



9th Workshop on Positioning, Navigation and Communication 2012

15/16th of March 2012, Dresden, Germany

Preliminary Workshop Program for 15th/16th of March 2012

Sessions 1-6 take place at HTW Z107

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

Day 1 - 15th of March 2012

08:00 – 08:45 Registration

08:45 – 09:00 Welcome words from the organizers

SESSION 1 – Cooperative Localization

09:00 – 9:25 **S1CL1: Comparison of Message Passing Algorithms for Cooperative Localization under NLOS Conditions**

Samuel Van de Velde, Ghent University
Henk Wymeersch, Chalmers University of Technology
Heidi Steendam, Ghent University

09:25 – 09:50 **S1CL2: Cooperative Localization with 802.15.4a CSS Radios: Robustness to Node Failures**

Gabriel Garcia, Chalmers University of Technology
Henk Wymeersch, Chalmers University of Technology
William Riblier, IPB - ENSEIRB - MATMECA
Alexandre Cazalis, IPB - ENSEIRB - MATMECA

09:50 – 10:15 **S1CL3: Cooperative Sensor Localization with NLOS Mitigation Using Semidefinite Programming**

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

10:15 – 10:40 **S1CL4: Impact of Channel Access on Localization in Cooperative UWB Sensor Network: a Case Study**

Alberto Savioli, University of Pavia
Emanuele Goldoni, University of Pavia
Paolo Gamba, University of Pavia

10:40 – 11:00 **Coffee break**

SESSION 2 – WLAN Localization

11:00 – 11:25 **S2WL1: Access Point Significance Measures in WLAN-based location**

Elina Laitinen, Tampere University of Technology
Elena Simona Lohan, Tampere University of Technology
Jukka Talvitie, Tampere University of Technology
Shweta Shrestha, Tampere University of Technology

11:25 – 11:50 **S2WL2: Improving Sparse Organic WiFi Localization with Inertial Sensors**

Johannes Schmid, Karlsruhe Institute of Technology
Dorothy Curtis, Massachusetts Institute of Technology
Tobias Gädeke, Karlsruhe Institute of Technology
Jonathan Ledlie, Nokia Research Center

11:50 – 12:15 **S2WL3: INS/Wi-Fi based Indoor Navigation using Adaptive Kalman Filtering and Vehicle Constraints**

Wennan Chai, University of Siegen
Cheng Chen, RST, University of Siegen
Ezzaldeen Edwan, University of Siegen
Jieying Zhang, University of Siegen
Otmar Loffeld, University of Siegen

12:15 – 13:00 **Lunch break**

13:00 – 14:00 **Poster talks (find the list of posters at the end of this program)**

SESSION 3 – Optimization based Localization Approaches

14:00 – 14:25 **S3O1: Characterizing and Improving the Collaborative Position Location Problem**

Benton Thompson, Virginia Tech
R. Michael Buehrer, Virginia Tech

14:25 – 14:50 **S3O2: Extended Min-Max Algorithm for Position Estimation in Sensor Networks**

Jorge Robles, Dresden University of Technology
Ralf Lehnert, Dresden University of Technology
Javier Supervia, Dresden University of Technology

14:50 – 15:15 **S3O3: Indoor Ranging Signal Recovery via Regularized CoSaMP**

Yun Lu, Dresden University of Technology
Adolf Finger, Dresden University of Technology

15:15 – 15:40 **S3O4: Interval-Scaling for Multitarget Localization**

Jani Saloranta, University of Oulu
Davide Macagnano, University of Oulu
Giuseppe Abreu, Jacobs University

15:40 – 16:00 **Coffee break**

SESSION 4 – Filter based Localization Techniques

16:00 – 16:25 **S4F1: Dynamic Searching Particle Filter Scheme for Indoor Localization in Wireless Sensor Network**

Yubin Zhao, Freie Universität Berlin
Yuan Yang, Freie Universität Berlin
Marcel Kyas, Freie Universität Berlin

16:25 – 16:50 **S4F2: Gaussian Mixture Filter Allowing Negative Weights and its Application to Positioning Using Signal Strength Measurements**

