

Tanja Schultz
Curriculum Vitae
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Persönliche Daten:

Geburtsdatum: 6. Februar 1964
Geburtsort: Oldenburg i.O., Deutschland
Staatsbürgerschaft: Deutsch

Ausbildung:

1970-1974 Grundschule, Waldschule Boxberg, Heidelberg
1974-1983 Gymnasium Wiesloch, Abitur
1983-1989 Erstes Staatsexamen für das Lehramt an Gymnasien in
Mathematik, Sport und Erziehungswissenschaften,
Ruprecht-Karl Universität Heidelberg, Deutschland
1990-1995 Diplom in Informatik, Universität Karlsruhe, Deutschland

Akademischer Werdegang

Seit April 2015

W3 Professur, Lehrstuhl für Kognitive Systeme im Fachbereich Informatik an der Universität Bremen; Direktorin des Cognitive Systems Laboratory (CSL)

Juli 2013

Gründungsmitglied des Institutes für Technikzukünfte (ITZ), KIT

Juli 2010 – März 2015

Lenkungsmitglied des KIT-Fokus “Anthropomatics and Robotics”

Juli 2010

Gründungsmitglied des Institutes für Anthropomatik, KIT

März 2007 – März 2015

W3 Professur, Lehrstuhl für Kognitive Systeme an der Fakultät für Informatik, KIT
Direktorin des Cognitive Systems Laboratory (CSL)

Seit Juli 2002

Research Scientist / Research Professor, Language Technologies Institute, Carnegie Mellon University, Pittsburgh, Pennsylvania USA

Januar 2001 – Juni 2002

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

September 2000 – Dezember 2000

Post-Doc an den Interactive Systems Laboratories, Carnegie Mellon University, Pittsburgh, Pennsylvania USA

Juli 2000

Promotion zum Doktor der Ingenieurwissenschaften (Dr.-Ing.) an der Universität Karlsruhe; Titel der Dissertation: *Multilinguale Spracherkennung – Kombination akustischer Modelle zur Portierung auf neue Sprachen*

Referent: Prof. Dr. Alex Waibel (Universität Karlsruhe, Deutschland), Koreferent: Prof. Dr. Dirk van Compernelle (Katholische Universität Leuven, Belgien)

1995 - 2000

Wissenschaftliche Mitarbeiterin (Doktorandenstelle) an der Universität Karlsruhe, Fakultät für Informatik, Institut für Logik, Komplexität und Deduktionssysteme

1990-1995

Zweites Studium, Informatik an der Universität Karlsruhe mit Abschluß Diplom in Informatik (Dipl.-Inform.); Titel der Diplomarbeit: *Identifizierung von Sprachen – Exemplarisch aufgezeigt am Beispiel der Sprachen Deutsch, Englisch und Spanisch*
Betreuer: Prof. Dr. Alex Waibel und Dr. I. Rogina

1983-1989

Erstes Studium, Mathematik und Sport zum Lehramt an Gymnasien, Sekundarstufe II mit Nebenfach Erziehungswissenschaften an der Ruprecht-Karl Universität Heidelberg, 1. Staatsexamen im Hauptfach Mathematik (Juli 1989) und Sport (November 1989); Titel der Staatsexamensarbeit: *Die Bedeutung der Normierung für die praxisnahe Gestaltung sportmotorischer Tests*
Betreuer: Prof. Dr. Klaus Bös

Auszeichnungen

- 2017 Ernennung als Mitglied der European Academy of Sciences and Arts
- 2016 ISCA Fellow
- 2016 Die Publikation "Brain-to-Text: Decoding spoken sentences from phone representations" wird in die "100 Articles in the Spotlight" des offiziellen Frontiers Blog gewählt (Platz 4 der downloads von 12.500 publizierten Artikeln im Jahr 2015).
- 2015 ICASA / EURASIP Best paper award für die beste Publikation des Speech Communication Journal mit dem Titel: "Silent Speech Interfaces"
- 2015 Best Student Paper Award BIOSIGNALS mit Marcus Georgi und Christoph Amma
- 2015 Nominiert für den 2015 Brain-Computer-Interfaces Award mit Christian Herff und Dominic Heger
- 2014 Nominiert für den 2014 CeBIT Innovation Award mit Christoph Amma und Fabian Winnen
- 2013 Otto Haxel Preis des Freundeskreises des Forschungszentrums Karlsruhe e.V. Die Auszeichnung würdigt eine besondere wissenschaftliche Leistung, die wirksam zu industriellen Innovationen beiträgt, gemeinsam mit C. Amma und M. Georgi.
- 2013 Google Faculty Research Award für das Thema "Aerial: Seamless interaction for wearable computers", gemeinsam mit Christoph Amma.
- 2013 Best Student Paper Award der BIOSIGNALS 2013 gemeinsam mit Michael Wand, Matthias Janke und Christopher Schulte für die Publikation "Array-based Electromyographic Silent Speech Interface".
- 2013 Geographic Finalist Europe der IEEE Engineering in Medicine and Biology Society Conference 2013, gemeinsam mit Dominic Heger, Felix Putze und Christian Herff für die Publikation "Subject-To-Subject Transfer for CSP based BCIs: Feature Space Transformation and Decision-Level Fusion".
- 2012 Forschungspreis Technische Kommunikation 2012 der Alcatel-Lucent Stiftung in Anerkennung des wissenschaftlichen Gesamtschaffens auf dem Gebiet „Mensch und Technik in Kommunikationssystemen“, insbesondere für Forschungsarbeiten auf dem Gebiet „Lautlose Sprachkommunikation“.
- 2012 Best Paper Award, International Symposium on Wearable Computers (ISWC), gemeinsam mit Christoph Amma und Markus Georgi für die Publikation "Airwriting: Hands-free mobile text input by handwriting with inertial sensors".
- 2011 PLUX Wireless Biosignals Award, gemeinsam mit Christoph Amma und Dirk Gehrig für das Projekt "Airwriting Recognition using Wearable Motion Sensors".
- 2010 Best Student Paper Finalist, International Conference on Social Robotics (ICSR), gemeinsam mit Dominic Heger und Felix Putze für die Publikation "An Adaptive Information System for an Empathic Robot using EEG Data".
- 2009 Best selected Papers, BIOSTEC – BIOSIGNALS Conference, gemeinsam mit Michael Wand für die Publikation "Towards Speaker-adaptive Speech Recognition based on Surface Electromyography".

