

## Prof. Dr.-Ing. Tanja Schultz



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#### **Personal Data:**

Birth Date: February 6, 1964  
Birthplace: Oldenburg i.O., Germany  
Citizenship: German

#### **Education:**

1970-1974 Elementary School  
1974-1983 High School, "Abitur"  
1983-1989 1<sup>st</sup> degree: Mathematics, Sport, Physical Education, and Educational Science, "Staatsexamen für das Lehramt an Gymnasien", Ruprecht-Karl Universität Heidelberg, Heidelberg, Germany  
1990-1995 2<sup>nd</sup> degree: Diploma in Computer Science, Karlsruhe University (TH), Karlsruhe, Germany

## **Professional Preparation and Appointments**

### **April 2015 - present**

Full Professor (W3), Chair for Cognitive Systems, Faculty of Mathematic/Informatics at University Bremen, Germany

### **July 2007 - present**

Director of the Cognitive Systems Laboratory (CSL)

### **May 2007 – present**

Adjunct Professor, Faculty at Language Technologies Institute, Carnegie Mellon University, Pittsburgh, Pennsylvania USA

### **March 2007 – March 2015**

Full professor (W3) at Karlsruhe Institute of Technology, Department of Informatics, Chair for Cognitive Systems; Member of Steering Committee KIT-Focus Anthropomatics&Robotics, Founding Member of the “Institute for Anthropomatics”, KIT; Founding Member of the Institute for Future Technologies (ITZ), KIT

### **July 2002 – May 2007**

Research Assistant/Associate Professor, Faculty at Language Technologies Institute, Carnegie Mellon University, Pittsburgh, Pennsylvania USA

### **October 2005 - 2010**

Associate Director, InterACT: Center for Advanced Communication Technologies, Carnegie Mellon University and Karlsruhe University

### **January 2001 – June 2002**

Research Associate

Language Technologies Institute, Interactive Systems Laboratories, Carnegie Mellon University, Pittsburgh, Pennsylvania USA

### **September 2000 – December 2000**

Postdoctoral Fellowship at the Interactive Systems Laboratories, Carnegie Mellon University, Pittsburgh, Pennsylvania USA

### **1995 - 2000**

Graduate Research Assistant / PhD Student at the University of Karlsruhe, Germany, Institute of “Informatik, Institut für Logik, Komplexität und Deduktionssysteme”  
July 2000: Doctoral Degree in Computer Science (Dr.-Ing.) at the University of Karlsruhe Dissertation on Multilingual Speech Recognition; Advisor: Prof. Dr. Alex Waibel (University of Karlsruhe, Germany), Co-Advisor: Prof. Dr. Dirk van Compernelle (Katholieke Universiteit Leuven, Belgium)

### **1990-1995**

Diploma degree in Computer Science at the University of Karlsruhe, Germany. Advisors: Prof. Dr. Alex Waibel and Dr. I. Rogina

### **1983-1989**

Masters (Staatsexamen) in Mathematics (07/1989), Sport, Physical Education, and Educational Science (11/1989), University Heidelberg, Germany Master thesis: “*Die Bedeutung der Normierung für die praxisnahe Gestaltung sportmotorischer Tests*”; Advisor: Prof. Dr. Klaus Bös.

## Current Positions

- since 2020 Member of the Board of Trustees of the Fraunhofer Institut for Digital Media Technology (IDMT)
- since 2020 Chair of the Advisory Board of the UKRI Centre for Doctoral Training in Speech and Language Technologies, University of Sheffield, UK
- since 2019 Member of the Board of Directors, Leibniz-Science Campus
- since 2019 Spokesperson of high-profile area “Minds, Media, Machines” at University Bremen (with Michael Beetz)
- since 2016 Member of the ISCA International Advisory Board
- since 2015 Professor for Cognitive Systems in Informatics at University Bremen
- since 2007 Director of the Cognitive Systems lab
- since 2003 Founder of XLingual LLC and Co-owner of XLingual GmbH & Co KG

## Awards and Honors

- 2020 Google Faculty Research Award for the project on “EMG-to-Speech: End-to-End Silent Speech Conversion based on Electromyography”
- 2020 IEEE Fellow (Multilingual Speech Recognition and Biosignal Processing)
- 2019 Best Student Paper Award BIODEVICES on “A Wearable Real-time Human Activity Recognition System using Biosensors Integrated into a Knee Bandage” with H. Liu
- 2018 BCI Award 3<sup>rd</sup> place with the contribution “Brain-to-Speech: Direct Synthesis of Speech from Intracranial Brain Activity Associated with Speech Production” with C. Herff, L. Diener, E. Mugler, M. Slutzky, D. Krusienski
- 2017 Fellow of the European Academy of Sciences and Arts
- 2016 ISCA Fellow (for contributions to Multilingual Speech Recognition and Biosignal Processing for Human-Machine Interaction)
- 2016 The publication “Brain-to-Text: Decoding spoken sentences from phone representations” nominated among the “100 Articles in the Spotlight” in Frontiers Blob (top 4 downloads of 12.500 publications in year 2015, 99% view rank).
- 2015 ICSA / EURASIP Best paper award Speech Communication Journal for the publication “Silent Speech Interfaces”
- 2015 Best Student Paper Award BIOSIGNALS with M. Georgi and C. Amma
- 2015 Nominated for the 2015 Brain-Computer-Interfaces Award with C. Herff and D. Heger
- 2014 Nominated for the 2014 CeBIT Innovation Award with C. Amma und F. Winnen
- 2013 Otto Haxel Award together with C. Amma and M. Georgi
- 2013 Google Faculty Research Award for the Topic "Aerial: Seamless interaction for wearable computers", together with Christoph Amma.
- 2013 Geographic Finalist Europe IEEE Engineering in Medicine and Biology Society with D. Heger, F. Putze und C. Herff
- 2013 Best Student Paper Award BIOSIGNALS 2013 together with Michael Wand, Matthias Janke and Christopher Schulte for the publication "Array-based Electromyographic Silent Speech Interface".
- 2012 Research Award „Technical Communication“ Alcatel-Lucent Stiftung for outstanding contributions in the field of „Humans and Machines in Communication Systems“, particularly for research in the area of “Silent Speech Communication“.

- 2012 Best Paper Award, International Symposium on Wearable Computers (ISWC), together with Christoph Amma and Markus Georgi for the publication "Airwriting: Hands-free mobile text input by handwriting with inertial sensors".
- 2011 PLUX Wireless Biosignals Award for the project "Airwriting Recognition using Wearable Motion Sensors" by Christoph Amma, Dirk Gehrig and Tanja Schultz awarded at International Joint Conference on Biomedical Engineering Systems and Technologies (BIOSTEC 2011).
- 2010 Best Student Paper Finalist at the International Conference on Social Robotics in Singapore for the paper entitled "An Adaptive Information System for an Empathic Robot using EEG Data" by Dominic Heger, Felix Putze and Tanja Schultz.
- 2009 BIOSTEC - BIOSIGNALS 2009 best selected papers Michael Wand, Tanja Schultz, Towards Speaker-Adaptive Speech Recognition based on Surface Electromyography.
- 2008 BIOSTEC - BIOSIGNALS 2008 best selected papers Tanja Schultz und Szu-Chen Jou „Automatic Speech Recognition based on Electromyographic Biosignals“.
- 2006 ISCA Best Demo Award for the most far-sighted demonstration at Interspeech 2006 "An Electromyographic Silent Speech Translation Prototype".
- 2005 Carnegie Mellon Language Technologies Institute Junior Faculty Chair
- 2002 ICSA Best paper award for the publication in the Speech Communication Journal between 2000 and 2001 entitled: Language Independent and Language Adaptive Acoustic Modeling for Speech Recognition
- 2002 Allen Newell Medal for Research Excellence in Speech-to-Speech Translation, School of Computer Science at Carnegie Mellon University
- 2001 Award (Forschungsförderpreis) of the "Forschungszentrum Informatik" for an exceptional Dissertation

