

TIMETABLE

ELLIIT WORKSHOP

MAY 3-4
2012

COLLEGIUM LINKÖPING

	THURSDAY MAY 3	FRIDAY MAY 4
	09:30-10:00 Coffee and registration	New Faculty Session Chair: A. Kleiner
	Plenary Session Chair: E.G. Larsson & A. Kleiner	09:00-09:30 Vehicular Flows and their impact on Wireless Networks Björn Landfeldt (Lund University, SE)
	10:00-10:10 Welcome and introduction Erik G. Larsson	09:30 -10:00 Can we measure software maintenance? Jürgen Börstler (Blekinge Institute of Technology, SE)
	10:10-11:00 Structured Computational Polymers: From Smart Clothing to Squishy Bots Richard Voyles (Univ. of Denver, US)	10:00–10:15 Coffee Break
	11:00-11:50 Dead-reckoning for Vehicles and Pedestrians Johann Borenstein (Univ. of Michigan, US)	Industry Session Chair: A. Alvandpour
	11:50-13:15 LUNCH	10:15-11:00 New Technologies for Future Automation!? Tomas Lagerberg (ABB AB, SE)
	Area Sessions	11:00-11:30 Meeting future traffic and data rate demands with LTE Gunnar Bark (Ericsson AB, SE)
	13:15-15:00 Studio Vitellius 1 JB 1 JB 2 JB 3 JB 4	11:30-12:00 Future challenges in medical IT Claes Lundström (SECTRA Imtec AB, SE)
	Physical Layer Electronics Embedded Systems Software Systems Autonomous Systems Complex Systems	Closing: Erik G. Larsson
	Ove Edfors Atila Alvandpour Karl-Erik Ärzen Görel Hedin Patrick Doherty Anders Ynnerman	12:00-13:15 LUNCH
	Poster Session & Coffee break	13.15 End of Workshop
	15:00-17:30 Poster Session	
	19:00- Dinner at Nationernas Hus	

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THURSDAY MAY 3

AREA SESSIONS 13:15-15:00

Area 1: Physical Layer (Ove Edfors and Erik G. Larsson)

Studio: First floor

- 13:15-13:20 **Opening and area overview**, Presenter: O. Edfors
- 13:20-13:45 **Project 1.1: Very Large MIMO: Large MIMO Systems for Next Generation Wireless Communication**
Presenter: S.K. Mohammed
- 13:45-14:10 **Project 1.2: Radio resource allocation and mesh networking: Revisiting Minimum-Length Scheduling with Finite Queues in Wireless Networks**, Presenter: D. Yuan
- 14:10-14:35 **Project 1.3: Vehicular communications: The Impact of Shadow Fading on Hidden Terminal Problems**
Presenter: T. Abbas
- 14:35-15:00 **New faculty: Efficient Channel Assignment Algorithms for Infrastructure WLANs Under Dense Deployments**
Presenter: B. Landfeldt

Area 2: Electronics (Atila Alvandpour and Viktor Övall)

Vittelius 1: Second Floor

- 13:15-13:30 **Introduction and overview of the research in electronics**, Presenter: A. Alvandpour, LiU
- 13:30-13:45 **A Wake-Up Radio and its on going industry application**, Presenter: E. Nilsson, HH
- 13:45-14:00 **Pre-distortion of Class-D Outphasing RF Pas**, Presenter: Y. Jung, LiU
- 14:00-14:15 **Transmitters from Micro- to mm-Waves**, Presenter: J. Lindstrand, LTH
- 14:15-14:30 **Oversampled DAC for Wideband Transmitters**, Presenter: A. Bhide, LiU
- 14:30-14:45 **A 53-nW 9.1-ENOB 1-kS/s SAR ADC in 0.13- μ m CMOS for Medical Implant Devices**, Presenter: D. Zhang, LiU
- 14:45-15:00 **All-digital PLL for WiGig baseband circuit**, Presenter: M. Vesterbacka, LiU

Area 3: Embedded Systems (Karl-Erik Årzen and Bertil Svensson)