- 2008 Best selected Papers, BIOSTEC - BIOSIGNALS Conference, gemeinsam mit Szu-Chen Jou für die Publikation „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 für die beste Publikation zwischen 2000 und 2001 des Speech Communication Journal mit dem Titel: 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) des “Forschungszentrum Informatik” für eine hervorragende Dissertation

Erfindungen, Patente, Lizensierungen

- 2013 Patentanmeldung „Method and system for handwriting and gesture recognition“, Februar 2014.
- 2013 Patentanmeldung “Methods and apparatus for the transformation of myoelectric signals into audible speech”, Dezember 2013.
- 2013 Erfindermeldung am KIT: “Geräte, Methoden und Algorithmen für die Erkennung von in die Luft geschriebener Handschrift und Gesten“, Juli 2013.
- 2012 Erfindermeldung am KIT: “Methods and apparatus for the transformation of myoelectric signals into audible speech”, März 2012.
- 2012 Entwicklung der Software „BioKIT“ zur Interpretation von Biosignalen, KIT-Lizensiert an die Industrie
- 2011 US-Patent 2008/0103769: Methods and Apparatuses for Myoelectric-based Speech Processing, erteilt
- 2003 Präsidentin der Firma XLingual, LLC, besitzt die Rechte und lizensiert den Multilingualen Datenkorpus GlobalPhone.
- 2001 Erfindermeldung: Design, Kollektion und Distribution der multilingualen Sprach- und Textdatenbasis GlobalPhone zur Entwicklung multilingualer Spracherkennungs- und Übersetzungssysteme großer Vokabulare. GlobalPhone umfaßt derzeit über 450 Stunden transkribierte Sprache gesprochen von mehr als 2000 Sprechern aus 22 Sprachkreisen gesammelt in 21 Nationen der Welt: Arabisch, Bulgarisch, Chinesisch (Mandarin und Schanghai Dialekt), Deutsch, Französisch, Hausa, Japanisch, Kroatisch, Koreanisch, Polnisch, Portugiesisch, Russisch, Schwedisch, Spanisch, Suaheli, Tamil, Tschechisch, Türkisch, Ukrainisch, Vietnamesisch.

Berufliche Erfahrungen und Projektstätigkeiten

Im Jahr 2007 gründete Frau Schultz das Cognitive Systems Lab (CSL), das sie nach Annahme ihres Rufes an die Universität Bremen (April 2015) mit einigen Kernmitarbeitern nach Bremen umzog. Das CSL entwickelt innovative menschenzentrierte Systeme zur Verbesserung der Mensch-Maschine Interaktion und der maschinenvermittelten zwischenmenschliche Kommunikation. Dazu wird auf Basis der Vorteile und Stärken von Maschinen, das gesamte Spektrum menschlicher Biosignale wie Sprache, Muskel- und Hirnsignale untersucht. Diese Biosignale werden direkt am Körper durch mobile und drahtlose Sensoren erfasst, von Maschinen mittels maschineller Lernverfahren erkannt, und durch kognitive Interaktionsstrategien genutzt. Diese kontinuierlich aggregierten Biosignal-Informationen erlauben einen Einblick in „inneren“ mentalen Aktivitäten und Zustände des Menschen und ergänzen damit die traditionelle (An-)Sicht des Menschen von außen. Gepaart mit einer geeigneten kognitiven Modellierung sollen Maschinen und Schnittstellen entstehen, die aktuelle Zustände, Absichten und Bedürfnisse des Menschen wahrnehmen und sich entsprechen anpassen.

Zu diesem Zweck werden am CSL Algorithmen und Methoden entwickelt und erprobt, deren Eignung an zahlreichen prototypischen kognitiven Interaktionssystemen evaluiert werden:

- Erfassung, Verarbeitung und Interpretation von Biosignalen: Zur Erfassung von Biosignalen stehen in der Arbeitsgruppe diverse Geräte zur Verfügung (fNIRS und 128-kanal EEGs für Hirnaktivität, 256-kanaliges EMG-Gerät für Muskelaktivität, Geräte für physiologische Signale wie EDA, EKG, Atmung sowie Sprachaufzeichnungen). Zur zeitsynchronen Erfassung, Visualisierung, Archivierung, Verarbeitung und Fusion multimodaler Signalströme werden Softwaresuites wie das Biosignals-Studio entwickelt. Die Suite enthält darüberhinaus zahlreiche dedizierte Algorithmen zur Vorverarbeitung diverser Signaltypen (EEG, fNIRS, ECoG, EMG, EDA, Sprache) im Zeit- und Frequenzbereich, Artefaktbereinigung, Quellenseparation, Merkmalsextraktion, Merkmalsselektion, Dimensionsreduktion und Signalfusion. Zur Klassifikation, Sequenzmodellierung und Dekodierung kommt der eigenentwickelte Dekoder BioKIT zum Einsatz. BioKIT hat ca. 100.000 Zeilen Code und erlaubt die Modellierung von Einheiten beliebiger Ebenen sowie deren Integration (Basisunits, syntaktische Einheiten, Semantik, Grammatiken, statistische Sprachmodelle). Zur Modellierung von Basiseinheiten kommen tiefe Neuronale Netzen, Gaussverteilungen und Hidden-Markov Modelle zum Einsatz. Die zügige Entwicklung der Algorithmen profitierte von der langjährigen Erfahrung in der automatischen Spracherkennung,
- Erkennung und Modellierung mentaler Tätigkeiten und Zustände: Entwicklung diverser Techniken und Systeme zur Erkennung affektiver Zuständen, wie Emotion, Stimmung und Persönlichkeit, kontinuierlicher Auswertung mentaler Auslastung und mentaler Tätigkeiten. Die Entwicklungen werden iterativ verbessert durch die Sammlung von Experimentaldaten mit großen Stichproben. Dazu wird an der Universität Bremen derzeit ein Biosignal-Labor und ein Kommunikations-Labor eingerichtet, das über eine schall- und elektro-isolierte Kabine verfügt, Messgeräte für fNIRS, EEG, EMG, etc. bereitstellt und einen großen Interaktionsbereich mit Projektsleinwand verfügt.
- Die erfassten und interpretierten Zustände werden in Echtzeitsystemen integriert und evaluiert. Derzeitige Systeme konzentrieren sich auf Interaktionsstrategien, wie etwa Anpassung des Dialogverhaltens eines Navigationssystems an die mentale Auslastung des Nutzers; Auswahl von Hypothesen durch Erkennung von Unsicherheiten; Prädiktion der kognitiven Leistung, Gedächtnis. Zur Modellierung wurde ein eigenes Java-Framework entwickelt, welches existierende ACT-R Module verwendet und erweitert,

- semantische Netze und Wissensquellen integriert und Methoden wie Reinforcement Learning, Markov Decision Processing und Dynamic Bayesian Networks einsetzt,
- Lautlose Sprachkommunikation: Mit den wissenschaftlichen Beiträgen und praktischen Demonstrationssystemen ist es dem CSL gelungen, diesen Bereich international zu etablieren. Basieren auf dem Prinzip der Elektromyographie (EMG) werden elektrische Potentiale aufgezeichnet, die durch Muskelaktivität entstehen. Sprache wird durch die Kontraktion von Muskeln produziert, die den menschlichen Artikulationsapparat bewegen. Die Potentiale werden durch Elektroden an der Hautoberfläche aufgezeichnet, die geeignete Signalvorverarbeitung und Mustererkennung erlaubt es, auf die Bewegungen des Artikulationsapparates und damit auf die produzierte Sprache selbst rückzuschließen. Da EMG auch dann Muskelaktivität erfasst, wenn nicht hörbar sondern nur lautlos artikuliert wird, kann mit diesem Ansatz auch lautlos gesprochene Sprache erfasst und erkannt werden. Das Erkannte kann anschließend in Textform dargestellt und von Maschinen weiterverarbeitet werden oder beim menschlichen Empfänger durch Sprachsynthese hörbar gemacht werden. Damit eröffnen sich völlig neue und zahlreiche Anwendungsmöglichkeiten für Kommunikationssysteme,
 - Multilinguale Sprachverarbeitung: Die Arbeitsgruppe hat viel Erfahrung im Bereich automatische Spracherkennung, insbesondere in der schnellen Portierung von sprachverarbeitenden Systeme auf neue Sprachen und Domänen. Es existieren zahlreiche Arbeiten und Projekte die sich erstrecken über ein breites Themenfeld wie etwa multilinguale Spracherkennung in mehr als 20 Sprachen, sprachenunabhängige akustische Modellierung, code-switch Phänomene und akzentbehaftete Sprachen. Die Arbeiten wurden vielfach ausgezeichnet und werden in mehreren Projekten weiter vorangetrieben (siehe unten).