## **Inventions/Patents**

- 2014 Patent „Method and system for handwriting and gesture recognition“ with C. Amma filed Februar 2014, granted April 2018 as EP2911089B1; filed in WO2015128151A1 and JP2017516176A, pending.
- 2013 Invention: "Methods and system for handwriting and gesture recognition", July 2013.
- 2013 Patent "Methods and apparatus for the transformation of myoelectric signals into audible speech", filed Dec 2013 PCT/EP2014/003372, WO2015090562A2 pending
- 2012 Invention: Methods and apparatus for the transformation of myoelectric signals into audible speech, filed March 2012
- 2012 Development and Licensing of Software "BioKIT" Decoder for the processing, recognition, and interpretation of Biosignals, KIT
- 2011 Methods and Apparatuses for Myoelectric-based Speech Processing, T. Schultz and A. Waibel, US Patent 8,082,149, filed Oct 2006, granted December 2011
- 2003 Founder and president of the company XLingual, LLC that owns the copyrights for GlobalPhone and licenses the database, distributions with ELRA and Appen Ltd.
- 2001 Invention: Design, collection, and distribution of the multilingual speech and text database GlobalPhone for the development of multilingual speech recognition and translation systems for large vocabularies in 21 languages: Arabic, Bulgarian, Ch-Mandarin and Ch-Shanghai, Croatian, Czech, French, German, Hausa, Japanese, Korean, Polish, Portuguese, Russian, Spanish, Swedish, Tamil, Thai, Turkish, Ukrainian, and Vietnamese.

## Work and Project Experience

Intuitive and adaptive man-machine interfaces, machine learning, methods and algorithms for real-time processing, recognition, and interpretation of biosignals such as speech, motion, as well as muscle and brain activity (EMG, EEG, fNIRS, EcoG), multilingual speech processing, real-time demonstrators such as Brain-to-Text, Silent Speech Interfaces, Intelligent Bandages, Airwriting.

### Current Grants (as PI, Co-PI)

- 2021-2023 ADSPEED – Adaptive low-latency Speech Decoding and Synthesis using intracranial signals  
Duration: 01/2021 – 12/2023  
Partner: Prof. Dean Krusienski, Advanced Signal Processing in Engineering and Neuroscience Lab of the Virginia Commonwealth University in Richmond, VA  
Role of Schultz Team: Development and evaluation of real-time systems for decoding and synthesis from speech-related intracranial signals  
Sponsor: Multilateral Cooperation in Computational Neuroscience funded by BMBF (Germany partner) and NSF (USA partner)  
Budget for Schultz' team: €400,000; Overall funding: €800,000
- 2020-2024 High-profile area Minds, Media, Machines (MMM)  
URL: <https://www.uni-bremen.de/en/minds-media-machines.html>  
Duration: 01/2020 – 12/2024  
Partner: Members of MMM  
Role of Schultz: spokesperson jointly with Michael Beetz, coordination and initiation of research initiatives and projects, research network  
Sponsor: Federal state Bremen  
Overall Budget: 2,500,000 M€ (500,000€/yr)
- 2020-2021 Google Faculty Research Award on the project “EMG-to-Speech: End-to-End Silent Speech Conversion based on Electromyography” (Google)  
<https://www.uni-bremen.de/csl/forschung/lautlose-sprachkommunikation>  
Duration: since 01/2020  
Sponsor: Google Ireland Ltd.  
Award: 80,000 USD
- 2019-2022 SmartHelm – Development of an attention-aware assistant system integrated into a bicycle helmet to improve safety of cargobikers  
URL: <https://smart-helm.com/>  
Duration: 11/2019 – 10/2022  
Partner: Carl von Ossietzky Universität Oldenburg, Abt. Wirtschaftsinformatik VLBA, CITIPOST Nordwest GmbH & Co. KG, Stadt Oldenburg, Ubimax GmbH, UVEX SPORTS GROUP GmbH & Co. KG, Rytle GmbH  
Role of Schultz' Team: Multimodal detection of attention from EEG and eyetracking and multilingual speech recognition for cargo bikers  
Sponsor: Federal Ministry of Transport and Digital Infrastructure (BMWi)  
Budget for Schultz' Team: 489,000€; Overall Budget: 2,040,431.00 €
- 2019-2022 University Bremen Excellence Chair Prof. Haizhou Li  
URL: <https://www.uni-bremen.de/u-bremen-excellence-chairs/chairs/prof-haizhou-li>

- Duration: 01/2019 – 12/2022 (1. phase)  
 Partner: Prof. Haizhou Li, Nanyang University Singapore  
 Role of Schultz: Nominator and host of Prof. Li and co-advisor of his U Bremen working group, joint project on attention-driven machine listening; investigate EEG, cgrid and fNIRS for auditory attention detection based on neural signals  
 Sponsor: University of Bremen, federal state of Bremen  
 Budget: 720,000€
- 2019-2021 ALMED – Akustische und Linguistische Merkmale zur Früherkennung kognitiver Defizite (Acoustic and Linguistic Features for Dementia Screening), URL: <https://www.uni-bremen.de/csl/projekte/laufende-projekte/almed>  
 Duration: 07/2019 – 06/2021  
 Partner: Prof. Dr. Johannes Schröder, Klinik für Allgemeine Psychiatrie, Gerontopsychiatrische Forschung, Ruprecht-Karls-Universität Heidelberg  
 Role of Schultz' Team: Development of automatic speech recognition, feature extraction, and automatic dementia screening systems based on spoken interviews of the ILSE corpus  
 Sponsor: German Research Foundation (DFG)  
 Budget for Schultz' team: €341,000, Overall funding: €496,500
- 2017-2021 DFG Collaborative Research Center 1320 EASE - an interdisciplinary research center (speaker Beetz)  
 URL: <https://ease-crc.org/>  
 Duration Phase 1: 07/2018 - 06/2021; Phase 2 pending  
 Partner: Interdisciplinary research center at the University of Bremen  
 Role of Schultz' Team: Lead of Area H "Descriptive models of human everyday activities", WP H3 Natural Activity Statistics  
 Sponsor: German Research Foundation (DFG)  
 Budget for Schultz' team: €600,000; Overall funding: CRC
- 2017-2022 International Gradschool „Empowering Digital Media“ (Speaker Malaka)  
 URL: <https://www.uni-bremen.de/dmlab-1/graduierntenkolleg>  
 Sponsor: Klaus-Tschira-Foundation  
 Role of Schultz' Team: stipend for one PhD student on the topic "Interpret digital traces via machine learning"
- Since 2012 Karlsruhe Decision & Design Lab, DFG-funded laboratory for biosignal processing, DFG 91b (Weinhardt/Schultz); The 40-unit lab is equipped with modern mobile devices to capture biosignals (brain – EEG, fNIRS, muscles – EMG, physio – EDA, EKG, as well as Eyetracking, Video and Audio for interaction monitoring, etc.) and allows to investigate the human-human as well as human-machine interaction of up to 40 subjects in parallel (DFG)
- Since 2004 GlobalPhone, RLAT Rapid Language Adaptation Toolkit, Web-based tools to efficiently initialize and rapidly port speech processing systems to new languages and domains (different funding bodies, industry, NSF), in context with the projects of Spice, GlobalPhone and Festival.

