Curriculum vitae

Sigg, Stephan; male April 6, 2017

Date of birth	January, 25th 1978 in Hanover, Germany
Citizenship	German
Residence	Maarintie 8, Espoo, Finland

Education and degrees awarded

04.2017 **Habilitation** at TU Braunschweig, Germany.
Thesis: Some aspects of physical prototyping in Pervasive Computing

02.2010 **M.Sc. in the further education course** 'Hagener Masterstudiengang Management' at the FernUniversität Hagen, Germany.
Grade: 1.5
Thesis: Optimisation of a three stage cooling process.

02.2008 **PhD** at the chair for communication technology of the University of Kassel, Germany.
Grade: summa cum laude (Dr. rer. nat.)
Thesis: 'Development of a novel context prediction algorithm and analysis of context prediction schemes'.

08.2004 **Graduation as Dipl.-Inform. (MSc degree)**
Grade: 1.3
Diploma thesis: 'Ein Vergleich verschiedener Varianten endlicher Quantenautomaten'.

Other education and training, qualifications and skills

04.2015-102016 **Goettingen certificate programme** at Georg-August University Goettingen, Germany.
Areas of study: Training in Teaching and Learning in Higher Education (140 work units (AE))
Web: http://www.uni-goettingen.de/en/90815.html.

Linguistic Skills (Self assessment according to Europass Language Passport instructions)

German	Mother tongue
English	Listening (C2); Reading (C2); Spoken interaction (C2); Spoken production (C2); Writing (C2)
Russian	Listening (C1); Reading (B1); Spoken interaction (B2); Spoken production (B2); Writing (B1)
Japanese	Listening (B1); Reading (B1); Spoken interaction (A2); Spoken production (B1); Writing (B1)

Current position

08.2015-08.2020 **Assistant Professor**, Aalto University, Department of Communications and Networking

Previous work experience

08.2015-09.2015 **Research cooperation** at the National Institute of Informatics, Tokyo, Japan
Research focus: RF-based device-free activity recognition; Mobile crowdsourcing
Organiser: DFG-JSPS bilateral workshop (08.2015)
Shonan meeting (09.2015)

07.2015-08.2015 **Visiting researcher** at the University of Helsinki (Nodes group)
Research focus: Trendmining on the Carat Dataset

04.2014-08.2014 **Visiting researcher** at the University of Helsinki (Nodes group)
Research focus: Trendmining on the Carat Dataset; Context-based security

10.2013-09.2015 **Research associate** at the chair for Computer Networks of the Georg-August University Goettingen, headed by Professor Xiaoming Fu

- Research focus: Pervasive Computing, Smart Cities, Device-free RF-based recognition, Context-based security
- Research team: Coordination of 1 team with focus on device-free RF-based recognition (four students).
- Advisor: 1 PhD-student, 1 Bachelor-thesis, 3 student assistants

07.2013-09.2013 **Academic guest** in the Wearable Computing Group of ETH Zurich

- Research focus: Smartphone-based Gesture recognition from WiFi

06.2013-09.2013 **DAAD researcher**, Institute for operating Systems and computer networks

- Research focus: Gesture recognition from RF

12.2012-03.2013 **Researcher** at the National Institute of Informatics in the Information Systems Architecture Science Research Division, headed by Professor Yusheng Ji

- Research focus: Classification of activities of device-free entities from environmental stimuli utilising channel quality estimations in an Internet of Things; Secure cryptographic keys from ambient audio
- Research team: Coordination of 2 teams with focus on secure keys from audio data (one programmer and one student) and RF-based activity recognition (2 PhD students).
- Advisor: 1 PhD-student, 1 Bachelor-thesis, 1 student assistant

09.2012-03.2013 **Part-time Lecturer** for Information Network Systems at Waseda University, Tokyo

- Topics: Machine learning and classification, sensor networks, distributed systems, content centric networking, Open Flow, delay tolerant networking, TCP/IP
- Teaching: 1 lecture for undergraduate students

12.2010-11.2012 **Research Grant** by the German Academic Exchange Service (DAAD-FIT Programme) at the National Institute of Informatics in the Information Systems Architecture Science Research Division, headed by Professor Yusheng Ji