Laufende Projekte

Seit 2016

RESPONSE Untersuchung von spontane Sprachprozesse durch Elektrokortikographie (REvealing SPONtaneous Speech processes in ElectroCorticoGraphy). Dekodieren von kontinuierlichen, spontanen Sprachprozessen direkt aus der neuronalen Aktivität eines Nutzers, um diese in synthetisierte Sprache zu verwandeln NSF-BMBF Multilaterale Zusammenarbeit in Computational Neuroscience, 2016-2019

ARTHOKINEMAT Gemeinsam mit industriellen Partnern aus Bandagen-, Medizin- und Textil-Sensortechnik, sowie Forschungspartnern aus den Sportwissenschaften und der Medizin wird ein technisches System zur Erfassung von Kniebelastungen zur Vermeidung von überlastungsbedingter Kniegelenks-Arthrose entwickelt. Gefördert im Rahmen des Zentralen Innovationsprogramms Mittelstand (ZIM) des BMWi, 2016-2019

Seit 2015

I-CARE Verbundprojekt mit sieben Partnern aus Wissenschaft (Uni Heidelberg, KIT), Anwendern (AWO Karlsruhe) und IT-Unternehmen zur Entwicklung von Aktivierungssystemen für Menschen mit Demenz, BMBF, 2015-2018

UYGUR Automatische Spracherkennung für Ughurisch, gemeinsam mit der University of Kansas, USA, NSF, 2015-2016

KI-Auto Industrieförderung im Bereich Kognitiver Interaktionssysteme für Fahrzeuge

Seit 2013

- STIFT Industrieförderung im Bereich Airwriting, seit 2013
- COST EU ICT COST Action IC1206 „De-identification for privacy protection in multimedia content“, MC Mitglied für Deutschland, seit 2013
- MAPS Automatische Erkennung von hörbar und lautlos gesprochener Sprache, basierend auf von Elektrodenarrays aufgenommenen elektromyographischen Signalen, DFG Sachbeihilfe, 2013-2016
- AKTIV Das zu entwickelnde „Autarke Kognitive Technische System zur Interaktion und Validation (AKTIV)“ soll die Möglichkeiten der Anthropomatik dazu nutzen, Personen mit dementiellen Erkrankungen individuell kognitiv, motorisch und sozial zu aktivieren, ohne dabei die knappen Zeitressourcen des betreuenden Personals zu belasten. Gefördert durch die Baden-Württemberg Stiftung gGmbH, 2013-2016
- GONYTECH Gemeinsam mit industriellen Partnern aus Orthopädie-, Medizin- und Messtechnik, sowie Forschungspartnern aus den Sportwissenschaften und der Produktentwicklung wird eine aktuierte Orthese zur situations- und intentionsabhängigen lokalen Entlastung des Kniegelenks entwickelt. Gefördert im Rahmen des Zentralen Innovationsprogramms Mittelstand (ZIM) des BMWi, 2013-2016
- ACC Industrieförderung im Bereich Gesten-basierte (Accelerometer) Schnittstellen

Seit 2012

- KD2Lab Karlsruher Decision & Design Lab, DFG 91b Großgerät (Weinhardt/Schultz); Experimentallabor zur strukturierten und methodischen Untersuchung des menschlichen Entscheidungsverhaltens, ausgestattet mit modernsten mobilen Geräten zur Erfassung von Biosignalen (Hirnaktivität – EEG, fNIRS, Muskelaktivität – EMG, EDA, EKG, Eyetracking, Audio, usw.). Ermöglicht einen kontinuierlichen Übergang von isolierten Laborumgebungen hin zu Realweltsituationen. Die Laborausstattung erlaubt die zeitsynchrone Erfassung und Interpretation kognitiver und emotionaler Zustände von bis zu 40 Probanden zur Analyse des Einflusses dieser Zustände auf menschliches Entscheidungsverhalten in Mensch-Mensch und Mensch-Maschine Szenarien und ist damit auf Augenhöhe mit den weltweit führenden Forschungseinrichtungen an der CMU, Harvard, LMU und MIT.

Seit 2004

- RLAT Rapid Language Adaptation Toolkit, Web-basierte Werkzeuge zur effizienten Initialisierung und Portierung von sprachverarbeitenden Systemen auf neue Sprachen und Domänen. Diverse Fördermittel (Industrie, NSF), in Zusammenhang mit den Projekten und Daten GlobalPhone, Festival, Spice.

Beendete Projekte

- 2013 HEiKA1, Forschungsbrücke (KIT, HD) zum Thema „Technische Unterstützung zur kognitiven und sozialen Aktivierung von Menschen mit Demenz“ (Kooperation Profs. Kruse HD, Schultz KIT)