## **Past Grants (as PI, Co-PI, key personal)**

as PI/Co-PI at Bremen University, Germany:

RESPONSE (2017-2019, BMBF-NSF), AsaROB (2017-2019, BMBF), I-CARE (2016-2019, BMBF), Arthrokinemat (2016-2019, BMWi)

as PI/Co-PI at Karlsruhe Institute of Technology, Germany:

MAPS (DFG, 2013-2016), GonyTech (BMW, 2013-2016), AKTIV (2013-2016, Ba-Wü Stiftung) Wearable Computing (2013, Google), HeiKA1,2 (2012-2013, KIT-HD Exc funds), QUAERO (2008-2013, OSEO France), DFG CRC 588 on Humanoid Robots, WP lead (2008-2012, DFG), Code-Switch (2010-2012, Temasec Labs, Singapore), WHISPER, SILENT (industrial projects)

as PI/Co-PI at Carnegie Mellon University, Pittsburgh, PA:

GALE (2005-2010, DARPA), ASR (2009-2011, RADAR), FarSID (2007-2009, ITIC, DARPA), Multilingual Speech Recognition (2006-2008, CSIT Singapore), SPICE (2004-2008, NSF), TransTac-I+II (2004-2006, DARPA), NineOneOne (NSF), Laser ACTD I + II (2003-2006, DARPA), CHIL (2003-2006, EU) Koordination CMU, Str-Dust (2003-2006, NSF), Dolphins (2002-2003, Wild Dolphins Foundation), CHENGO (2002-2004, Department of Education);

as consultant/commission member:

EU ICT COST Action IC1206 „De-identification for privacy protection in multimedia content“, (2013-2018, Commission Member Germany, CogniFit (2009-2011, Germany KIT- Charité Excellence Funding); Thinking Head (2007-2011, Australian Research Council)

as key personal in Germany and USA:

Babylon (2002-2004, DARPA), Avenue (2001-2003, NSF), Nespole! (2000-2002, EU) C-Star, Lingwear (DARPA), Verbmobil (1995-2000, BMBF).

## **Evidence of External Reputation**

### **Boards, Chair, President:**

- since 2020 Member of the Board of Trustees of the Fraunhofer Institut for Digital Media Technology (IDMT)
- since 2020 Chair of the Advisory Board of the UKRI Centre for Doctoral Training in Speech and Language Technologies, University of Sheffield, UK
- since 2019 Member of the Board of Directors, Leibniz-Science Campus
- since 2017 Member of the ISCA Fellow Committee
- since 2016 Member of the ISCA International Advisory Board
- 2013-2015 Elected President of the International Speech Communication Association
- 2007-2015 Member of the International Speech Communication Association Board (elected for four years, reelected 2011 for another four year term)

### **Consulting**

- 2010-2017 Hector School of Engineering and Management, Master Program for Green Mobility, Lecturer for Human Behavior Modeling, Karlsruhe.

- Since 2008 Fraunhofer Institute of Optronics, System Technologies and Image Exploitation (IOSB), consulting expert on Biosignal Capturing, Processing, and Interpretation for man-machine interfaces.
- 2012-2014 Consulting for Amazon, Multilingual Speech Technologies
- 2003 Mobile Technologies, LLC. Development of software and generation of pronunciation dictionaries in English language spoken by native and non-native speakers for the purpose of speech recognition.
- 2003 Cepstral, LLC. Service for the development of speech synthesis for German and non-native English language.
- 2002-2004 Northrop Grumman. Scientific and technical service for the design, development, and implementation of a web-based, distance learning education program for children to learn English as a second language.

### **Invited Panels and Expert Groups**

- 2020 Invited expert for the German Ethics Council on ethical questions of the relationship between man and machine
- 2020 Invited Expert at the International Workshop for Speech-to-Speech Machine Translation supported by Meity, Government of India, talk on Rapid Language Portation of Speech Processing Systems: Lessons Learned, November 2020.
- 2020 Invited Expert at the Exploratory Seminar at the Radcliffe Institute, talk on Decoding Speech from Neural Signals, virtual, September 2020.
- 2017 Invited speaker at the BMBF future congress, talk on Biosignal-based interaction, Bonn, June 2017.
- 2016 Invited Panelist at the Language Technology Industry Summit, talk on Rapid Language Adaptation Tools & Data, Brussels, May 2017
- Since 2015 Expert for BMBF, EU, Deutscher Bundestag for various High-Tech Strategies on Man-Machine Interfaces, Berlin, Brüssel, Bonn.
- 10 2013 Invited Expert on the NSF-funded workshop “Automatically Annotated Repository of Digital Video and Audio Resources Community (AARDVARC), New York City, NY, Oct 2013.
- 05 2013 Invited Expert on the NSF-funded workshop “Automatically Annotated Repository of Digital Video and Audio Resources Community (AARDVARC), Eastern Michigan University, MI, May 2013.
- 06 2011 Invited Speaker for the Zientzia Foroa conference series organized by Ikerbasque a Government Foundation created to reinforce the Basque Science System and Jakiunde, the Basque Academy os Science and Arts, Bilbao, Spain, June 2011.
- 01 2011 Invited Expert for Panel on the subject: "How will Biomedical Technology Enhance Human Life?" at BIOSTEC 2011, Rome, January 2011.
- 11 2010 Invited Expert for Panel on the subject: “Social Robotics” at International conference on Social Robotics, Singapore, November 2010.
- 02 2010 JSPS-DFG Round Table on “Cooperative Technology in Future: Cognitive Technical Systems”, Tokyo, Japan, February 2010.
- 04 2009 Invited Expert for Panel on the subject of Biosignals and Multimodal Information Fusion at IEEE conference ICASSP, Taipei, Taiwan, April 2009.
- 11 2008 Invited Expert on the topic of „Cognitive Systems – Future Steps“ organized by InterLink, European Union ECRIM, Cannes, France.



- 05 2007 Invited Expert on the topic of „Cognitive Systems – Future Steps“ organized by InterLink, European Union ECRIM, Nice, France.
- 03 2007 Invited expert for „E-Language Learning“ by The William and Flora Hewlett Foundation, California and China.
- 09 2005 Panel chair on subject: “Robust Speech Recognition – How to achieve it” at the DARPA Speech Translation project (GALE) kick-off, San Juan, CA.
- 02 2005 Invited Expert on the „Colloquium on Technology – Young Language Learners“ by The William and Flora Hewlett Foundation, Menlo Park, CA.
- 11 2004 Panel expert on Language Processing Support Services, International Conference on Speech and Language Systems for Human Communication, Delhi, India.
- 02 2004 Invited expert on „Human Language Technologies - Development in South Africa“, Kruger National Park, Skukuza, South-Africa.
- 08 2003 Expert Technical Work Group Meeting in Kunming, China
- 01 2003 Expert Technical Work Group Meeting in Honolulu, Hawaii
- 09 2002 Expert Technical Work Group Meeting in Beijing and Chongqing, China
- 2002-05 Member of the “Expert Technical Work Group on E-Language Learning”, invited by the United States Department of Education within the scope of the U.S.-China E-Language Project, a joint project of the U.S. Department of Education and the Chinese Ministry of Education, initiated via a formal agreement signed by the U.S. Secretary of Education and the Chinese Minister of Education. Leader of the subgroup: “System Design, Development, and Evaluation”.
- 2001 *Portability of Automatic Speech Recognition Technology to new Languages: Multilinguality Issues and Speech/Text Resources*. Automatic Speech Recognition and Understanding (ASRU-2001), Madonna di Campiglio, Italy, December 2001.