- Research focus: Classification of situations and activities in a wireless sensor network utilising channel quality estimations; Security based on sensed environmental data; Analysis, optimisation and design of algorithms for Pervasive Systems, distributed adaptive beamforming in wireless sensor networks
- Research team: Coordination of 2 teams with focus on secure keys from audio data (one programmer and 1-3 students) and RF-based activity recognition (2 PhD students and 1 student).
- Teaching: 2 lectures and 2 exercises for graduate and undergraduate students, development and conduction of written examinations, first examiner in oral examinations.
- Acquisition: Acquisition (partly in collaboration) of third party funding worth 2 person years.
- Advisor: 1 PhD-student, 4 Internship students, 1 Bachelor thesis, 1 student assistant

10.2010-03.2011 **Visiting Professorship** at the Technische Universität Braunschweig in the group for distributed and ubiquitous systems

- Research focus: Analysis, optimisation and design of algorithms for Pervasive Systems; Operating systems; distributed adaptive beamforming in wireless sensor networks
- Teaching: 2 lectures and 2 exercises for graduate and undergraduate students, development and conduction of written examinations, first examiner in oral examinations.
- Project work: DFG SPP project Organic Computing and in the BSI-project MoSe
- Advisor: 2 Bachelor-theses

04.2010-09.2010 **Postdoctoral associate** at the Karlsruhe Institute of Technology (KIT) at the chair for Pervasive Computing Systems (Prof. Michael Beigl).

Research focus:	Analysis, optimisation and design of algorithms for Pervasive Systems, distributed adaptive beamforming in wireless sensor networks
Project work:	DFG SPP project Organic Computing and in the BSI-project MoSe.
Acquisition:	Acquisition (partly in collaboration) of third party funding (5 person years).
Advisor:	1 PhD student

01.2008-03.2010 **Postdoctoral associate** at the Technische Universität Braunschweig in the group for distributed and Ubiquitous systems (Prof. Michael Beigl).

Research focus:	Analysis, optimisation and design of algorithms for Pervasive Systems, distributed adaptive beamforming in wireless sensor networks
Teaching:	3 lectures for graduate students, advisor of 11 exercises to lectures for graduate and undergraduate students, advisor of 3 practical trainings, advisor of 8 seminars for graduate and undergraduate students, design and conduction of 5 written examinations, first or second examiner in oral examinations.
Project work:	Engaged in in the BSI-project MoSe and in the EU-project CHOSeN (FP7-ICT-2007-2, 224327).
Acquisition:	Acquisition (partly in collaboration) of third party funding (5 person years)
Advisor:	1 PhD student, 4 MSc/2 BSc theses, 4 Studienarbeiten, 9 research assistants

01.2005-12.2007 **PhD candidate** at the chair for communication technology of the University of Kassel, Germany (Prof. Klaus David).

Research focus:	Algorithms and optimisation, services for mobile devices, context-awareness, context prediction.
Teaching:	Advisor for 3 exercises to lectures for graduate students, development and conduction of 3 written examinations.
Project work:	Enga6ged in the bmb+f-projects mik21, IpOnAir and Wireless Internet – Kiosk
Advisor:	4 master theses, 1 bachelor thesis, 2 student research assistants

Awards, prizes and honours

2018 **NII Shonan Meeting** 'Resilient Machine-to-Machine communication' (Organizer).

2017 **Habilitation** at TU Braunschweig, Germany

2016 **GI Dagstuhl seminar** 'Aware Machine-to-Machine communication' (Organizer).

2015 **NII Shonan Meeting** 'Challenges for real-time human activity recognition' (Organizer).

2013 **PostDoc grant** of the DAAD for a research project in the frame of the programme 'Rückgewinnung Deutscher Wissenschaftler aus dem Ausland'.

2013 **NII Shonan meeting** 'Intelligent Inform. Processing – Chances of Crowdsourcing'.

2012 **Dagstuhl seminar** 12492 on human activity recognition in smart environments.

2011 **Postdoctoral scholarship** of the German Academic Exchange Service (DAAD) for a researcher position at the National Institute of Informatics, Tokyo, Japan.