- 2013 HEiKA2, Forschungsbrücke (KIT, HD) zum Thema „Combining Statistical and Computational Modeling Approaches for User State Prediction“ (Kooperation Profs. Funke HD, Schultz KIT)
- 2013 GOOGLE, Der Google Faculty Research Award für Prof. Tanja Schultz und Christoph Amma ermöglicht auf der Grundlage der Airwriting-Technologie (Erkennung von in die Luft geschriebener Handschrift mittels an einem Handschuh befestigter Inertialsensoren) die weitere Erforschung mobiler gestenbasierter Schnittstellen. Gefördert durch einen Google Faculty Research Award (81.000 US-Dollar), Google Inc.
- 2012-2014 Industrieförderung im Bereich EMG-basierte Schnittstelle
- 2012-2014 Industrieförderung im Bereich Sprach-basierte Schnittstellen
- 2012-2013 KIT International Excellence Funds zur Verstärkung der Kooperationen mit dem Wadsworth Center, New York State Department of Health, US und der Nanyang Technological University und dem Institute for Infocomm Research in Singapur, im Bereich der Interpretation von Sprache und mentalen Tätigkeiten auf der Basis von Hirnaktivitäten (EEG, ECOG, NIRS).
- 2008-2013 QUAERO, Deutsch-Französisches Projekt gefördert durch OSEO zum Design und Implementierung von Algorithmen und Methoden zur Indizierung, Archivierung und Suche digitaler Inhalte in multimodalen und multilingualen Medien, Workpackage Leader
- 2008-2012 DFG SFB 588 “Humanoide Roboter”, Teilprojektleiter L1 “Lernen von Intentionen, Episoden und Kontext“ sowie M3 „Analyse und Modellierung menschlicher Bewegungen“
- 2010-2012 Code-Switch Spracherkennung (Mandarin-Englisch). Gefördert durch Temasec Laboratories, Nanyang Technological University, Singapur.
- 2009-2011 CogniFit, Kooperation zwischen KIT und Charité zum Thema „Brain Function, Cognitive Performance, and Physical Exercise“, Exzellenzmittel.
- 2009-2011 Multilinguale Spracherkennung für akzentbehaftete Sprache, gefördert durch die RADC, Research Associates for Defense Conversion, INC, USA.
- 2008-2011 Diverse kleinere Projekte (Industrieförderung)
- 2007-2011 Thinking Head, Maschinellen Agenten für HCI, Australian Research Council und the Australian National Health and Medical Research Council.
- 2005-2010 GALE, Global Autonomous Language Exploitation (DARPA, US).
- 2007-2009 FarSID, Farfield Speaker Identification, gefördert durch die ITIC DARPA.
- 2006-2008 Multilinguale Spracherkennung, gefördert durch CSIT, Singapur.
- 2004-2008 SPICE Speech Processing: Interactive Creation and Evaluation Toolkit, ional Science Foundation (NSF), PI.
- bis 2006 TransTac-I+II (2004-2006, DARPA) Co-PI, NineOneOne (NSF) Co-PI, Laser ACTD I + II (2003-2006, DARPA) Co-PI, CHIL (2003-2006, EU) Koordination CMU, Str-Dust (2003-2006, NSF) Co-PI, Dolphins (2002-2003, Wild Dolphins Foundation), CHENGO (2002-2004, Department of Education, US); als key personal: Babylon (2002-2004, DARPA), Avenue (2001-2003,

NSF), Nespole! (2000-2002, EU) C-Star, Lingwear (DARPA), Verbmobil (1993-2000, BMBF).

Lehrtätigkeiten

Alle Unterlagen, Skripte, Folien zu den Lehrangeboten sind auf dem CSL server verfügbar.

Lehre an der Universität Bremen (seit 10/2015)

Die AG Cognitive Systems Lab hat zum Wintersemester 2015/2016 den Lehrbetrieb an der Universität Bremen aufgenommen. Nach dem Aufbau von mehreren Bachelor- und Masterkursangeboten im Wahlbereich „Künstliche Intelligenz, Kognition und Robotik (KIKR)“ sollen in den kommenden Semestern grundlegende Kurse zu identifizierten Lücken in der Mustererkennung, Statistik und Maschinellen Lernen in Kooperation und Absprache mit KollegInnen des Fachbereichs angeboten werden. Dazu fanden bereits Gespräche mit den KollegInnen Bormann, Beetz, Edelkamp, Freksa und Schill statt. Um größeres Interesse an der praktischen Anwendung maschineller Lernverfahren zu wecken, wurde der Bremer Big Data Challenge ins Leben gerufen, der im März 2016 das erste Mal ausgetragen werden wird, es liegen bereits über 100 Anmeldungen vor.

Veranstaltungen	Typ, SWS	CP	Semester
Automatische Spracherkennung (Ca. 30 HörerInnen, 24 Prüfungen)	Bachelor, Kurs 3+1	6	WS 2015/16
Praxis der Gehirn-Mustererkennung (9 TeilnehmerInnen)	Bachelor, Kurs 2 (hands-on Übungen)	3	WS 2015/16
Biosignal-basierter Butler (21 TeilnehmerInnen, ausgebucht)	Bachelor Projekt	18	SS+WS 2016
Biosignale und Benutzerschnittstellen	Bachelor, Kurs 3+1	6	SS 2016
Benutzermodellierung für adaptive Interaktionssysteme (Dr. Putze)	Master, Kurs 2	3	SS 2016
Bremen Big Data Challenge	Seminar	3	SS 2016
Grundlagen der Mustererkennung Bachelor Wahlpflicht Theoretische Inf	Bachelor, Kurs	6	In Planung
Kognitive Systeme Bachelor Wahlpflicht Angewandte Inf	Bachelor, Kurs	6	In Planung

Lehre am KIT (03/2007 – 03/2015)

Grundvorlesungen am KIT (Orientierungsprüfung in Informatik)

Veranstaltungen	Typ	SWS	Semester
Grundbegriffe der Informatik (ca. 1050 Erstsemesterstudierende)	Vorlesung + Übung 45 Tutorien	2+2 Je 2	WS 2012/13
Grundbegriffe der Informatik (GBI), (ca. 890 Erstsemesterstudierende)	Vorlesung + Übung 38 Tutorien	2+2 Je 2	WS 2011/12
Software-Entwicklung PSE (zahlreiche Seminare)	Praktikum	2	Seit SS 2009

Die GBI ist eine Orientierungsprüfung des KIT, die alle Studierenden (Informatik, Informationswirt, Informatik Nebenfach) bis zum 2. Semester antreten und letztlich bestehen müssen, um ihr Studium in diesen Fächern fortsetzen zu können. Die Semester 2011/2012 und 2012/2013 hatten aufgrund des Wegfalls der Wehrpflicht und Bologna-bedingte G8/G9

Umstellung eine überdurchschnittlich hohe Anzahl Erstsemester-Studierende. Die Vorlesung wurde von den Studierenden mit einem Lehrqualitätsindex von 100% bewertet.

Entwicklung neuer Lehrmodule für Bachelor und Masterprogramm am KIT: In den Vertiefungsfächer „Anthropomatik“ und „Kognitive Systeme“ der Informatikausbildung am KIT wurde vom CSL ein neuer Schwerpunkt zur Erfassung, Verarbeitung und Interpretation von Biosignalen für die Entwicklung von natürlichen Mensch-Maschine Schnittstellen geschaffen. Insgesamt wurden 7 neue Vorlesungen, 2 Seminare und 4 neue Praktika konzipiert, von denen 5 Vorlesungen und 3 Praktika kontinuierlich aktualisiert, ausgebaut und regelmäßig angeboten wurden (siehe Tabelle unten, Stand 2013).

Jahr	2007	2008	2009	2010	2011	2012 (ab Okt)	Gesamt
Prüfungen	4	42	38	48	110	87 (+ 50)	329 (+50)

Die Veranstaltungen waren im Bachelor und Master prüfbar. Darüber hinaus wurden Module für die Themenbereiche „Biosignalverarbeitung“ und „Sprachverarbeitung“ konzipiert und kontinuierlich angeboten. Sowohl die Einzel- als auch die Gesamtmodule wurden von den Studierenden sehr gut angenommen. Zu dieser Einschätzung kommen wir, weil zum einen die Veranstaltungen im Qualitätsmanagement der Lehrevaluationen durchgängig mit sehr guten Noten bewertet wurden (LQI=100%), und zum anderen da die Anzahl der Hörer und abgelegte Prüfungen über die letzten fünf Jahre kontinuierlich gestiegen ist. Der sprunghafte Anstieg seit 2011 liegt u.a. an der wachsenden Zahl von Einzelprüfungen im Bachelor.

