

Dipl.-Ing. Marc KURZ, BSc

Institute for Pervasive Computing
Johannes Kepler University Linz
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EDUCATION

1991 - 1999: Bundesrealgymnasium Ramsauerstrasse (Grammar School)

2000 - 2007: Bachelorstudies in Computer Science at the University of Linz

2007 - 2008: Masterstudies in Computer Science (minor Softwareengineering)
at the University of Linz (passed with distinction)

2009 - 2010: "*Curriculum für NachwuchswissenschaftlerInnen*"
Didactics, Presentation Techniques

since 2009: Doctoral Program in Computer Science (Pervasive Computing)
Opportunistic Activity and Context Recognition, Supervisor: Univ.-Prof. Dr. Alois Ferscha

SPECIAL SKILLS

Language Skills

German (mother tongue)

English (written and spoken)

French (basics)

Programming

Java, C++, C, C#, .NET, Perl, PHP, Pascal, Web Programmierung (Java Servlets, JSP, PHP, JavaScript), CMS (Drupal), Prolog, Objective-C (XCode)

Computer

Windows, Linux, Unix, Mac OS, Deductive Databases, Datalog, MySQL

NLP (Natural Language Processing), IE (Information Extraction), IR (Information Retrieval), Semantic Web, Ontologies, Knowledge-based Systems, Data/Text Mining Maven, (Wireless) Sensor Networks, Machine Learning, Opportunistic Sensing, Activity and Context Recognition, Software Engineering, Pervasive and Ubiquitous Systems

L^AT_EX, Databases, GATE (General Architecture for Text Engineering)

EMPLOYMENT

Teaching Assistant, Institute for Pervasive Computing and Institute for Telecooperation, Johannes Kepler University of Linz, 2002 - 2008

Trainee, COMNEON electronic technology GmbH & Co. OHG, Software Development, Customer Support, Documentation Management, 2006 - 2008

System Manager, Pro.Karriere Furtmüller & Scheubinger OEG, 2008 - 2010

Research and Teaching Assistant, Institute for Pervasive Computing, Johannes Kepler University of Linz, 2009 - today

TEACHING EXPERIENCE

Summer Term 2010

Praktische Informatik I, 2 Exercise Groups (Algorithm Definitions, Specifications, Algorithms with Memory, Complexity, Recursion, Random Numbers, Sorting Algorithms, Exhaustion, Classification of Algorithms)

Winter Term 2010/2011

Algorithmen und Datenstrukturen 2, 4 Exercise Groups (Algorithm Definitions and Complexity, Abstract Data Types, Sorting and Searching, Hashing, Divide and Conquer, Graphs, Parallel Algorithms)

Summer Term 2011

Praktische Informatik I, 3 Exercise Groups (Algorithm Definitions, Specifications, Algorithms with Memory, Complexity, Recursion, Random Numbers, Sorting Algorithms, Exhaustion, Classification of Algorithms)

Praktikum Pervasive Computing, "Activity Recognition with Wrist-Worn Accelerometer Sensors", 5 semester hours, Together with Prof. Ferscha

Winter Term 2011/2012

Algorithmen und Datenstrukturen 2, 3 Exercise Groups (Algorithm Definitions and Complexity, Abstract Data Types, Sorting and Searching, Hashing, Divide and Conquer, Graphs, Parallel Algorithms)

Summer Term 2012

Praktische Informatik I, 3 Exercise Groups (Algorithm Definitions, Specifications, Algorithms with Memory, Complexity, Recursion, Random Numbers, Sorting Algorithms, Exhaustion, Classification of Algorithms)

Algorithmen und Datenstrukturen I, 1 Exercise Group (Algorithm Definitions, Specifications, Algorithms with Memory, Complexity, Recursion, Random Numbers, Sorting Algorithms, Exhaustion, Classification of Algorithms)

Praktikum Pervasive Computing, "Activity Recognition with Wrist-Worn Accelerometer Sensors", 5 semester hours, Together with Prof. Ferscha

SUPERVISED BACHELOR-/MASTER-THESIS

Fitness-Armband: Aktivitätserkennung in Echtzeit, Bachelor-Thesis, Harald Rogner, (in progress), Johannes Kepler University of Linz

Porting and Executing Activity Recognition Algorithms on the Sensing Platform, Master-Thesis, Manfred Öhlschuster, (in progress), Johannes Kepler University of Linz

PUBLICATIONS

2012

G. Hölzl, M. Kurz, A. Ferscha: *Goal Oriented Opportunistic Recognition of High-Level Composed Activities using Dynamically Configured Hidden Markov Models*, The 3rd International Conference on Ambient Systems, Networks and Technologies (ANT2012), August 27-29, Niagara Falls, Ontario, Canada, 2012.

M. Kurz, G. Hölzl, A. Ferscha, A. Calatroni, D. Roggen, G. Tröster: *Dynamic Adaptation of Opportunistic Sensor Configurations for Continuous and Accurate Activity Recognition*, Fourth International Conference on Adaptive and Self-Adaptive Systems and Applications (ADAPTIVE2012), July 22-27, Nice, France, ISBN: 978-1-61208-219-6, 2012.