Philipp Müller, Tampere University of Technology
Simo Ali-Löytty, Tampere University of Technology
Marzieh Dashti, Tampere University of Technology
Henri Nurminen, Tampere University of Technology
Robert Piché, Tampere University of Technology

16:50 – 17:15

S4F3: Indoor Positioning Using Particle Filters with Optimal Importance Function

Leila Pishdad, McGill University
Fabrice Labeau, McGill University

17:15 – 17:40

S4F4: Robust Kalman Filter for Positioning with Coverage Areas of Wireless BSs

Marzieh Dashti, Tampere University of Technology
Simo Ali-Löytty, Tampere University of Technology
Laura Wirola, Tampere University of technology
Philipp Müller, Tampere University of Technology
Henri Nurminen, Tampere University of Technology
Robert Piché, Tampere University of Technology

17:40

Award presentation ceremony

SESSION 5 – WHERE2 Project Results

09:00 – 09:25 S5W1: Constrained LMDS Technique for Human Motion and Gesture Estimation

Meriem Mhedhbi, University of Rennes
Mohamed Laaraiedh, University of Rennes
Bernard Uguen, University of Rennes

09:25 – 09:50 S5W2: Generic Real-Time Round-Trip-Delay Test-Bed for Cooperative Positioning

Emanuel Staudinger, German Aerospace Center
Stephan Sand, German Aerospace Center

09:50 – 10:15 S5W3: Hidden Markov Model based Mobility Learning for Improving Indoor Tracking of Mobile Users

Tatiana Madsen, Aalborg University
Troels Laursen, Aalborg University
Jimmy Jessen Nielsen, Aalborg University
Nikolaj Bisgaard Pedersen, Aalborg University

10:15 – 10:40 S5W4: Reference Node Selection for Cooperative Positioning Using Coalition Formation Games

Senka Hadzic, Instituto de Telecomunicações-Aveiro
Jonathan Rodriguez, Instituto de Telecomunicações-Aveiro

10:40 – 11:05 S5W5: 3D Ray Tracing for Device-Independent Fingerprint-based Positioning in WLANs

Marios Raspopoulos, Sigint Solutions Ltd
Christos Laoudias, University of Cyprus
Loizos Kanaris, Sigint Solutions Ltd
Akis Kokkinis, Sigint Solutions Ltd
Christos Panayiotou, University of Cyprus
Stavros Stavrou, Open University of Cyprus

11:05 – 11:25 Coffee break

SESSION 6 – Experimentation and Application

11:25 – 11:50 S6EA1: Measuring the Distance between Wireless Sensor Nodes with Standard Hardware

Stephan Adler, Freie Universität Berlin
Stefan Pfeiffer, Freie Universität Berlin
Heiko Will, Freie Universität Berlin
Thomas Hillebrandt, Freie Universität Berlin

11:50 – 12:15 S6EA2: Passive RFID Tomographic Imaging for Device-Free User Localization

Benjamin Wagner, University of Rostock
Neal Patwari, University of Utah
Dirk Timmermann, University of Rostock

12:15 – 12:40

S6EA3: The Effect of Human-Body Shadowing on Indoor UWB TOA Ranging Systems

Yakup Kilic, University of Twente
Ameenulla J. Ali, The Queen's University of Belfast
Arjan Meijerink, University of Twente
Mark J. Bentum, University of Twente
William G. Scanlon, Queen's University of Belfast

12:40 – 13:05

S6EA4: The FU Berlin Parallel Latent-Algorithm Simulation and Visualization Engine

Heiko Will, Freie Universität Berlin
Thomas Hillebrandt, Freie Universität Berlin
Marcel Kyas, Freie Universität Berlin

13:05 – 13:20

Closing and wrap-up

13:20 – 14:00

Lunch

Poster Talk (taking place at Day 1, 13:00 – 14:00)**PS1: 5.8 GHz Demonstration System for Evaluation of FMCW Ranging**

Niko Joram, Dresden University of Technology
Jens Wagner, Dresden University of Technology
Axel Strobel, Dresden University of Technology
Frank Ellinger, Dresden University of Technology