2010 **Postdoctoral scholarship** of the German Academic Exchange Service (DAAD) for a researcher position at the National Institute of Informatics, Tokyo, Japan.

2009 **VDI prize** of the VDI-Nordhessen for an outstanding dissertation in the year 2008 (1st prize)

2008 **Dissertation with honours** in computer science (summa cum laude)

Merits in teaching and pedagogical competence

Machine learning for Pervasive Computing (MSc, winter 2016, winter 2017, Aalto University)
Machine learning and Pervasive Computing (MSc, summer 2015, winter 2014, University of Goettingen)
Machine learning and Pervasive Computing (MSc, summer 2015, TU Braunschweig)
Selected topics on Pervasive Computing (MSc, winter 2013, University of Goettingen)
Information network systems (BSc, winter 2012, Waseda University Tokyo)
Information and Communication Systems (PhD, summer 2012, National Institute of Informatics, Tokyo)
Secure communication based on noisy input data (MSc, summer 2011, TU Braunschweig)
Operating Systems (BSc, winter 2011, TU Braunschweig)
Collaborative transmission in WSNs (MSc, winter 2009, summer 2010, winter 2010, TU Braunschweig)
Algorithms for context prediction in Ubiquitous Systems (MSc, winter 2008, TU Braunschweig)

Other academic merits

Guest Editor	Springer PUC Theme Issue: Security and trust in context-aware systems Special section in IEEE Access (2017): Emergent Topics for Mobile and Ubiquitous Systems in Smartphone, IoT, and Cloud Computing Era Springer Mobile Networks and Applications, special issue: Mobile and Ubiquitous Systems
Editor	LNICST 162 (MOBICASE 2015 proceedings)
Editorial board	Elsevier Journal on Computer Communications (ComCom)

Scientific and societal impact of research

Total number of publications: 65; 10 most important publications:

1. D. Schuermann, A. Bruesch, S. Sigg, L. Wolf: BANDANA – Body Area Network Device-to-device Authentication using Natural gAit, IEEE International Conference on Pervasive Computing and Communications (PerCom), 2017
2. S. Savazzi, S. Sigg, M. Nicoli, V. Rampa, S. Kianoush, U. Spagnolini, "Device-Free Radio Vision for Assisted Living" IEEE Signal Processing Magazine, IEEE, March 2016
3. S. Sigg: A fast binary feedback-based distributed adaptive carrier synchronisation for transmission among clusters of disconnected IoT nodes in smart spaces, Elsevier Journal on Ad Hoc Networks, vol. 16, 2014
4. S.Shi, S.Sigg, and Y. Ji: Monitoring of Attention from Ambient FM-radio Signals, IEEE Pervasive Computing, Los Alamitos, CA, USA, IEEE Computer Society, Jan-Mar 2014, vol. 13, no. 1, 2014
5. S.Sigg, M. Scholz, S. Shi, Y. Ji, M. Beigl, "RF-Sensing of Activities From Non-Cooperative Subjects in Device-Free Recognition Systems Using Ambient and Local Signals," IEEE Transactions on Mobile Computing, 2014, vol. 13, no. 4
6. S. Sigg, U.Blanke and G.Troester: The Telepathic Phone: Frictionless Activity Recognition from WiFi-RSSI, IEEE International Conference on Pervasive Computing and Communications (PerCom), 2014
7. D. Schuermann, S. Sigg, "Secure Communication Based on Ambient Audio," IEEE Transactions on Mobile Computing, vol. 12, no. 2, 2013
8. S. Sigg, D.Gordon, M. Beigl, Sandra Haseloff, Klaus David, "Investigation of Context Prediction Accuracy for Different Context Abstraction Levels," IEEE Transactions on Mobile computing, vol.11, no.6, 2012
9. S. Sigg, R. Masri, M. Beigl, "Feedback-Based Closed-Loop Carrier Synchronization: A Sharp Asymptotic Bound, an Asymptotically Optimal Approach, Simulations, and Experiments," IEEE Transactions on Mobile Computing, vol.10, no.11, 2011
10. S. Sigg, S. Haseloff, K. David, "An Alignment Approach for Context Prediction Tasks in UbiComp Environments," IEEE Pervasive Computing, vol.9, no.4, 2010