOPNET Project Results

08:20 – 08:40 ISWC1: Impact of Human Crowd Activity on Indoor Wireless Channels – Assessment and Modeling

Emanuel Staudinger, German Aerospace Center (DLR)
Julien Stéphan, SIRADEL
Yoann Corre, SIRADEL
Yves Lostanlen, SIRADEL

08:40 – 09:00 ISWC2: MAC Delay in Belief Consensus for Distributed Tracking

Christopher Lindberg, Chalmers University of Technology
L. Srikar Muppisetty, Chalmers University of Technology
Karl-Magnus Dahlén, HiQ Consulting
Vladimir Savic, Linköping University
Henk Wymeersch, Chalmers University of Technology

09:00 – 09:20 ISWC3: On the Sensitivity of RSS Based Localization Using the Log-Normal model: An Empirical Study

Jose Vallet, Aalto University
Ossi Kaltiokallio, Aalto University
Jari Saarinen, Aalto University
Matthieu Myrsky, Aalto University
Maurizio Bocca, ECE Department, The University of Utah

09:20 – 09:40 ISWC4: Refined characterization of RSSI with practical implications for indoor positioning

Mohamed Laaraiedh, University of Rennes 1, IETR Lab
Nicolas Amiot, University of Rennes 1, IETR Lab
Bernard Uguen, University of Rennes 1, IETR Lab

09:40 – 10:00 ISWC5: Velocity-Based CRLB Predictions for Enhanced Cooperative Links Selection in Location-Enabled Mobile Heterogeneous Networks

Soumaya Zirari, CEA-Leti Minatec
Benoît Denis, CEA-Leti Minatec

10:00 – 10:20 Coffee break

SESSION 4 – Range Estimation, Analysis and Error Mitigation

10:20 – 10:40 S4RA1: Semi-blind Channel Estimation for Joint Communication and Positioning

Rebecca Adam, University of Kiel
Peter Adam Hoeher, University of Kiel

10:40 – 11:00 S4RA2: Low Complexity TOA Estimator for Multiuser DS-UWB System

Hang Ma, CNRS-LAAS, INSA, University of Toulouse
Pascal Acco, CNRS-LAAS, INSA, University of Toulouse
Marie-Laure Boucheret, IRIT/ENSEEIH
Daniele Fournier-Prunaret, CNRS-LAAS, INSA, University of Toulouse

11:00 – 11:20 **S4RA3: Improving Ranging Accuracy of Active and Passive Anchors in the Presence of Clock Imperfection**

Yue Wang, Chinese Academy of Sciences
Weiming Xiong, Chinese Academy of Sciences

11:20 – 11:40 **S4RA4: Non-parametric Estimation of Error Bounds in LOS and NLOS Environments**

Omotayo Oshiga, Jacobs University, Bremen
Stefano Severi, Jacobs University Bremen
Giuseppe Abreu, Jacobs University Bremen

11:40 – 12:00 **S4RA5: Sparse Subcarrier Allocation for Timing-based Ranging with OFDM Modulated Signals in Outdoor Environments**

Emanuel Staudinger, German Aerospace Center (DLR)
Armin Dammann, German Aerospace Center (DLR)

12:00 – 12:20 **S4RA6: NLOS Mitigation in TOA-Based Localization Using Semidefinite Programming**

Reza Monir Vaghefi, Virginia Tech
Javier Schloemann, Virginia Tech
R. Michael Buehrer, Virginia Tech

12:20 – 13:00 **Lunch**

SESSION 5 – GNSS and Cellular-based Localization

13:00 – 13:20 **S5GC1: Accurate Lane Detection Using Commercial GNSS Devices**

Roi Yozevitch, Ariel University Center
Boaz Benmoshe, Ariel University Center
Amit Dvir, COLMAN College

13:20 – 13:40 **S5GC2: 2.5D Mapping using GNSS Signal Analysis**

Ayal Weissman, Bar-Ilan University
Boaz Benmoshe, Ariel University Center
Harel Levi, Ariel University Center
Roi Yozevitch, Ariel University Center

13:40 – 14:00 **S5GC3: A Precise Proximity-Weight Formulation for Map Matching Algorithms**

Ali Oran, Singapore MIT Alliance for Research and Technology (SMART)
Patrick Jaillet, Massachusetts Institute of Technology (MIT)

14:00 – 14:20 **S5GC4: Performance analysis of PRS-based synchronization algorithms for LTE positioning applications**

Marco Panchetti, University of Pisa
Cecilia Carbonelli, Intel Mobile Communications GmbH
Michael Horvat, Intel Mobile Communications GmbH
Marco Luise, University of Pisa

14:20 – 14:40 **S5GC5: A low cost TDOA Localization System: Setup, Challenges and Results**

Noha El Gemayel, Karlsruhe Institute of Technology
Sebastian Koslowski, Karlsruhe Institute of Technology
Friedrich K. Jondral, Karlsruhe Institute of Technology
Joachim Tschan, LS Telcom

14:40 – 15:00 **Coffee break**

SESSION 6 – Hybrid Positioning Systems

15:00 – 15:20 **S6HS1: A bi-modal ad-hoc Localization Scheme for Wireless Networks based on RSS and ToF Fusion**