Veranstaltungen	Typ	SWS	Semester
Angebot aller Module wählbar in den Vertiefungsgebieten VF13 „Anthropomatik“ und VF14 „Kognitive Systeme“ im Bachelor und Master Studium (4 SWS = 6 ECTS, 2 SWS = 3 ECTS)			
Multilinguale Mensch-Maschine Kommunikation	VL	4	Seit SS 2007
Biosignale und Benutzerschnittstellen	VL	4	Seit WS 2007/08
Analyse und Modellierung Menschlicher Bewegungen	VL	2	WS 07/08–10/11
Multilingual Speech Processing	Praktikum	2	Seit WS 2007/08
Biosignale Praktikum	Praktikum	2	Seit SS 2008
Emotion und Kognition	Seminar	2	WS 2008/09
Menschliche Bewegung in Mensch-Maschine Interaktion	Seminar	2	SS 2009
Benutzerstudien zu natürlichsprachlichen Dialogsystemen	Praktikum	2	SS 2009
Biosignale Praktikum 2: Emotion und Kognition	Praktikum	2	Seit WS 2009/10
Design und Evaluation Innovativer Benutzerschnittstellen	VL	2	Seit WS 2010/11
Kognitive Modellierung	VL	2	Seit SS 2010
Methoden der Biosignalverarbeitung	VL	2	Seit SS 2011
Brain Computer Interfaces	VL	2	Seit SS 2014
Technical Cognitive Systems / Human Behavior Modeling HECTOR School, Green Mobility Engineering, Module 3	VL Kompakt	2x 10	Seit WS 2010/11

Vorlesungen an der Carnegie Mellon University (2001-2007)

- 2003-2007 Speech Processing Seminar Series, Lecture Series for Masters and Ph.D. Students at the Language Technologies Institute, Carnegie Mellon University, <http://www.is.cs.cmu.edu/SpeechSeminar>
- 2003-2007 Multilingual Speech-to-Speech Translation, Seminar and Laboratory for Master and Ph.D. students at the Language Technologies Institute, Carnegie Mellon University, [Spring 2007], [Spring 2005] [Fall 2003], <http://www.is.cs.cmu.edu/11-733>
- 2001-2007 Speech Recognition and Understanding, Core course for Master and Ph.D. students at the Language Technologies Institute, Carnegie Mellon University, [Fall 2006], [Fall 2005], [Fall 2004], [Fall 2003], [Fall 2002], [Fall 2001]. <http://www.is.cs.cmu.edu/11-751>
- 2001-2003 Advanced Speech Laboratory, Advanced Hands-on Lab for Master and Ph.D. Students at the Language Technologies Institute, Carnegie Mellon University, [Spring 2003], [Spring 2001]. <http://www.cs.cmu.edu/~tanja>
- 2001 Audio and Vision: Lecture Series Carnegie Mellon University, Spring 2001. <http://www.is.cs.cmu.edu>

Kurse an der Universität 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 [WS1990], [WS1989], [WS1988], [WS1987], [WS1986]

Betreuungstätigkeiten

Doktoranden und PostDocs

- Laufende Promotionen (Uni Bremen, als Hauptreferentin) – 6 Doktoranden: Jochen Weiner, Lorenz Diener, Timo Schulze, Hui Liu, Mazen Salous, Miguel Kasparick;
PostDocs: Christian Herff (Uni Bremen), Felix Putze (Uni Bremen), Dennis Küster (Uni Bremen)
- 2016: Matthias Janke (KIT, Hauptreferat), Christian Herff (Bremen, Hauptreferat)
- 2015: Dirk Gehrig (KIT, Hauptreferat), Christoph Amma (KIT, Hauptreferat), Dominic Heger (KIT, Hauptreferat), Dominic Telaar (KIT, Hauptreferat), Sabine Weyand (University of Toronto, Externe Gutachterin), Joao Miranda (Carnegie Mellon, Externe Gutachterin)
- 2014: Michael Wand (KIT, Hauptreferat), Thang Ngoc Vu (KIT, Hauptreferat); Felix Putze (KIT, Hauptreferat), Tim Schlippe (KIT, Hauptreferat), Tim Pozehl (TU Berlin, Externe Gutachterin), Arseniy Gorin (Universite Lorraine, Externe Gutachterin), Thiago Fraga (Universite Paris Sud, Externe Gutachterin)
- 2013: Udhay Nallasamy (CMU, Main advisor, Thesis Committee Chair); David Imseng (EPFL / IDIAP, Schweiz, External Examiner)
- 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, Ko-Referat), Stephan Heuer (KIT, Ko-Referat), Andreas Sandmair (KIT, Ko-Referat), Kornel Laskowski (CMU, Thesis Committee), Tong Rong (NTU, Singapur, External Examiner)
- 2010: Matthias Paulik (KIT, Ko-Referat), 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, Ko-Referat), 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, Ko-Referat), Alex Fexa (KIT, Ko-Referat), John Kominek (CMU, Thesis Committee), Ciro Martins (Universidade de Aveiro, Portugal, External Examiner)
- 2007: Qin Jin (CMU, Main advisor, Thesis Committee Chair), 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, Gäste (3 Monate – 1 Jahr), Wissenschaftliche Hilfskräfte (Hiwis):

PostDocs: Arthur Toth (2008, CMU), Dau-Cheng Lyu (2010, I2R), Keigo Nakamura (2011, NAIST)

Gäste: Prof. Dr. Michael Wagner (Jul-Sept 2009, University of Canberra, Australien), Melvin Jose (DAAD, 2012), Udhay Nallasamy (2011, CMU), Diliana Rebelo (2012, PLUX)

Hiwis: 2008-2010: 52 Hiwis, 2011: 40 Hiwis, 2012: 37 Hiwis, 2013: 40 Hiwis

Studentische Abschlussarbeiten am CSL, KIT (03/2007 – Stand 03/2013):

Abschlussarbeiten	Studienarbeiten	Diplomarbeiten	Bachelorarbeiten	Masterarbeiten	Gesamt
Intern	21	27	15	1	64
Extern	7	2	1	-	10
Gesamt	28	29	16	1	74

Externe Beratungstätigkeiten

Consulting

Seit 2008 Fraunhofer Institut für Optronik, Systemtechnologie und Bildverarbeitung (IOSB), Beraterin für Biosignale und Mensch-Maschine Schnittstellen.

2012-2014 Beraterin für Amazon, Multilinguale Sprachtechnologien

2010-2015 Hector School of Engineering and Management, Master Program for Green Mobility, Lecturer for Human Behavior Modeling, Karlsruhe.

2003 Mobile Technologies, LLC. Entwicklung von Software und Erzeugen von Aussprachewörterbücher für die Englische Sprache gesprochen von Muttersprachlern und Nichtmuttersprachlern.

- 2003 Cepstral, LLC. Service zur Entwicklung von Sprachsynthese für Deutsch und Englisch.
- 2002-2004 Northrop Grumman. Wissenschaftliche und technische Beratung zum Design, Entwicklung und Implementierung von web-basierten Lerntutoren für Kinder, Sprachenlernen in Englisch und Chinesisch.