JB 1: Third Floor

- 13:15-13:20 **Introduction**, Presenter: K. -E. Årzen
- 13:20-13:40 **Flexible embedded platforms for ELLIIT applications**, Presenters: B. Svensson & J. Janneck
- 13:40-14:00 **Integrated Scheduling and Synthesis of Networked Embedded Event-Based Control Systems**,
Presenter: A. Cervin
- 14:00-14:10 **Large MIMO Arrays on Reconfigurable Computing Platforms**, Presenter: V. Övall
- 14:10-14:30 **Streaming Applications on Embedded High-Performance Commercial Platforms**
Presenters: B. Svensson & J. Janneck
- 14:30-14:45 **Parallel Architectures for Sampling Based Nonlinear Filters**, Presenter: O. Dahl
- 14:45-15:00 **Questions and General Discussion**

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THURSDAY MAY 3

AREA SESSIONS 13:15-15:00

Area 4: Software Systems (Görel Hedin and Claes Wohlin)

JB 2: Third floor

- 13:15-13:20 **Introduction**, Presenter: G. Hedin
- 13:20-13:45 **Accessing an Automotive Testing Process with Evidence-based Software Engineering using Mixed Methods**
Presenters: A. Kasoju, K. Petersen, and M. Mäntylä
- 13:45-14:10 **Static and Dynamic Debugging of Models in Modelica – An Equation-Based Object-Oriented Language**
Presenter: P. Fritzson
- 14:10-14:35 **The Hidden Relationships on the Web: Understanding the ID Federation Ecosystem**, Presenter: A. Vapen
- 14:35-15:00 **Questions from the evaluators and audience**

Area 5: Autonomous Systems (Patrick Doherty and Kalle Åström)

JB 3: Third floor

- 13:15-13:20 **Introduction**, Presenter: P. Doherty
- 13:20-13:35 **Project 5.1.1 Mixed Initiative Decision Support for Collaborative Systems**, Presenter: P. Doherty
- 13:35-13:50 **Project 5.1.2 Cooperative Localization and Mapping for UAVs and UGVs**, Presenter: C. Berger
- 13:50-14:05 **Robust Heading Estimation Indoors using Convex Optimization**, Presenter: J. Callmer
- 14:05-14:20 **Covariance Propagation and Next Best View Planning for 3D Reconstruction**, Presenter: A. Heyden
- 14:20-14:35 **New Faculty: Cooperative Robotics**, Presenter: A. Kleiner
- 14:35-14:50 **New Faculty: Combined Movement Tracking and Radio Channel Estimation**, Presenter: B. Bernhardsson
- 14:50-15:00 **Questions from the evaluators and audience**

Area 6: Complex Systems (Anders Ynnerman and Bo bernharsson)

JB 4: Third Floor

- 13:15-13:25 **Area update and midterm report**, Presenter: A. Ynnerman
- 13:25-13:40 **Project 6.1 Scalable Rendering and Visualization**, Presenter: M. Doggett
- 13:40-13:55 **Project 6.2 Process Learning**, Presenter: I. Gunnarsson
- 13:55-14:10 **Project 6.3 Optimal maneuvers**, Presenter: L. Nielsen
- 14:10-14:25 **Project 6.4 Large-scale Optimization for Systems Analysis**, Presenter: M. Andersen
- 14:25-14:40 **Project 6.5 System Development through Visual Steering**, Presenter: T. Ropinski
- 14:40-14:55 **Project 6.6 Enabling End-User-Centered Energy Management Systems**, Presenter: M. Krysander
- 14:55-15:00 **Wrap up**