2011

M. Kurz, G. Hölzl, A. Ferscha, A. Calatroni, D. Roggen, G. Tröster, H. Sagha, R. Chavarriaga, J. Millan, D. Bannach, K. Kunze, P. Lukowicz: *The OPPORTUNITY Framework and Data Processing Ecosystem for Opportunistic Activity and Context Recognition*, International Journal of Sensors, Wireless Communications and Control, Special Issue on Autonomic and Opportunistic Communications, Bentham Science Publishers, ISSN: 2210-32xx, December 2011.

D. Roggen, A. Calatroni, K. Förster, G. Tröster, P. Lukowicz, D. Bannach, A. Ferscha, M. Kurz, G. Hölzl, H. Sagha, H. Bayati, J. del R. Millan, R. Chavarriaga: *Activity Recognition in Opportunistic Sensor Environments*, Proceedings of the 2nd European Future Technologies Conference and Exhibition 2011 (FET 11), Procedia Computer Science, Editors: Elisabeth Giacobino, Rolf Pfeifer, Elsevier, Vol. 7, pp. 173-174, 2011.

M. Kurz, G. Hölzl, A. Ferscha, A. Calatroni, D. Roggen, G. Tröster: *Real-Time Transfer and Evaluation of Activity Recognition Capabilities in an Opportunistic System*, Third International Conference on Adaptive and Self-Adaptive Systems and Applications (ADAPTIVE2011), September 25-30, Rome, Italy, 2011.

G. Hölzl, M. Kurz, A. Ferscha, D. Roggen, A. Calatroni, G. Tröster, R. Chavarriaga, J. Millan, H. Sagha, P. Lukowicz, D. Bannach: *A Framework for Opportunistic Context and Activity Recognition*, 9th International Conference on Pervasive Computing (Pervasive2011), June 12-15, San Francisco, CA, USA, 2011.

M. Kurz, G. Hölzl, A. Ferscha, H. Sagha, R. Chavarriaga, J. Millan: *Dynamic Quantification of Activity Recognition Capabilities in opportunistic Systems*, Fourth Conference on Context Awareness for Proactive Systems: CAPS2011, 15-16 May 2011, Budapest, Hungary, 2011.

D. Roggen, A. Calatroni, K. Förster, G. Tröster, A. Ferscha, M. Kurz, G. Hölzl, P. Lukowicz, D. Bannach, H. Sagha, H. Bayati, J. Millan, R. Chavarriaga: *Activity recognition in opportunistic sensor environments*, The European Future Technologies Conference and Exhibition (FET11), 4-6 May 2011, Budapest, Hungary, 2011.

2010

R. Chavarriaga, J. Millan, H. Sagha, H. Bayati, P. Lukowicz, D. Bannach, D. Roggen, K. Förster, A. Calatroni, G. Tröster, A. Ferscha, M. Kurz, G. Hölzl: *Robust activity recognition for assistive technologies: Benchmarking ML techniques*, Workshop on Machine Learning for Assistive Technologies at the Twenty-Fourth Annual Conference on Neural Information Processing Systems (NIPS-2010), 2010.

M. Kurz, A. Ferscha: *Sensor Abstractions for opportunistic Activity and Context Recognition Systems*, 5th European Conference on Smart Sensing and Context (EuroSSC 2010), November 14-16, Passau Germany, Springer LNCS, Berlin-Heidelberg, pp. 14, 2010.

M. Kurz: *Goal-Driven opportunistic Sensing*, 12th ACM International Conference on Ubiquitous Computing (UbiComp 2010), Doctoral Colloquium, Copenhagen, Denmark, September 26 - 29, 2010, Adjunct Proceedings, 2010.

M. Kurz, A. Ferscha, A. Calatroni, D. Roggen, G. Tröster: *Towards a Framework for opportunistic Activity and Context Recognition*, 12th ACM International Conference on Ubiquitous Computing (UbiComp 2010), Workshop on Context awareness and information processing in opportunistic ubiquitous systems, Copenhagen, Denmark, September 26 - 29, 2010

D. Roggen, A. Calatroni, M. Rossi, T. Holleczeck, K. Förster, G. Tröster, P. Lukowicz, D. Bannach, G. Pirkl, A. Ferscha, J. Doppler, C. Holzmann, M. Kurz, G. Holl, R. Chavarriaga, M. Creatura, J. Millan: *Collecting complex activity data sets in highly rich networked sensor environments*, Proceedings of the Seventh International Conference on Networked Sensing Systems (INSS), Kassel, Germany, IEEE Computer Society Press, 2010

D. Roggen, A. Calatroni, M. Rossi, T. Holleczeck, K. Förster, G. Tröster, P. Lukowicz, D. Bannach, G. Pirkl, F. Wagner, A. Ferscha, J. Doppler, C. Holzmann, M. Kurz, G. Holl, R. Chavarriaga, M. Creatura, J. Millan: *Walk-through the OPPORTUNITY dataset for activity recognition in sensor rich environments*, Adjunct Proceedings of the Eighth International Conference on Pervasive Computing, Helsinki, Finland, 2010