Eingeladene Teilnahme an Expertengremien (Stand Okt 2013)

- Seit 2015 Eingeladene Expertin beim BMBF, EU, Bundestag zur neuen High-Tech Strategie, Mensch-Maschine Interaktion, 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 of 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
- Since 2002 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.

Eingeladene Vorträge und Tutorials

- 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, California, 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, Februar 2016.
- 2015 Invited talk on „Brain-To-Text at CSL“, SFB TRR 31 Seminar, Oldenburg, Dezember 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, Oktober 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 Vorkolloquium, 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, Jan 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, November 2013.
- 2013 Alcatel-Lucent Lectures Mensch-Technik-Kommunikation, „Sprache, Muskelbewegungen und Hirnströme: Biosignale für die Mensch-Maschine-Kommunikation“, Oktober 2013.
- 2013 Invited talk on „Cognitive Systems Lab and Airwriting“, OT Bioelettronica Day, Turino, Italy, September 2013.
- 2013 Plenary Speaker on “Rapid Language Adaptation” at the Conference on Statistical Modeling in Speech Processing, Tarragona, Spain, July 2013.
- 2013 Invited talk on “Rapid Building of Speech Recognition Systems”, Apple Inc., Cupertino, CA, USA, June 2013.
- 2013 Invited talk on “Lautlose Sprachkommunikation”, Wissenschaftsfestival EFFEKTE, Karlsruhe, Juni 2013.
- 2013 Invited talk on “Biosignals and Interfaces” at British Columbia University, Vancouver, Canada, May, 2013.
- 2013 Invited talk on “Biosignal and Speech Processing”, IDIAP, Martiny, Switzerland, may 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.

- 2013 Invited talk „Spracherkennung auf der Basis von Muskelaktivität“, VDE Vortragsveranstaltung, Karlsruhe, 16. April 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 of 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“, Elektrobot, 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, Germany, 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, Germany, 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, Germany, June 2010.
- 2009 ASRU, Invited Tutorial on „Multilingual Speech Processing“, Trento, Italy, December 2009.
- 2009 Interspeech, Special Session on „Silent Speech Interfaces“, Brighton, UK, September 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 I2R, Multilingual Speech Processing, Invited talk, Agency for Science, Technology and Research (A*Star), Institute for Infocomm Research, Singapore, September 2008.
- 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, February 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 Sprachverarbeitungssysteme*, 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 Languages*, Invited talk, Center for Spoken Information Technology CSIT, Singapore, March 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 IIT, *SPICE: Speech Processing – Iterative Creation and Evaluation Toolkit*, Talk at the International Institute of Information Technology, Hyderabad, India, 20. November 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*. 3rd meeting of the Expert Technical Work Group for E-Language Learning, Chongqing, China, August 14, 2003.
- 2003 ARMSCOR / University South Africa, *Language Technologies at the Interactive Systems Laboratories*, State-of-the-art speech technologies. Karlsruhe, Germany, June 17, 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*. 2nd meeting of the Expert Technical Work Group for E-Language Learning, Honolulu, Hawaii, January 26, 2003.
- 2002 E-Language Learning, *Recommendations of the System Design and Evaluation Expert Group*. 1st 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, California, 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. Projektlenkungssitzung, Munich, Germany, December 1999.
- 1999 Verbmobil Phase 2, *Multilinguale Spracherkennung*. 9. Projektlenkungssitzung, 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.

Tätigkeiten in Gremien und Verbänden

Berufliche Mitgliedschaften

- Seit 2001 Mitglied der Association for Computational Linguistics (ACL)
- Seit 2000 Mitglied des Institute of Electrical and Electronic Engineers (IEEE)
- Seit 1999 Mitglied der International Speech Communication Association (ISCA)
- Seit 1993 Mitglied der European Language Resources Association (ELRA)
- Seit 1990 Mitglied der Gesellschaft für Informatik (GI)

Vorstandschafft

- 2013-2015 Präsidentin der International Speech Communication Association (gewählt)
- Seit 2007 Mitglied des Vorstands der International Speech Communication Association Board (gewählt für 4 Jahre, wiedergewählt 2011 für weitere vier Jahre)

Komiteetätigkeiten für Internationale Konferenzen

- 2016 Technical Program Committee Interspeech 2016, San Francisco
- 2016 Program Committee BIOSIGNALS, PhyCS
- 2015 Organisation Committee Interspeech in Dresden
- 2015 Program Chair BIOSIGNALS
- 2014 Technical Program Chair BIOSIGNALS
- 2014 Technical Program Committee Interspeech 2014, Singapore
- 2013 Technical Program Chair ASRU
- 2013 Technical Program Committee (Meta Area Chair) Interspeech 2013, Lyon
- 2012 Technical Program Committee (Area Chair) Interspeech 2012, Portland, OR
- 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 Technical Committee for IJCAI 2005 (International Joint 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“
 2005 Program Committee IWSLT (Workshop on Spoken Language Translation)
 2005 Technical Committee for Eurospeech 2005
 2005 Ernennung zum General Co-Chair Interspeech/ICSLP 2006
 2005 Programmkomitee IWSLT (International Workshop on Spoken Language Translation)
 2006 Technisches Komitee (Reviewer) für Eurospeech 2005
 2006 Technisches Komitee (Reviewer) für IJCAI 2005 (International Joint Conference on Artificial Intelligence)
 2005 Session Chair für die ICASSP 2005 (International Conference on Signal, Speech, and Audio) für „General Topics in Automatic Speech Recognition“
 2005 Technisches Komitee (Reviewer) ICASSP 2005 (International Conference on Signal, Speech, and Audio)
 Seit 2004 Mitglied des permanenten Ausschuss der International Conference on Signal, Speech, and Audio (PC-ICSLP), gewählt für sechs Jahre
 2004 Programmkomitee ICSLP 2004
 2004 Session Chair für die ICASSP 2004 (International Conference on Signal, Speech, and Audio) für „Topics in Speaker and Language Recognition“

- 2004 Organisation der Special Session für ‚Multilinguality in Speech Processing‘, auf der ICASSP 2004 (International Conference on Spoken Language Processing)
- Seit 2003 Mitglied des Organisationskomitees Interspeech/ICSLP 2006 (Pittsburgh)
- 2003 Technisches Komitee (Area Chair) ICASSP 2004 (International Conference on Signal, Speech, and Audio)
- 2003 Session Chair für die ICASSP 2003 (International Conference on Signal, Speech, and Audio)
- 2002 International Conference on Multimodal Interfaces ICMI 2002
- 2002 Nominiert für das IEEE Speech Technical Steering Committee
- 2001 Technisches Komitee für die HLT2001 (Human Language Technologies)

Gutachtertätigkeiten

- Seit 2015 Gutachterin für das Marsilius-Kolleg, Universität Heidelberg
- Seit 2015 Expertin und Gutachterin für die Europäische Union
- Seit 2014 Gutachterin für das BMBF, Deutschland
- Seit 2010 Gutachterin für die DFG, Deutschland
- Seit 2009 Gutachterin für die SNF, Schweiz
- Seit 2001 Gutachterin für die National Science Foundation, USA