Poster Presentations

Area 1 Physical Layer	
Title	Authors
Recent Results on Using Very Large Antenna Arrays for Wireless Communication	H. Q. Ngo, A. Pitarokoilis, S. K. Mohammed, E.G. Larsson, X. Gao, F. Tufvesson, F. Rusek, B. K. Lau, O. Edfors.
Network Optimization for High-Speed Wireless Access with Heterogeneous Deployment	Y. Li, M. Pioro, U. Körner, Q. He och D. Yuan
CVAN: Cross-Layer Design of VANETs for Traffic Safety	E. Uhlemann, T. Abbas, K. Bür, M. Kihl, E.G. Larsson, K. Sjöberg, F. Tufvesson
Optimization of Resources in HARQ Schemes	T.V.K. Chaitanya, E.G. Larsson
Optimal Channel Shortening for General Linear Channels.	F. Rusek, A. Prlja
Area 2 Electronics	
Title	Authors
Time-Interleaved Analog-to-Digital Converters	A. Kalidas, M. Pillai, P. Harikumar, J. Wikner, H. Johansson
Transmitters with Adaptive Matching	J. Lindstrand , C. Bryant, M. Törmänen, H. Sjöland
Comparison of modeling techniques for outphasing radio frequency power amplifiers	Y. Jung and M. Enqvist
CMOS power amplifiers for wireless communications	J. Fritzin, A. Alvandpour
A 53-nW ADC in 0.13- μm CMOS for Medical Implant Devices	D. Zhang , A. Bhide, A. Alvandpour
Recent advances in FFT hardware architectures	M. Garrido and O. Gustafsson
Area 3 Embedded Systems	
Title	Authors
HiPEC: High Performance Embedded Computing	J. Janneck & B. Svensson
Integrated Scheduling and Synthesis of Networked Embedded Event-Based Control Systems	A. Cervin
Large MIMO Arrays on Reconfigurable Computing Platforms	V. Övall
Streaming Applications on Embedded High-Performance Commercial Platforms	J. Janneck and B. Svensson
Parallel Architectures for Sampling Based Nonlinear Filters	O. Dahl

Area 4 Software Systems	
Title	Authors
Tracing Requirements Interdependencies in Agile Teams	I. Nurdiani, S. Fricker and J. Börstler
Benefits and Limitations of Automated Software Testing: Systematic Literature Review and Practitioner Survey	D. M. Rafi K. R. K. Moses, K. Petersen and M. Mäntylä
ParModelica – Modelica Algorithmic Language Extensions for Multi-Core Simulations	M. Gebremedhin, K. Stavåker , Peter Fritzson
A comparison of two metacompilation approaches to implementing a complex domain-specific language	D. Broman, P. Fritzson, Hedin , J. Åkesson
Securing private key operations on mobile phones – SELinux vs. ARM Trustzone	C. Jämthagen , M. Hell, B. Smeets
Area 5 Autonomous Systems	
Title	Authors
Temporal Composite Actions with Constraints	P. Doherty, J. Kvarnström , and A. Szalas
Visual Surround Sensing for Moving Vehicles: Components for Providing Robust Visual Measurement	R. Mester , C. Conrad, A. Guevara, D. Dederscheck, and M. Mertz
Large Scale Visual and Semantic Processing	D. Medved , P. Exner, P. Nugues, F. Jiang, M. Oskarsson, and K. Åström
Structure from Motion on Mobile Platforms	J. Hedborg and M. Felsberg
Cooperative Mapping for Large-Scale Indoor Exploration by UAVs	P. Rudol, A. Kleiner , and P. Doherty
Area 6 Complex Systems	
Title	Authors
Explicit Cache Management for Volume Ray-Casting on Parallel Architectures	D. Jönsson , P. Ganestam, M. Doggett, T. Ropinski and A. Ynnerman
Estimation for Control of a Flexible Industrial Robot	Patrik Axelsson , Rickard Karlsson and Mikael Norrlöf
System Identification Using Computer Vision	Olof Enqvist , Martin Enqvist, Fredrik Kahl
Battery Management Systems	Mattias Krysander , Erik Frisk, Lars Nielsen, and Atila Alvandpour
Robustness Analysis of Interconnected Uncertain Systems	Sina K. Pakazad , Martin Andersen, Anders Hansson, Anders Rantzer
Optimal Vehicle Maneuvers: A Case Study on Model Complexity	Karl Berntorp , Kristoffer Lundahl , Björn Olofsson , Bo Bernhardsson, Lars Nielsen, Anders Robertsson and Jan Åslund

Nationernas Hus, Ågatan 55