PS2: Collaborative Localization Enhancement to the Global Positioning System

Zachary Biskaduros, Virginia Tech
R. Michael Buehrer, Virginia Tech

PS3: Complementing current data transfer technologies for mobile devices with the IEEE 802.15.4 Standard

Alexandru Olteanu, Politehnica University of Bucharest
Frank Stephan Dresden University of Applied Sciences
Sven Zeisberg, Dresden University of Applied Sciences
Nicolae Tapus, Politehnica University of Bucharest

PS4: High precision and reliable positioning using a Roadside Navigation Station

Timo Nels, OECON Products & Services GmbH
Andreas Blesse, OECON Products & Services GmbH

PS5: Improved Localization using Kalman Filter on Estimated Positions

Simona Poilincă, Jacobs University Bremen
Stefano Severi, Jacobs University Bremen
Giuseppe Abreu, Jacobs University Bremen
Davide Macagnano, University of Oulu

PS6: Localization Scenario with Active Sensing for Range Measurements

Michailas Romanovas, HSG-IMIT
Justinas Trapnauskas, Vilnius Gediminas Technical University
Lasse Klingbeil, HSG-IMIT
Martin Traechtler, HSG-IMIT
Yiannos Manoli, University of Freiburg

PS7: Node Position Discovery in Wireless Sensor Networks

Onur Ergin, Technische Universität Berlin
Adam Wolisz, Technische Universität Berlin

PS8: Optimization of Fusion Algorithm for Hybrid Pedestrian Localization and Navigation

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

PS9: Passive Localization Using Array Sensor With Support Vector Machine

Jihoon Hong, Keio University
Shun Kawakami, Keio University
Tomoaki Ohtsuki, Keio University

PS10: Positioning Estimation in Public Transport Systems by Leaky Coaxial Cables

Julia Maria Engelbrecht, Fraunhofer IVI
Georg Förster, Fraunhofer IVI
Prof. Dr.-Ing. Oliver Michler, Dresden University of Technology;
Ralf Collmann, University of Applied Sciences Dresden

PS11: Radio-Based Multi-Sensor System for Person Tracking and Indoor Positioning

Enrico Koeppel, BAM Federal Institute for Materials Research and Testing
Matthias Bartholmai, BAM Federal Institute for Materials Research and Testing
Achim Liers, Jochen Schiller, Freie Universität Berlin

PS12: RSSI channel effects in cellular and WLAN positioning

Shweta Shrestha, Tampere University of Technology
Elina Laitinen, Tampere University of Technology
Jukka Talvitie, Tampere University of Technology
Elena Simona Lohan, Tampere University of Technology

PS13: Smartphone-Based Sensor Fusion for Improved Vehicular Navigation

Oliver Walter, University of Paderborn
Jörg Schmalenströer, University of Paderborn
Andreas Engler, University of Paderborn
Reinhold Haeb-Umbach, University of Paderborn

PS14: TDOA Assisted RSSD Localization in UWB

Waldemar Gerok, University of Hannover

PS15: The Tram Tracking System Based on GPS

Pavla Bartosova, Czech Technical University

PS16: TOA/AOA/AOD-based 3-D Mobile Terminal Tracking in NLOS Multipath Environments

Behailu Y. Shikur, University of Rostock
Mojtaba Farmani, University of Rostock
Tobias Weber, University of Rostock

PS17: Velocity Estimation of Cellular Terminals in Urban Environment using Ray Tracing

Avraham Freedman, Nice Systems Ltd.

PS18: Wireless synchronization in Time Difference Of Arrival based Real Time Locating Systems

Rainer Hach, Nanotron Technologies
Albrecht Rommel, Nanotron Technologies

PS19: Localization Techniques for Traffic Applications based on Robust WECOLS Positioning in Wireless Sensor Networks

Richard Weber, Dresden University of Technology
Erik Mademann, ZigPOS GmbH
Robert Richter, Dresden University of Technology
Oliver Michler, Dresden University of Technology
Sven Zeisberg, Dresden University of Applied Sciences