Rezensent für Fachzeitschriften

- Seit 2010 Associate Editor of ACM Transactions on Asian Language Information Processing (TALIP)
- 2012 Guest Editor, Special Issue on Resource-low languages, Speech Communication, Elsevier
- 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
- 2005 Rezensent für die Fachzeitschrift Journal of Artificial Intelligence Research
- Seit 2004 Editorial Board Member für Speech Communication, Elsevier
- 2002-2004 Associate Editor für die IEEE Transactions on Speech and Audio Processing
- 2004 Rezensent für die Fachzeitschrift Computer, Speech and Language
- 2004 Rezensent für die Fachzeitschrift Iranian Journal of Electrical and Computer Engineering
- 2004 Rezensent für das South-African Computer Journal
- Seit 1999 Rezensent für die Fachzeitschrift Speech Communication
- Seit 1999 Rezensent für die IEEE Transactions on Speech and Audio Processing

Selbstverwaltung

- Seit 2015 Internationalisierungsbeauftragte des Fachbereichs 3, Universität Bremen
- 2013-2015 Mitglied des Council for Research and Promotion of Young Scientists (CRYS) am KIT
- 2008-2015 Mitglied des Promotionsausschuss am KIT
- 2007-2008 Mitglied des Prüfungsausschuss
- 2001-2003 Mitglied des Zulassungs- und Aufnahmecommission an der CMU, LTI
- 1996-2000 Frauenbeauftragte der Fakultät für Informatik an der Universität Karlsruhe

1997-1999 Vertreterin des wissenschaftlichen Mittelbaus im Fakultätsrat der Informatik
an der Universität Karlsruhe

Schriftenverzeichnis

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Die Tabelle fasst die Publikationsleistung der letzten Jahre bis 02/2016 in Zahlen zusammen: h-index 41; Anzahl der Zitate ~6500 (siehe scholar.google.com)

Publikationen	1995-2009	2010	2011	2012	2013	2014	2015	2016	Σ
Buch/Kapitel	11	1	4	1	1	3	-	1	22
Intern. Journale	8	2	1	2	3	5	4	2	27
Konferenzen	153	17	15	22	25	27	13	-	275
Gesamt	172	20	20	25	29	35	17	3	324

Bücher:

- 2014 Tanja Schultz, Felix Putze, Andreas Kruse (Eds.) *Technische Unterstützung für Menschen mit Demenz*, KIT Scientific Publishing, 2014.
- 2006 Tanja Schultz, *Multilingual Acoustic Modeling*. Chapter in: Multilingual Speech Processing, Tanja Schultz and Katrin Kirchhoff (Eds.), Elsevier, April 2006.
- 2001 Tanja Schultz, *Multilinguale Spracherkennung: Kombination akustischer Modelle zur Portierung auf neue Sprachen*. Berichte aus der Informatik, Aachen: Shaker Verlag, 2001.

Buchkapitel:

- 2014 Tanja Schultz, Felix Putze, Ralf Mikut, Nora Weinberger, Katrin Boch, Eric Schmitt, Michael Decker, Dagmar Lind-Matthäus, Brigitte Metz: *Technische Unterstützung für Menschen mit Demenz – Ein Überblick*, Chapter in: Technische Unterstützung für Menschen mit Demenz, KIT Scientific Publishing, 2014.
- 2014 Felix Putze, Makarand Tapaswi, Manel Martinez, Dominic Telaar, Dominic Heger, Saquib Sarfraz, Tanja Schultz, Rainer Stiefelhagen, *AKTIV: Multimodal Interaction System to Engage Patients with Dementia*, Chapter in: Technische Unterstützung für Menschen mit Demenz, KIT Scientific Publishing, 2014.
- 2014 Ralf Mikut, Markus Reischl, Felix Putze, Tanja Schultz: *Data-Mining Methoden für die Demenzforschung: Stand und Potentiale*, Chapter in: Technische Unterstützung für Menschen mit Demenz, KIT Scientific Publishing, 2014.
- 2013 Michael Wand, Matthias Janke, Till Heistermann, Christopher Schulte, Adam Himmelsbach, and Tanja Schultz, *Application of Electrode Grids for Artifact Removal in an Electromyographic Silent Speech Interface*, Communications in Computer and Information Science (CCIS) series published by Springer, to appear in 2014.
- 2012 Felix Putze, Tanja Schultz Cognitive dialog systems for dynamic environments: Progress and challenges. Chapter in Digital Signal Processing for In-Vehicle Systems and Safety, Springer, 2012.
- 2011 Jean-Claude Martin and Tanja Schultz (2011). Multimodal and Speech Technology, In: Alexander Mehler and Laurent Romary (Ed.) Handbook of Technical Communication (HAL), Band 8, Mouton de Gruyter.
- 2011 Yik-Cheung Tam, Ian Lane and Tanja Schultz, Rapid Unsupervised Topic Adaptation - A Latent Semantic Approach, In: Joe Olive, Caitlin Christianson, John McCary (Ed.) Handbook of Natural Language Processing and Machine Translation: DARPA Global Autonomous Language Exploitation, Springer 2011.

- 2011 Roger Hsiao, Mark Fuhs, Yik-Cheung Tam, Qin Jin, Ian Lane, and Tanja Schultz, The CMU-InterACT Mandarin Transcription System for GALE, In: Joe Olive, Caitlin Christianson, John McCary (Ed.) Handbook of Natural Language Processing and Machine Translation: DARPA Global Autonomous Language Exploitation, Springer 2011.
- 2011 Udhyakumar Nallasamy, Ian Lane, Mark Fuhs, Mohamed Noamany, Yik-Cheung Tam, Qin Jin and Tanja Schultz, CMU-InterACT 2008 Arabic Speech Recognition System for GALE, In: Joe Olive, Caitlin Christianson, John McCary (Ed.) Handbook of Natural Language Processing and Machine Translation: DARPA Global Autonomous Language Exploitation, Springer 2011.
- 2011 Yik Matthias Paulik, Ian Lane, Tanja Schultz, Improving Machine Translation of Spoken Language, In: Joe Olive, Caitlin Christianson, John McCary (Ed.) Handbook of Natural Language Processing and Machine Translation: DARPA Global Autonomous Language Exploitation, Springer 2011.
- 2010 Michael Wand, Tanja Schultz, *Speaker-Adaptive Speech Recognition Based on Surface Electromyography*, Selected as best paper to be published as chapter in: Communications in Computer and Information Science (CCIS) series published by Springer, 2011.
- 2008 Tanja Schultz, Szu-Chen (Stan) Jou, *Automatic Speech Recognition based on Electromyographic Biosignals*, Selected as best paper to be published as chapter in: Communications in Computer and Information Science (CCIS) series published by Springer, 2009.
- 2007 Tanja Schultz, *Speaker Characteristics*, Chapter in: Speaker Classification, Christian Müller (Ed.), Lecture Notes in Computer Science, Springer Heidelberg – Berlin – New York, 2007.
- 2006 Tanja Schultz and Katrin Kirchhoff (Eds.), *Multilingual Speech Processing*, Elsevier, Academic Press, April 2006.
- 2006 Stephan Vogel, Tanja Schultz, Alex Waibel, Seiichi Yamamoto, *Speech-to-Speech Translation*. Chapter in: Multilingual Speech Processing, Tanja Schultz and Katrin Kirchhoff (Eds.), Elsevier, April 2006.
- 2001 Susanne Jekat and Tanja Schultz, *Evaluation sprachverarbeitender Systeme*. Kapitel in: Einführung in die Computerlinguistik, Ralf Klabunde (Hrsg.), Springer Verlag.
- 2000 Alex Waibel, Hagen Soltau, Tanja Schultz, Thomas Schaaf and Florian Metze, *Multilingual Speech Recognition*. Kapitel in: Verbmobil - Foundations of Speech-to-Speech Translation, Wolfgang Wahlster (Hrsg.), Springer Verlag, 2000.

