



2015 - 12th Workshop on Positioning, Navigation and Communication (WPNC'15)



11th/12th March 2015, Dresden, Germany





Agenda - 11th/12st of March 2015

Sessions 1-6 take place at HTW K-building, room K101. Exhibition takes place at HTW K-building, room K213.
Lunch/coffee breaks take place at HTW K-building lobby 1st floor, in front of room K213.

Day 1 - 11th of March 2015

09:00 – 09:45 Registration and welcome coffee in HTW K-building 1st floor lobby

09:45 – 10:15 **Welcome and Introduction**

Giuseppe Abreu, Jacobs University Bremen
Sven Zeisberg, Dresden University of Applied Sciences

SESSION 1 **Context Awareness in Localization**

10:20 – 10:45 **S1P1: A Running Step Length Estimation Model for Position Tracking**

Yi Sun, Free University of Berlin;
Huaming Wu, Free University of Berlin;
Jochen Schiller, Free University Berlin

10:45 – 11:10 **S1P2: A Study on Using Ambient Sensors from Smartphones for Semantic Indoor Location Detection**

Sinziana Mazilu, ETH Zürich;
Gerhard Tröster, ETH Zürich

11:10 – 11:35 **S1P3: Continuous Indoor and Outdoor Tracking with a Stand-Alone Wearable System**

Michael Hardegger, ETH Zürich;
Sinziana Mazilu, ETH Zürich;
Gerhard Tröster, ETH Zürich

11:35 – 12:00 **S1P4: Sensor Free Wireless Activity Recognition for Smart Retail**

Sanaz Kianoush, Italian National Research Council;
Stefano Savazzi, Italian National Research Council;
Vittorio Rampa, Italian National Research Council

12:00 – 13:00 **Lunch break (lobby K-building 1st floor)**

SESSION 2 **Invited Session**

13:00 – 13:25 **S2P1: Characterizing the Worst-Case Position Error in Bearing-Only Target Localization**

Mohammad Reza Gholami, KTH - Royal Inst. of Technology;
Sinan Gezici, Bilkent University;
Henk Wymeersch, Chalmers University of Technology;
Erik Ström, Chalmers University of Technology;
Magnus Jansson, KTH - Royal Inst. of Technology

13:25 – 13:50 S2P2: Distributed Link Selection and Data Fusion for Cooperative Positioning in GPS-aided IEEE 802.11p VANETs Conditions

Gia Minh Hoang, CEA-Leti Minatec;
Benoît Denis, CEA-Leti Minatec;
Jérôme Härrı, EURECOM;
Dirk Slock, Eurecom

14:15 – 14:40 S2P3: Hybrid Cooperative Positioning based on Distributed Gaussian Particle Filter

Francesco Sottile, Istituto Superiore Mario Boella;
Mauricio A. Caceres, Istituto Superiore Mario Boella;
Zhoubing Xiong, Istituto Superiore Mario Boella;
Claudio Pastrone, Istituto Superiore Mario Boella

14:40 – 15:05 S2P4: Indoor Localization for Mobile Devices using Bluetooth Low Energy and Built-in Sensors

Quoc Tuong Ngo, Langevin Institute – ESPCI ParisTech;
Tian Ye, Université Pierre and Marie Curie;
Pierre Roussel, Langevin Institute – ESPCI ParisTech;
Bruce DENBY, Université Pierre et Marie Curie and Langevin Institute – ESPCI ParisTech

15:05 – 15:30 S2P5: UWB Multistatic Radars for Obstacle Detection and Imaging in Railroad Crossing Areas

Marco Govoni, University of Bologna ;
Francesco Guidi, University of Bologna;
Enrico Maria Vitucci, University of Bologna;
Vittorio Degli-Esposti, University of Bologna;
Giovanni Tartarini, University of Bologna;
Davide Dardari, University of Bologna

15:30 – 15:50 Coffee break (lobby K-building 1st floor)

15:50 – 16:30 Exhibition presentation (HTW, K-building, room K213)

SESSION 3 Positioning Techniques

16:30 – 16:55 S3P1: Bayesian CRLB for hybrid ToA and DoA based wireless localization with anchor uncertainty

Samuel Van de Velde, University of Ghent;
Giuseppe Abreu, Jacobs University;
Heidi Steendam, Ghent University

16:55 – 17:20 S3P2: Novel TDoA-based Single Sensor Localization Approach Using Signal Structure Information

Christian Steffes, Fraunhofer FKIE

17:20 – 17:45 S3P3: Semi-automatic site survey for indoor localization

Yang Liu, University of Sheffield and Bell Laboratories;
Marzieh Dashti, Bell Laboratories, Alcatel-Lucent;
Holger Claussen, Bell Laboratories Alcatel-Lucent;
Xiaoming Tu, University of Sheffield;
Jie Zhang, University of Sheffield