### **Invited Talks and Tutorials**

- 2021 Invited Speaker at the CeTI Summer School 2021 (Center for Tactile Internet for Human-in-the-loop), talk on Biosignal Processing – Capturing, Recognition, and Interpretation for Cognitive Systems and Applications, virtual, May 2021.
- 2020 Invited Speaker (jointly with Felix Putze) at the MindTalks series, talk on Attention Recognition: Key to Adaptive Cognitive Systems, virtual, November 2020.
- 2020 Invited ICASSP-ETON speaker, IEEE International Conference on Acoustics, Speech, and Signal Processing, talk on Biosignal-based Spoken Communication, Barcelona (virtual conference), May 2020.
- 2020 Invited Speaker at Bremen AI, talk on Human-Maschine Interaction based on Biosignals, Bremen, February 2020.
- 2019 Keynote Speaker at ASRU (Automatic Speech Recognition and Understanding), talk on Biosignal-based Spoken Communication, Singapore, December 2019
- 2019 Invited Speaker at IROS Workshop on Semantic Policy and Action Representations for Autonomous Robots, talk on Biosignal Processing for Modeling Human Everyday Activities, Macau, November 2019
- 2019 Invited Speaker at Futuras Res, Fraunhofer, Berlin, November 2019
- 2019 Keynote Speaker at Interspeech, Flagship conference of ISCA, Graz, September 2019
- 2019 Keynote Speaker at PETRA conferences, Rhodes, June 2019
- 2019 Invited speaker at HADF, Oldenburg, June 2019
- 2019 Invited demonstration of I-CARE at the Deutsche Ethikrat, Berlin, June 2019
- 2019 Invited speaker at Nutzerkongress, Düsseldorf, May 2019

- 2019 Invited speaker at CogSys, Osnabrück, January 2019
- 2018 Invited speaker and panelist at the Iberspech Conference, talk on Biosignal-based Spoken Communication, Barcelona, November 2018
- 2018 Invited speaker that the Specom Conference, talk on Biosignal-based Spoken Communication, Leipzig, September 2018
- 2018 Invited speaker at the KI Symposium, talk on Cognitive Systems, Braunschweig, June 2018
- 2018 Invited Speaker at the AISV meeting of the Italian association for Speech Sciences, talk on Biosignal-based Spoken Communication Bozen, January 2018
- 2017 Invited speaker at the Symposium of Dementia, talk on Automatic speech analysis for early detection of cognitive change, Heidelberg, October 2017.
- 2017 Invited Keynote at KD2Lab Inauguration, talk on Biosignal-based cognitive systems and applications, Karlsruhe, April 2017.
- 2017 Invited Keynote at Conference on Electronic Speech Signal Processing (ESSV), talk on Biosignal-based Spoken Communication, Saarbrücken, March 2017.
- 2017 Invited Keynote at Speech in Noise Workshop (SPIN), talk on Silent Speech Interfaces, Oldenburg, January 2017.
- 2016 Invited Speaker at SECNS Speech Engineering and Computational Neuroscience of Speech, talk on Brain-to-text: Decoding continuous speech, San Francisco, September 2016
- 2016 Invited Keynote Speaker at PhyCS, International Conference on Physiological Computing Systems, Lisbon, July 2016.
- 2016 Invited Special Session on ECoG-based Speech Processing, BCI Asilomar, CA, May 2016.
- 2016 Invited Panelist on "The Future of Pattern Recognition: Where Do We Go From Here?" at the ICPRAM, Rome, February 2016.
- 2016 Keynote Speaker on "Biosignal-Based Cognitive Systems and Applications" at the International Conference on Pattern Recognition and Applications, Rome, Feb 2016.
- 2015 Invited talk on „Brain-To-Text at CSL“, SFB TRR 31 Seminar, Oldenburg, Dez 2015.
- 2015 Invited panelist on „Cyborgs und Maschinen-Menschen – Zwischen Therapie und Utopie, Deutscher Bundestag, Berlin, Dezember 2015
- 2015 Invited panelist on "Digitalisierung des Alltags", Zukunftsinitiative des BMBF im Rahmen der High-Tech Strategie der Bundesregierung, Berlin, July 2015.
- 2015 Invited Keynote Speaker on "Multilingual Automatic Speech Recognition for Code-Switch Speech", Taiwanese National Workshop on Speech Signal Processing, Academia Sinica, Taiwan, March 2015.
- 2015 Follow-up invited talks at National Taiwan University, Taipei, at the National Tsing Hua University in Hsinchu, and at the National Cheng Kung University (NCKU) in Tainan, Taiwan, March 2015.
- 2014 Invited talk on "Biosignals & Interfaces", Swiss AI Lab IDSIA, Lugano, Switzerland, December 2014.
- 2014 Invited Expert Speaker at Renmin University, China, November 2014.
- 2014 Invited Keynote Speaker on "Cognitive Modeling in Design and Decision Processes", International Conference on Human Behavior in Design, Ascona, Schweiz, Okt 2014.
- 2014 Invited Keynote Speaker at ISCSLP, Singapore, September 2014.
- 2014 Invited talk on "Mensch-Maschine Schnittstelle auf der Basis von Biosignalen", nexus Security Symposium, Ettlingen, June 2014.