2008

M. Kurz: *Entwicklung eines Systems zur semantischen Annotation von Stellenangeboten mit GATE (General Architecture for Text Engineering)*, Masterthesis, Institute for applied Knowledge Processing, November 2008, Supervisor: Univ.-Prof. Dr. Josef Küng

SCIENTIFIC TALKS

Real-Time Transfer and Evaluation of Activity Recognition Capabilities in an Opportunistic System, The Third International Conference on Adaptive and Self-Adaptive Systems and Applications (ADAPTIVE2011), September 2011

Dynamic Quantification of Activity Recognition Capabilities in Opportunistic Systems, IEEE 4th Conference on Context Awareness for Proactive Systems (CAPS2011), May 2011

Sensor Abstractions for opportunistic Activity and Context Recognition Systems, 5th European Conference on Smart Sensing and Context (EuroSSC 2010), November 2010

Goal-Driven opportunistic Sensing, 12th ACM International Conference on Ubiquitous Computing (UbiComp 2010), Doctoral Colloquium, September 2010

Towards a Framework for opportunistic Activity and Context Recognition, 12th ACM International Conference on Ubiquitous Computing (UbiComp 2010), Workshop on Context awareness and information processing in opportunistic ubiquitous systems, September 2010

SERVICES TO THE COMMUNITY

Reviewer for The Fourth International Conference on Adaptive and Self-Adaptive Systems and Applications (ADAPTIVE 2012), July 2012, Nice, France

Reviewer for the 3rd International Conference on Ambient Systems, Networks and Technologies (ANT-2012), August 2012

Reviewer for the 8th International Conference on Intelligent Environments (IE'12), June 2012

Publication Co-Chair for The Fourth International Conference on Automotive User Interfaces and Interactive Vehicular Applications (AutomotiveUI'12), October 2012, Portsmouth, New Hampshire, USA

Program Committee Member of The Fourth International Conference on Adaptive and Self-Adaptive Systems and Applications (ADAPTIVE 2012), July 2012, Nice, France

Reviewer for the International Symposium on Ambient Intelligence 2012 (IsAmi'2012), March 2012

Program Committee Member of the Workshop on Subliminal Perception in Cars, located at the 3rd International Conference on Automotive User Interfaces and Interactive Vehicular Applications (AutomotiveUI2011), December 2011

Reviewer for the 3rd International Conference on Automotive User Interfaces and Interactive Vehicular Applications (AutomotiveUI2011), December 2011

Session Chair (*Adaptive Applications*) at the 3rd International Conference on Adaptive and Self-Adaptive Systems and Applications (ADAPTIVE2011), September 2011, Rome, Italy

Reviewer for the Workshop on Robust Machine Learning Techniques for Human Activity Recognition, 2011 IEEE International Conference on Systems, Man, and Cybernetics (IEEE SMC 2011), October 2011

Reviewer for the 15th Portuguese Conference on Artificial Intelligence (EPIA 2011), October 2011

Reviewer for the 5th International Workshop on Context Awareness for Self-Managing Systems (CASEMANS 2011), September 2011

Reviewer for the 7th International Conference on Intelligent Environments (IE'11), July 2011

Reviewer for the International Symposium on Ambient Intelligence 2011 (IsAmi'2011), April 2011

Reviewer for the 1st International Workshop on Bio-inspired Approaches to Advanced Computing and Communications (BioAdcom2010), December 2010

Reviewer for the International Conference on Ambient Systems, Networks and Technologies (ANT-2010), November 2010

Reviewer for the 12th ACM International Conference on Ubiquitous Computing (UbiComp 2010), September 2010

ASSOCIATED RESEARCH PROJECTS

OPPORTUNITY (Activity and Context Recognition with Opportunistic Sensor Configurations), FP7-ICT-2007-C, FET open

The project aims at developing mobile systems to recognize human activity with dynamically varying sensor setups. We refer to such systems as opportunistic, since they take advantage of sensing modalities that just happen to be available, rather than forcing to deploy specific, application dependent sensor systems.

<http://www.opportunity-project.eu/>, 2009 - 2012

PowerIT (IT for Implicit Interaction based Energy Management), FFG Call: FIT-IT Embedded Systems & Semiconductors, 2nd Call

This project will investigate on potentials to reduce energy inefficiency by the development of methods and solutions based on implicit user interaction. Methodologically, it will attempt to exploit opportunistic sensor configurations to establish context information, in order to avoid standby losses of electronic equipment, machines and appliances. It will develop policies for an automatic (or implicit) switching of stand-by modes of such devices, based on the recognized or anticipated situation (rather than forcing users to explicitly switch among those modes).

2011 - 2014

MEMBERSHIPS

IEEE Member, <http://www.ieee.org>