17:45 – 18:10 S3P4: FMCW Based One-Way Synchronization Technique for TDoA Positioning Systems

Belal Al-Qudsi, Technische Universität Dresden;
Niko Joram, Technische Universität Dresden;
Jens Wagner, Technische Universität Dresden;
Frank Ellinger, Technische Universität Dresden

18:10 – 19:00 Open Meeting (traditional free beer session) (lobby K-building 1st floor)

Day 2 – 12st of March 2015

SESSION 4 Ranging and Positioning

08:30 – 08:55 S4P1: Ranging with High Accuracy and without Ambiguities

Sebastian Theiler, Technische Universität München;
Manuel Stein, Technische Universität München;
Josef. A. Nossek, Technische Universität München

08:55 – 09:20 S4P2: Characterisation of the NLOS Performance of an IEEE 802.15.4a Receiver

Dries Neiryck, Decawave Ltd;
Marcas O'Duinn, Decawave Ltd;
Ciarán McElroy, Decawave Ltd

09:20 – 09:45 S4P3: Efficient Slope Sampling Ranging and Trilateration Techniques for Wireless Localization

Omotayo Oshiga, Jacobs University;
Alireza Ghods, Jacobs University;
Stefano Severi, Jacobs University;
Giuseppe Abreu, Jacobs University

09:45 – 10:10 S4P4: Classification of Ultra-Wideband (UWB) Pulses Distorted by Penetration Effects

Thorsten Wehs, Hochschule Emden/Leer, University of Applied Sciences;
Allan C. Maheri, Hochschule Emden/Leer, University of Applied Sciences;
Carsten Koch, Hochschule Emden/Leer, University of Applied Sciences

10:10 – 10:30 Coffee break (lobby K-building 1st floor)

SESSION 5 Positioning Experiments and Systems

10:30 – 10:55 S5P1: PRECISION NAVIGATION WITH AD-HOC AUTOSURVEY USING ULTRA WIDEBAND TWO-WAY RANGING NETWORK

Brandon Dewberry, Time Domain;
Alan Petroff, Time Domain

10:55 – 11:20 S5P2: Implementation and Evaluation of a Two-Way-Ranging Module based on an IR-UWB Chip-Set

Denys Martynenko, IHP Circuit Department;

Dan Kreiser, IHP System Department;
Oleksiy Klymenko, IHP Circuit Department;
Gunter Fischer, IHP Circuit Department

11:20 – 11:45 S5P3: Localization of RFID-tags using phase tracking

Marten Wegener, Technische Universität Chemnitz;
Daniel Froß, Technische Universität Chemnitz;
Marko Rößler, Technische Universität Chemnitz;
Christian Pätz, Technische Universität Chemnitz;
Ulrich Heinkel, Technische Universität Chemnitz

11:45 – 12:10 S5P4: A Foot-Mounted Pedestrian Localization System with Map Motion Constraints

Daniel Arias Medina, Hahn-Schickard-Gesellschaft-IMIT;
Manuel Schwaab, Hahn-Schickard-Gesellschaft-IMIT;
Davide Plaia, Hahn-Schickard-Gesellschaft-IMIT;
Michailas Romanovas, German Aerospace Centre (DLR);
Stefan Meckler, Hahn-Schickard-Gesellschaft-IMIT;
Martin Traechtler, Hahn-Schickard-Gesellschaft-IMIT;
Yiannos Manoli, Hahn-Schickard-Gesellschaft-IMIT and University of Freiburg

12:10 – 13:10 Lunch break and AWARDS Ceremony (lobby K-building 1st floor)

SESSION 6 Cyber Physical Systems and Context Awareness

13:20 – 13:45 S6P1: AMBIENCE: A Context-Centric Online Social Network

Martin Werner, LMU München;
Florian Dorfmeister, LMU München;
Mirco Schönfeld, LMU München

13:45 – 14:10 S6P2: Environmental Signal Quality Scanner for GPS considering System Architecture, Metrics and Visualization

Marco Gunia, Technische Universität Dresden
Niko Joram, Technische Universität Dresden;
Frank Ellinger, Technische Universität Dresden

14:10 – 14:35 S6P3: Mobile Robot Seamless Localization with Localization Optimized QR Codes

Mathias Pelka, Fachhochschule Lübeck;
Horst Hellbrück, Fachhochschule Lübeck

14:35 – 15:00 S6P4: Smart Wearables Combined with Smart Phones for Pedestrian Navigation Applications

Ezzaldeen Edwan, Technische Universität Dresden;
Marco Gunia, Technische Universität Dresden;
Belal Al-Qudsi, Technische Universität Dresden;
Niko Joram, Technische Universität Dresden;
Frank Ellinger, Technische Universität Dresden

15:00 Closing, Wrap-up and open discussion