- 2014 Invited talk on “Processing of Speech and other Biosignals”, LORIA/INRIA, Nancy, France, June 2014.
- 2014 Invited Plenary Speaker on “Speech Recognition for Code-Switching”, Bilingualism Focal Point Symposium, Univeristy of Illinois Urbana-Champaign, Mai 2014.
- 2014 Invited talk on „Silent Speech Interfaces“, Dagstuhl Spring School, April 2014.
- 2014 Invited talk on „Multilinguale Spracherkennung – Robustheit gegen Sprachenvielfalt“, DAGA Vorkolloqium, Oldenburg, March 2014.
- 2014 Invited talk on “Mensch-Maschine Schnittstellen auf der Basis von Bewegung”, Symposium Bewegung messen, Sportinstitut Universität Heidelberg, February 2014.
- 2014 Invited Expert Speaker for the Winter School on Speech and Audio Processing (WiSSAP), International Institute of Information Technology (IIIT), Hyderabad, India, January 17-20, 2014.
- 2013 Invited and Keynote speaker, “Building Speech Recognition Systems with Low Resources”, Automatic Speech Recognition and Understanding (ASRU), Tschechien, Dezember 2013.
- 2013 Plenary Speaker on “Silent Speech Interfaces” at the workshop Ultrafest, Edinburgh, October 2013.
- 2013 Plenary Speaker on “Rapid Language Adaptation” at the Conference on Statistical Modeling in Speech Processing, Tarragona, Spain, July 2013.
- 2013 Plenary talk on “Multilingual Speech Processing”, NSF-funded workshop “Automatically Annotated Repository of Digital Video and Audio Resources Community (AARDVARC), Eastern Michigan University, MI, May 2013.
- 2012 Keynote KI “Künstliche Intelligenz” Biosignals and Interfaces, Saarbrücken, September 2012.
- 2012 Invited talk on “Cognitive Technical Systems” at the Symposium on Measuring Behavior, Scotland, August 2012.
- 2012 Invited talk on „Silent Speech Interfaces, Saarbrücken, June 2012.
- 2012 Invited talk on „Biosignals and Interfaces“, University Ulm, SFB/TR Seminar, February 2012.
- 2012 Talk on “Lautlose Kommunikation”, KIT im Rathaus, Karlsruhe, January 2012.
- 2011 Invited talk on “Silent Speech Interfaces”, Joint Symposium on Neurotechnology for Anthropomatic Systems, Göttingen, December 2011.
- 2011 Invited Speaker on “Real-time Recognition of User States”, Symposium: Ambulatory Assessment - Current Status and Future Prospects, Karlsruhe, December 2011.
- 2011 Invited talk on “Silent Speech Interfaces based on Electromyography”, GIPSA-Lab Seminar, GIPSA, Département Parole et Cognition, CNRS, Grenoble France, November 2011.
- 2011 Invited talk on “Rapid Language Adaptation of ASR for Low-resource Languages”, LIG Seminar, Grenoble France, November 2011.
- 2011 Invited Speaker on “Biosignals and Interfaces” to the International Symposium: Evolutionary Robotics, Organic Computing and Adaptive Ambience, Karlsruhe, October 20-22 2011.
- 2011 Invited talk on “Silent Speech Interfaces”, Nanyang Technological University, Speech Processing Seminar, Singapore, September 2011.
- 2011 Invited Speaker for the Zientzia Foroa conference series organized by Ikerbasque a Government Foundation created to reinforce the Basque Science System and Jakiunde, the Basque Academy os Science and Arts, Bilbao, Spain, June 2011.

- 2011 Invited talk on „Biosignals and Anthropomatic Systems“, Workshop „Biokybernetische Adaptation und HCI“, Karlsruhe, July 2011.
- 2011 Invited talk on “Einsatz von Biosignalen für benutzerzentrierte Entwicklung von HMIs“, Elektrobit, Erlangen, Germany, March 2011.
- 2011 Invited talk on “Können Computer Gedanken Lesen“, Jugend Forscht 2011, Felss Gruppe, Pforzheim, Germany, February 2011.
- 2011 Invited talk on “Biosignals and Interfaces“, COST, Dresden, Germany, February 2011.
- 2011 Invited talk on “Speech Recognition and Electromyography“, OT Bioelectronics, University Turino, Turino, Italy, January 2011.
- 2010 Invited talk on “Silent Speech Interfaces“ Sheffield University, UK, December 2010.
- 2010 Invited talk on “Biosignals“ Max-Planck Institute, Tübingen, November 2010.
- 2010 Invited talk on “Silent Speech Interfaces“ 10 Years after Verbmobil, Saarbrücken, Germany, November 2010.
- 2010 Invited Interspeech Tutorial on “Multilingual Speech Processing“, Makuhari, Japan, November 2010.
- 2010 Invited talk on “Biosignals and Interfaces“ SCCS, International Symposium on “Scientific Computing for the Cognitive Sciences 2010“ Heidelberg, October 2010.
- 2010 Invited Talk on „Communication technologies for weak and elderlies“, 19th Meeting of Geriatrie, Ettlingen, Germany, September 2010.
- 2010 ICCHP, Key-Note on the topic of „Weak and Silent Speech: Technologies to Support People with Speech Impairments“, International Conference on Helping People with Special Needs, Vienna, Austria, July 2010.
- 2010 Invited Talk on „Biosignals“ at the tubs.CITY Symposium, Braunschweig, June 2010.
- 2009 ASRU, Invited Tutorial on „Multilingual Speech Processing“, Trento, Italy, Dec 2009.
- 2009 Interspeech, Special Session on „Silent Speech Interfaces“, Brighton, UK, Sept 2009.
- 2009 Interspeech, Tutorial on „Silent Speech Interfaces“, Brighton, UK, September 2009.
- 2009 PhysioEconomics, Invited talk on the subject of „Biosignals“, Rotterdam, NL, September 2009.
- 2008 SLT, Rapid Language Adaptation Tools & Technologies for Multilingual Speech Processing Systems, Invited Tutorial, Goa, India, IEEE Signal Processing Society, December 2008.
- 2008 Invited talk on “FarField Speaker Recognition“, iARPA ROBUST 2008, Honolulu, HI, USA, November 2008.
- 2008 IS-LTC, Rapid Deployment of Speech Processing Systems to New Languages and Domains, Key-Note, Ljubljana, Slovenia, 16. October 2008.
- 2008 IIR, Multilingual Speech Processing, Invited talk, Agency for Science, Technology and Research (A\*Star), Institute for Infocomm Research, y
- 2008 PROPOR, Multilingual Speech Processing Systems, Key-Note, Aveiro, Portugal, September 2008.
- 2008 ICASSP, Tutorial on Rapid Language Adaptation Tools and Technologies for Multilingual Speech Processing Systems, Las Vegas, US, April 2008.
- 2008 SLTU, Rapid Language Adaptation Tools and Technologies for Multilingual Speech Processing Systems, Key-Note, Hanoi, Vietnam, Mai 2008.
- 2007 Interspeech, Multilingual Speech Processing, Eingeladenes Tutorium, Antwerpen, Belgien, 30. August 2007.

- 2007 InterLink, *Challenges and Impact of Human-Centered Communication Technologies*, Position statement for InterLink, a European funded international collaboration on future developments of Technology and Science, Nice, France, May 11, 2007.
- 2007 ACS, *Speech Translation*, Invited talk and presentation at the Andrew Carnegie Society meeting, Pittsburgh USA, April 28, 2007.
- 2007 INESC, *Speech Translation*, Invited talk at University Lisbon, Portugal and the Spoken Language Systems Laboratory INESC ID, Lisbon, Portugal, March 26, 2007.
- 2007 USC, *Human-Computer Interaction based on Acoustic Signals, Muscle Movements, and Brainwaves*, Invited talk at the University of Southern California (USC), Los Angeles, CA, March 19, 2007.
- 2007 SB588, *Mensch-Roboter Interaktion mittels akustischer Signale, Muskelbewegungen und Hirnströmen*, Invited talk at the workshop of the SFB588 – Humanoide Roboter, Bad Herrenalb, March 3, 2007.
- 2007 VoiceLab, *Human-Computer Interaction based on Acoustic Signals, Muscle Movements, and Brainwaves*, Invited talk at the VoiceLab, at Pittsburgh University, Department of Communication Science and Disorders, Pittsburgh, PA, Feb 21, 2007.
- 2006 HSCnet, *Speech Recognition based on muscle movements and brainwaves*, Keynote at HSCnet and SPAPAC Conference, Sydney, Australia, 3. December 2006.
- 2006 CSIT, *Speech Recognition and Speech Translation: Robustness and Fieldability*, Invited talk, Center for Spoken Information Technology CSIT, Singapore, July 2006.
- 2006 JEP, *Domain Unlimited Speech Translation*, Keynote at the biannual Meeting of the French Acoustic Society (JEP), Dinard, France, 14. June 2006.
- 2006 MULTILING, *Rapid Portability of Speech Processing Systems*, Keynote at the ISCA Conference MULTILING, Stellenbosch, South-Africa, 10. April 2006.
- 2005 SPAPAC, *Rapid Portability of Speech Processing Systems*; Invited talk at HSCnet and SPAPAC Conference, Sydney, Australia, 16. December 2005.
- 2005 T-Labs, *Usability: Intelligente, Mobile, Multilinguale Sprachverarbeitungs-systeme*, Invited talk at the T-Labs, Berlin, 12. August 2005.
- 2005 Colloquium, *Rapid Language Portability of Speech Processing Systems*; Invited talk at Saarbrücken University, Germany, June 6, 2005.
- 2005 ARL, *Speech Translation – Activities at InterACT*, Invited talk at the Army Research Lab, Adelphi, Maryland, April 21, 2005.
- 2005 ARL, *Two-way Speech Translation for Thai-English Coalition Conversations*, Army Research Lab, Adelphi, Maryland, April 21, 2005.
- 2005 CSIT, *Challenges of ASR – Conversational Tasks, Open Domains, New Language*, Invited talk, Center for Spoken Information Technology CSIT, Singapore, Mar 10, 2005.
- 2004 SPLASH, *Language Independent and Adaptive Speech Processing*, Key Note talk at the Conference on „Speech and Language Systems for Human Communication“, Delhi, India, 17. November 2004.
- 2004 IIIT, *SPICE: Speech Processing – Iterative Creation and Evaluation Toolkit*, Talk at the International Institute of Information Technology, Hyderabad, India, 20. Nov 2004.
- 2004 ARL, *A two-way Thai-English Speech-to-Speech Translation System*, Talk at the Army Research Lab, Adelphi, Maryland, 23. March 2004.
- 2004 CSIR, *Multilingual Speech Processing*, Talk at the Center of Science and Information Research, Pretoria, South-Africa, 19. February 2004.