Tobias Gädeke, Karlsruhe Institute of Technology (KIT)
Johannes Schmid, Karlsruhe Institute of Technology (KIT)
Marcel Krüger, Karlsruhe Institute of Technology (KIT)
Josefin Jany, Karlsruhe Institute of Technology (KIT)
Wilhelm Stork, Karlsruhe Institute of Technology (KIT)
K.D. Müller-Glaser, Karlsruhe Institute of Technology (KIT)

15:20 – 15:40 **S6HS2: Soft-Decision based Position Estimation for Wireless Localization in Indoor Scenarios**

Timo Dammes, TU Dortmund University
Ruediger Kays, TU Dortmund University

15:40 – 16:00 **S6HS3: Hybrid RFID System-based Pedestrian Localization: A Case Study**

Haowei Wang, Friedrich-Alexander-Universität Erlangen-Nürnberg
Georg Bauer, Clausthal University of Technology
Martin Vossiek, Friedrich-Alexander-Universität Erlangen-Nürnberg
Fabian Kirsch, Friedrich-Alexander-Universität Erlangen-Nürnberg

16:00 – 16:20 **S6HS4: Localization Based on Fusion of RFID and Stereo Image Data**

Fynn Schwiigelshohn, TU Dortmund University
Theresa Nick, Information Processing Lab, TU Dortmund University
Jürgen Götze, TU Dortmund University

16:20 – 16:40 **S6HS5: Self-Organized Hybrid Channel Access Method for an Interleaved RTD-based Swarm Navigation System**

Siwei Zhang, German Aerospace Center (DLR)
Stephan Sand, German Aerospace Center (DLR)
Ronald Raulefs, German Aerospace Center (DLR)
Emanuel Staudinger, German Aerospace Center (DLR)

16:40 – 17:30 **Award Presentation Ceremony, Closing and Wrap-up**

Poster Talk (taking place at Day 1, 12:40 – 13:20)**PS1: DockingAssist: A Novel Vessel Navigation System Design Based on WiMAX and DGNS**

Lei Jiang, ITT Department of CRIC
Josep Perello, ITT Department of CRIC
Esteban Gutierrez, CTAE-ASCAMM
Jesus Romero, CTAE-ASCAMM
Jarmo Prokkola, VTT Technical Research Centre of Finland
Jarno Pinola, VTT Technical Research Centre of Finland
Esa Piri, VTT Technical Research Centre of Finland

PS2: BeSpoon single chip UWB, optimised for Indoor Location

Jean-Marie Andre, BeSpoon

PS3: Collaborative Navigation Field Trials with Different Sensor Platforms

Allison Kealy, University of Melbourne
Guenther Retscher, Vienna University of Technology
Azmir Hasnur-Rabiain, University of Melbourne
Nima Alam, UNSW
Charles Toth, The Ohio State University
Dorota Brzezinska, Ohio State University
Terry Moore, University of Nottingham
Chris Hill, University of Nottingham
Vassilis Gikas, National Technical University of Athens
Chris Hide, University of Nottingham
Chris Danezis, National Technical University of Athens
Lukasz Bonenberg, University of Nottingham
Gethin Wyn Roberts, University of Nottingham Ningbo

PS4: Server based Indoor Navigation using RSSI and Inertial Sensor Information

Manh Kha Hoang, Department of Communications Engineering, University of Paderborn
Sarah Schmitz, Department of Communications Engineering, University of Paderborn
Christian Drueke, Department of Communications Engineering, University of Paderborn
Dang Hai Tran Vu, Department of Communications Engineering, University of Paderborn
Joerg Schmalenstroer, Department of Communications Engineering, University of Paderborn
Reinhold Haeb-Umbach, Department of Communications Engineering, University of Paderborn

PS5: A Tag Complexity Reduction Approach for Code-Based Cooperative Ranging Systems

Malek Chaabane, University of Munich
Erwin Biebl, University of Munich

PS6: Empirical Localisation Method for Wireless Sensor Nodes In Confined Industrial Processes

Michalis Antoniou, University of Manchester
P.N. Green, University of Manchester

PS7: Indoor localization on Mobile Phone Platforms with inertial sensor

Yang Liu, University of Sheffield
Marzieh Dashti, University of Sheffield
Jie Zhang, University of Sheffield

PS8: Target Tracking in Wireless Sensor Networks by Data Fusion with video-based Object Detection

Uwe Gosda, TU Dresden

Richard Weber, TU Dresden

Oliver Michler, TU Dresden

PS9: GPS Integrity Monitoring for an Intelligent Transport System

Tareq, DeMont fort University

Ali Hilal Al-Bayatti, De Montfort University

Ashwaq H. Al-Hargan, University of Leicester

PS10: Design of a Multi-Band FMCW Radar Module

Niko Joram, Technische Universität Dresden

Jens Wagner, Technische Universität Dresden

Belal Al-Qudsi, Technische Universität Dresden

Axel Strobel, Technische Universität Dresden

Frank Ellinger, Technische Universität Dresden