- 2004 ARMSCOR, *Speech and Language Technologies at the InterACT Center*, Talk at the meeting on the Development of Human Language Technologies in South-Africa, Skukuza, South-Africa, 16. February 2004.
- 2003 E-Language Learning, *Results of the Technology Group Meeting*. 3<sup>rd</sup> meeting of the Expert Technical Work Group for E-Language Learning, Chongqing, China, Aug 2003.
- 2003 ARMSCOR / University South Africa, *Language Technologies at the Interactive Systems Laboratories*, State-of-the-art speech technologies. Karlsruhe, June, 2003.
- 2003 ARL / MITRE, *Thai Speech Translation*, Talk and demonstration at the Army Research Lab (ARL) and Mitre, Washington DC, May 22, 2003.
- 2003 Little Planet Learning, *Speech Technologies for E-Language Learning*. Nashville, Tennessee, April 8, 2003.
- 2003 Wild Dolphins Foundation, *Towards Dolphin Recognition*, First Project Meeting „Communication with Dolphins“, West Palm Beach, Florida, March 23, 2003.
- 2003 E-Language Learning, *Review of Speech Technologies for E-Language Learning*. 2<sup>nd</sup> meeting of the Expert Technical Work Group for E-Language Learning, Honolulu, Hawaii, January 26, 2003.
- 2001 E-Language Learning, *Recommendations of the System Design and Evaluation Expert Group*. 1<sup>st</sup> meeting of the Expert Technical Work Group for E-Language Learning, Beijing, China, September 2002.
- 2002 Yonsai University South Korea “*Multilinguality in Automatic Speech Recognition Systems*”. Keynote at the Korean Conference for Speech Recognition, Seoul, Korea, August 2002.
- 2002 Electronics and Telecommunication Research Institute (ETRI), *Multilinguality Issues in Speech-driven Human-Computer Interfaces*. Taejong, Korea, August 2002.
- 2002 Istituto Trentino di Cultura – Technology and Science Center (IRST), *Tutorial on Multilingual Speech Recognition*. ESSLLI workshop, Trento, Italy, August 2002.
- 2002 China Academy of Science (CAS), *Identification of Non-verbal Cues*. C-Star, Guilin, China, March 2002.
- 2001 University of Cairo, *Tutorial on Data Collection, Transcription, and Speech Recognition for English–Arabic Speech Translation*. Cairo, Egypt, May 2001.
- 2001 Shoah Foundation, *Multilingual Speech Recognition*. Los Angeles, CA, May 2001.
- 2001 Johns Hopkins University, “*Language Independent and Adaptive Speech Recognition*”, Speech Seminar, Baltimore, Maryland USA, November 2001.
- 1999 Verbmobil Phase 2, *Multilinguale Spracherkennung*. 10. Projektlenkungs-sitzung, Munich, Germany, December 1999.
- 1999 Verbmobil Phase 2, *Multilinguale Spracherkennung*. 9. Projektlenkungs-sitzung, Stuttgart, Germany, May 1999.
- 1998 Verbmobil Phase 2, *Spracherkennung und Sprachenidentifizierung*. 7. Projektlenkungssitzung, Bonn, Germany, May 1998.
- 1997 Advanced Technologies Research (ATR), *Verbmobil-II Data collection*. Kyoto, Japan, September 1997.
- 1997 University of Electro-Communication (UEC), *Japanese LVCSR on SST with Janus-3*. Tokyo, Japan, September 1997.
- 1996 Advanced Technologies Research (ATR), *Janus-3 Speech Recognition Toolkit*. Kyoto, Japan, July 1996.
- 1996 University of Electro-Communication (UEC), *Recognition Engine for the Japanese Spontaneous Scheduling Task*. Tokyo, Japan, July 1996.

## External Professional Activities

### Professional Affiliations:

- Since 2017 Member (and Fellow) of the European Academy of Sciences and Arts
- Since 2015 Member of the Brain Computer Interface Society (BCI Society)
- Since 2001 Member of the Association for Computational Linguistics (ACL)
- Since 2000 Member of the Institute of Electrical and Electronic Engineers (IEEE) (2017 Senior Member, 2020 Fellow)
- Since 1999 Member of the International Speech Communication Association (ISCA) (2016 Fellow)
- Since 1993 Member of the European Language Resources Association (ELRA)
- Since 1990 Member of the Society of Computer Science (Gesellschaft für Informatik)

### Conference Committees and Chairs:

- 2020 Technical Program Committee Interspeech 2020, Shanghai/virtual
- 2019 Technical Program Committee ICMI 2019
- 2019 Program Committee SLSP Statistical Speech and Language Processing 2019, Ljubljana
- 2019 Technical Program Committee BIOSIGNALS 2019
- 2019 Technical Program Committee Interspeech 2019, Graz
- 2018 Program Committee SLTU, Underresourced Languages 2018, Gurugram
- 2018 Program Committee Statistical Speech and Language Processing 2018, Mons
- 2018 Program Committee ITG Fachtagung Sprachkommunikation 2018, Oldenburg
- 2018 Program Committee BIOSIGNALS, PhyCS, ICPRAM
- 2018 Technical Program Committee Interspeech 2018, Hyderabad
- 2017 Technical Program Committee Interspeech 2017, Stockholm
- 2017 Program Committee BIOSIGNALS, PhyCS
- 2016 Technical Program Committee Interspeech 2016, San Francisco
- 2016 Program Committee BIOSIGNALS, PhyCS
- 2015 Technical Program Committee Interspeech 2015, Dresden
- 2015 Program Chair BIOSIGNALS
- 2014 Technical Program Chair BIOSIGNALS
- 2013 Technical Program Chair ASRU
- 2013 Technical Program Committee (Meta Area Chair) Interspeech 2013, Lyon
- 2012 Technical Program Committee (Area Chair), Interspeech 2012, Portland
- 2011 Technical Program Committee (Area Chair), Interspeech 2011, Italy
- 2010 Program Chair, KI 2010, Karlsruhe, Germany
- 2010 Technical Program Committee (Area Chair), Interspeech 2010, Japan
- 2010 Technical Program Committee (Reviewer), LREC
- 2010 Program Committee SLTU, Panang, Malaysia
- 2009 Technical Program Committee (Area Chair), Interspeech 2009, UK
- 2009 Program Committee (Technical Co-Chair), ASRU, Italy
- 2009 Technical Committee, (Reviewer), NIPS
- 2008 Workshop Chair, IWSLT 2008, Hawaii, US
- 2008 Demo Chair, SLT 2008, Goa, India
- 2008 Technical Program Committee (Area Chair), Interspeech 2008, Australia
- 2008 Program Committee ISUC 2008, Osaka, Japan

2008 Program Committee IS-LTC 2008, Ljubljana, Slovenia  
 2008 Program Committee CogSys, Karlsruhe, Germany  
 2008 Program Committee SLTU, Hanoi, Vietnam  
 2007 General Program Chair for Speech NAACL/HLT 2007  
 2007 Technical Committee (Reviewer) for Interspeech 2007  
 2007 Technical Committee (Reviewer) for EMNLP 2007  
 2007 Technical Committee (Reviewer) for ICASSP 2007  
 2006 General Co-Chair Interspeech/ICSLP 2006  
 2006 Evaluator for the European Science Foundation, ESF-PESC, 2006  
 2006 Technical Committee (Reviewer) for ACL-Coling 2006  
 2006 Technical Committee (Reviewer) for EACL 2006  
 2006 Technical Committee (Reviewer) for ICASSP 2006  
 2006 Program Committee for KI 2006 (Artificial Intelligenz)  
 2006 Program Committee für Language Technologies Conference IS-LTC  
 2006 Program Committee for ESSLI (Resource-Scarce Language Engineering)  
 2006 Technical Committee (Reviewer) for NLP IASTED CI 2006  
 2006 Program Committee for HLT-Workshop in Medical Speech Translation  
 2005 Program Committee IWSLT (Workshop on Spoken Language Translation)  
 2005 Technical Committee for Eurospeech 2005  
 2005 Technical Committee for IJCAI 2005 (Conference on Artificial Intelligence)  
 2005 Invited Session Chair for ICASSP 2005 (International Conference on Signal, Speech, and Audio) für „General Topics in Automatic Speech Recognition“  
 2004 Technical Committee for ICASSP 2005  
 2004-2010 Member of the permanent committee of the International Conference on Signal, Speech, and Audio (PC-ICSLP), 6 years term  
 2004 Program Committee ICSLP 2004  
 2004 Invited Session Chair for ICASSP 2004 (International Conference on Signal, Speech, and Audio) für „Topics in Speaker and Language Recognition“  
 2003-2006 Member of the Organization Committee ICSLP 2006  
 2004 Organizer and Chair of the Special Session ‚Multilingual Speech Processing‘, International Conference on Spoken Language Processing ICSLP 2004  
 2004 Technical Committee, International Conference on ICASSP 2004  
 2003 Invited Session Chair on ICASSP 2003  
 2002 International Conference on Multimodal Interfaces ICMI 2002  
 2002 Nominated for the IEEE Speech Technical Steering Committee  
 2001 Technical Committee, Human Language Technologies HLT 2001

### **Expert**

Since 2015 Service to the Marsilius-Kolleg, Universität Heidelberg  
 Since 2015 Service to the European Union  
 Since 2014 Service to BMBF, Deutschland  
 Since 2010 Service to DFG, Deutschland  
 Since 2009 Service to SNF, Schweiz  
 Since 2001 Service to the National Science Foundation, USA

### **Journal Editor, Reviewer**

2019 Lead Editor, Special Issue on Speech & Dementia, CSL



2016	Lead Editor, Special Issue on Biosignal-based Spoken Communication, IEEE Transaction on Audio, Speech, and Language Processing
2012	Guest Editor, Special Issue on Speech Processing for Low-Resource Languages, Speech Communication, Elsevier
Since 2010	Associate Editor of ACM Transactions on Asian Language Information Processing (TALIP)
2010	Guest Editor, Special Issue on Speech Translation, Computer, Speech and Language Journal, Elsevier
2009	Guest Editor, Special Issue on Silent Speech Interfaces, Speech Communication, Elsevier
2009	Guest Editor, Morphological Rich Languages, IEEE Transaction on Audio, Speech, and Language Processing
Since 2005	Reviewer for the Journal of Artificial Intelligence Research
Since 2004	Editorial Board Member for Speech Communication, Elsevier
2002-2004	Associate Editor for the IEEE Transactions on Speech and Audio Processing
Since 2004	Reviewer for the Journal Computer, Speech and Language
Since 2004	Reviewer for the Iranian Journal of Electrical and Computer Engineering
Since 2004	Reviewer for the South-African Computer Journal
Since 1999	Reviewer for the Journal of „Speech Communication“
Since 1999	Reviewer for the IEEE Transactions on Speech and Audio Processing

## Service and Committee Work

### **Departmental Responsibilities, Mathematics and Computer Science, University of Bremen:**

2015-2020 Internationalisation, Representative of Faculty 3

### **Departmental Responsibilities, Computer Science Department, KIT:**

2013-2015 Member of the Council for Research and Promotion of Young Scientists (CRYS)

2008-2015 Member of the Doctoral Degree Committee, Department for Informatics

### **Departmental Responsibilities, Language Technologies Institute, CMU:**

2001-2003 Member of Admissions Committee

### **Departmental Responsibilities, Computer Science Department, University of Karlsruhe:**

1998-2000 Departmental Representative to Graduate Students and Staff, Karlsruhe, Germany.

1996-2000 Departmental Representative to Female Students, Karlsruhe, Germany.

## Student Advising

### PhD students

Current (Uni Bremen, main advisor): Lorenz Diener (planned defense 3/2021), Hui Liu (planned 5/2021), Mazen Salous (planned 4/2021), Miguel Angrick (2022), Moritz Meier (2022), Lars Steinert (2022), Daniel Reich (2023), Lisa-Maria Vortmann (2023), Ay Abulimiti (2023), Sreeja Manghat (2022), Kevin Scheck (2024), Marvin Borsdorf (with Haizhou Li, 2024), Yale Hartmann (2025).

2020: Chenglin Xu (Nanyang Technology University, Examiner)

2019: Hakim Si Mohammed (INSA/INRIA Rennes, Examiner), Tobias de Taillez (Uni Oldenburg, second advisor), Bahman Mirheidari (Uni Sheffield, External examiner), Berthold Bäuml (Uni Bremen, committee member)

- 2018: Marina Zimmermann (EPFL, Thesis Committee)
- 2017: Vivian Mast (Uni Bremen, Thesis Committee), Daniel Nyga (Uni Bremen, Thesis Committee); Florent Bocquet (Universite Grenoble Alpes Frankreich, External Examiner)
- 2016: Matthias Janke (KIT, main advisor), Christian Herff (Bremen, main advisor; **Assitant Professor** at Maastricht University), Mathias Landhäußer (KIT, second advisor)
- 2015: Dirk Gehrig (KIT, main advisor), Christoph Amma (KIT, main advisor), Dominic Heger (KIT, main advisor), Dominic Telaar (KIT, main advisor), Sabine Weyand (University of Toronto, external examiner), Joao Miranda (Carnegie Mellon, Thesis committee)
- 2014: Michael Wand (KIT, main advisor; **Assistant Professor** at IDSIA/SUPSI, Switzerland), Thang Ngoc Vu (KIT, main advisor; **Full Professor** at Stuttgart University); Felix Putze (KIT, main advisor), Tim Schlippe (KIT, main advisor), Tim Pozehl (TU Berlin, external examiner), Arseniy Gorin (Universite Lorraine, external examiner), Thiago Fraga (Universite Paris Sud, external examiner)
- 2013: Udhay Nallasamy (CMU, Main advisor, Thesis Committee Chair); David Imseng (EPFL/IDIAP, Schweiz, second advisor)
- 2012: Roger Hsiao (CMU, Main advisor, Thesis Committee Chair); Farzaneh Ahmadi (Nanyang Technological University, Singapur, External Examiner), Hui Liang (EPFL/IDIAP Lausanne, Switzerland, Rapporteur)
- 2011: Hanno Harland (KIT, second advisor), Stephan Heuer (KIT, second advisor), Andreas Sandmair (KIT, second advisor), Kornel Laskowski (CMU, Thesis Committee), Tong Rong (NTU, Singapore, External Examiner)
- 2010: Matthias Paulik (KIT, second advisor), Sopheap Seng (LIG, Grenoble, Frankreich, Rapporteur), Kishore Prahallad (CMU, Thesis Committee)
- 2009: Wilson (Yik-Cheung) Tam (CMU, Main advisor, Thesis Committee Chair), Sebastian Stüker (KIT, second advisor), Rania Bayeh (l'École Nationale Supérieure des Télécommunications, Paris, Rapporteur)
- 2008: Stan (Szu-Chen) Jou (CMU, Main advisor, Thesis Committee Chair), Matthias Eck (KIT, Ko-Referat), Christian Fügen (KIT, second advisor), Alex Fexa (KIT, second advisor), John Kominek (CMU, Thesis Committee), Ciro Martins (Universidade de Aveiro, Portugal, External Examiner)
- 2007: Qin Jin (CMU, Main advisor; **Full Professor** at Renmin University), Girija Chetty (University of Canberra, Australia, External Examiner), Stephen Choularton (Macquarie University, Sydney Australia, External Examiner)
- 2000-2007: CMU PostDoc (2) Ian Lane, Mark Fuhs; Ph.D. Thesis Committee Member (5 graduations) Yue Pan, Rong Zhang, Fei Huang, Hua Yu, Laura Tomokyo Mayfield; Masters Students (6 graduations) Sameer Badaskar, Roger Hsiao, Sharath Rao, Shirin Saleem, Sinaporn Suebvisai, Zhirong Wang; Research Programmer and other staff (3); InterACT Masters Student (10, co-advised with Germany) Jan Calliess, Marek Wester, Aneliya Mircheva, Lena Maier-Hein, Matthias Honal, Michael Katzenmaier, Matthias Paulik, Mirjam Killer, Jamal Abu-Alwan, Michael Wand.

#### **Post-Docs:**

- Current PostDocs: Dr. Felix Putze (Uni Bremen, permanent position), Dr. Dennis Küster (Uni Bremen), Dr. Faramarz Faghihi (Uni Bremen, with Prof. Li)
- Former PostDocs: Dr. Sromona Chatterjee (2019-2020 Uni Bremen), Christian Herff (2012-2018, KIT & Uni Bremen), Arthur Toth (2008, CMU), Dau-Cheng Lyu (2010, I2R), Keigo Nakamura (2011, NAIST)

# Teaching

Material, scripts, and slides are online available at <http://csl.uni-bremen.de>.

## Teaching at University Bremen (since 10/2015)

After the establishment of several bachelor's and master's courses in the "Artificial Intelligence, Cognition and Robotics (KIKR)" area, basic courses on identified gaps in pattern recognition, statistics and machine learning, new courses have been created and started. Furthermore, in order to arouse greater interest in the practical application of machine learning methods, the Bremen Big Data Challenge was initiated, a yearly event. The first challenge in March 2016 had 24 competing teams, the second in March 2017 40 teams.

Course	Typ, SWS	CP	Semester
Advanced Machine Learning	Master, Lectures 2+1	4	Starts SS 2021
Sensor Data Processing	Bachelor, Lectures 2	4	Since WS 2019/20
Automatic Speech Recognition	Master, Lecture 3+1	6	Since WS 2015/16
Praxis of Brain Pattern Recognition	Bachelor, Lecture 2	3	Since WS 2015/16
Build your own ASR (BOWSR)	Bachelor Project	3	WS+SS 2018
AR/VR	Master Project	3	WS 2018
Biosignal-based Butler	Bachelor Project	18	SS+WS 2016
Biosignals and Interfaces	Bachelor, Lecture 3+1	6	Since SS 2016
User Modeling for interaction	Master, Lecture 2	3	SS 2016
Bremen Big Data Challenge	Challenge, Seminar	3	Since SS 2016
Fundamentals of Machine Learning	Bachelor, Lecture	6	Since SS 2017

## Teaching at Karlsruhe Institute of Technology, KIT (2007-03/2015)

Undergrad Courses at KIT (orientation examinations in Informatics) with 890 (WS2011/12) and 1050 (WS2012/13) student attendees, tutorials taught by 40 teaching assistants; 7 newly developed lecture courses, 2 seminars, 4 hands-on practical courses for the bachelor and master program at KIT in the special areas of „Anthropomatics“ and „Cognitive Systems“ in computer science with a particular emphasis on the recording, processing, and interpretation of biosignals for intuitive human-machine interfaces. Such as Multilinguale Mensch-Maschine Kommunikation (lecture, 6 CP), Biosignale und Benutzerschnittstellen (6 CP), Modellierung Menschlicher Bewegungen (lecture, 2CP), Multilingual Speech Processing (hands on, 2 CP), Technical Cognitive Systems (lecture, 2CP).

## Teaching at Carnegie Mellon University (2001-2007)

Speech Processing Seminar Series, Lecture Series for Masters and Ph.D. Students at the Language Technologies Institute; Multilingual Speech-to-Speech Translation, Seminar and Laboratory for Master and Ph.D. students; Speech Recognition and Understanding, Core course for Master and Ph.D. students at the Language Technologies Institute; Advanced Speech Laboratory, Advanced Hands-on Lab for Master and Ph.D. Students.

## Teaching at University Heidelberg (1986-1990)

1986 – 1990 EDV-Courses for Statistical Methods in Social Science (toolkits such as SPSS and SAS) for Master and Ph.D. students of Sport and Physical Education.

## More than 160 Bachelor and Master Theses at Cognitive Systems Lab since 2007

## Publications

(Publications are online available at <http://csl.uni-bremen.de>, as copyrights permit. The table below summarizes the publication output of the last 5 years (as of January 2021):

- over 430 publications in books, journals, peer-reviewed conference proceedings
- over 12.300 citations (google scholar)
- h-index 59 (google scholar), 53 (semantic scholar), 38 (scopus)
- more than 570 highly influential citations (semantic scholar)
- ORCID 0000-0002-9809-7028

Publications	1992-2017	2018	2019	2020	$\Sigma$
Books/Chapters	22	1	1	1	25
Intern. Journals	33	1	4	2	40
Conferences (peer reviewed)	321	14	10	22	367
Total	376	16	15	25	432