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- 2015 Benjamin Thüerer, Christian Stockinger, Anne Focke, Felix Putze, Tanja Schultz, Thorsten Stein, Increased gamma band power during movement planning coincides with motor memory retrieval, *NeuroImage* 2015.
- 2015 Heike Adel, Ngoc Thang Vu, Katrin Kirchhoff, Dominic Telaar, Schultz, Tanja, Syntactic and Semantic Features For Code-Switching Factored Language Models, in *IEEE/ACM Transactions on Audio, Speech and Language Processing*, volume 23, 2015.
- 2015 Christian Herff, Dominic Heger, Adriana de Pestors, Dominic Telaar, Peter Brunner, Gerwin Schalk, Tanja Schultz, Brain-to-text: Decoding spoken phrases from phone representations in the brain, In *Frontiers in Neuroscience*, volume 9, 2015.
- 2015 Alexander Von Lühmann, Christian Herff, Dominic Heger, Tanja Schultz, Towards a wireless open source instrument: functional Near-Infrared Spectroscopy in mobile neuroergonomics and BCI applications, In *Frontiers in Human Neuroscience*, volume 9, 2015.
- 2014 Tim Schlippe, Sebastian Ochs, Tanja Schultz, Web-based Tools and Methods for Rapid Pronunciation Dictionary Creation, In *Speech Communication*, January, volume 56, 2014.

- 2014 Felix Putze, Sebastian Hessler, Chun-Yu Tse, YunYing Huang, Christian Herff, Cuntai Guan, Tanja Schultz, Hybrid fNIRS-EEG based classification of auditory and visual perception processes, In *Frontiers in neuroscience*, volume 8, 2014.
- 2014 Felix Putze, Tanja Schultz, Adaptive cognitive technical systems. In *Journal of Neuroscience Methods*, volume 234, 2014.
- 2014 Dominic Heger, Christian Herff, Felix Putze, Reinhard Mutter, Tanja Schultz, Continuous affective states recognition using functional near infrared spectroscopy. In *Brain-Computer Interfaces*, volume 1, 2014.
- 2014 Christian Herff, Dominic Heger, Ole Fortmann, Johannes Hennrich, Felix Putze, Tanja Schultz, Mental workload during n-back task - quantified in the prefrontal cortex using fNIRS. In *Frontiers in Human Neuroscience*, volume 7, 2014.
- 2014 Michael Wand, Matthias Janke; Tanja Schultz, Tackling Speaking Mode Varieties in EMG-Based Speech Recognition. In *IEEE TRANSACTIONS ON BIOMEDICAL ENGINEERING*, volume 61, 2014.
- 2014 Felix Stahlberg, Tim Schlippe, Stephan Vogel, Tanja Schultz, Word Segmentation and Pronunciation Extraction from Phoneme Sequences through Cross-Lingual Word-to-Phoneme Alignment. In *Computer Speech & Language*, Elsevier, 2014.
- 2013 Tanja Schultz, Christoph Amma, Felix Putze, Dominic Heger, Michael Wand, Biosignal-basierte Mensch-Maschine Schnittstellen, *AT Automatisierungstechnik*, volume 61, 2013.
- 2013 Michael Wand, Matthias Janke, Till Heistermann, Christopher Schulte, Adam Himmelsbach, Tanja Schultz, Application of Electrode Arrays for Artifact Removal in an Electromyographic Silent Speech Interface. *Revised Selected Papers Communications in Computer and Information Science*, Vol. 452), 2013.
- 2013 Tim Schlippe, Sebastian Ochs, Tanja Schultz, Tools and Methods for Rapid Pronunciation Creation, *Speech Communication*, pp. 101-118, August 2013.
- 2013 Laurent Besacier, Etienne Barnard, Alexey Karpov, and Tanja Schultz: Automatic Speech Recognition for under-resourced Languages: A Survey, *Speech Communication*, pp. 2-17, August, 2013.
- 2013 Christoph Amma, Marcus Georgi, Tanja Schultz, Airwriting: A wearable handwriting recognition system. *Personal and Ubiquitous Computing*, DOI 10.1007/s00779-013-0637-3, 2013.
- 2011 Dominic Heger, Felix Putze, Tanja Schultz, An EEG Adaptive Information System for an Empathic Robot, *International Journal of Social Robotics*, Special Issue Towards an Effective Design of Social Robot, Volume 3, Number 4 (2011), pp. 415-425.
- 2010 Bruce Denby, Tanja Schultz, Kiyoshi Honda, Thomas Hueber, Jim M Gilbert, Jonathan S. Brumberg, *Silent Speech Interfaces*, *Speech Communication*, Special Issue on Silent Speech Interfaces, Vol. 52, Issue 4, April 2010. **Best Journal Paper.**
- 2010 Tanja Schultz and Michael Wand, *Modeling Coarticulation in Large Vocabulary EMG-based Speech Recognition*, *Speech Communication*, Special Issue on Silent Speech Interfaces, Vol. 52, Issue 4, April 2010.
- 2008 Pascale Fung, Tanja Schultz, *Multilingual Spoken Language Processing*, *IEEE Signal Processing Magazine* [89] May 2008.
- 2008 Yik-Cheung Tam, Ian Lane, Tanja Schultz, *Bilingual-LSA based Adaptation for Statistical Machine Translation*, *Machine Translation*, Springer Netherlands, DOI: 10.1007/s10590-008-9045-2, preprint, 15. December 2008.
- 2007 Qin Jin, Tanja Schultz and Alex Waibel, *Robust Speaker Recognition*, Special Issue in Speaker Recognition, *IEEE Transactions of Speech and Audio Processing*, October 2007.
- 2007 Matthias Paulik, Sebastian Stüker, Christian Fügen, Tanja Schultz, and Alex Waibel, *Translating Languages with Technology's Help*, *IEEE Potentials Magazine*, May 2007.

- 2006 Tanja Schultz, Alan W Black, Stephan Vogel, and Monika Woszczyna, *Flexible Speech-to-Speech Translation Systems*, IEEE Transactions on Audio, Speech, and Language Processing, Vol 14(2), Special Issue in Speech Translation, March 2006.
- 2001 Tanja Schultz and Alex Waibel, *Language Independent and Language Adaptive Acoustic Modeling*, Speech Communication, **Best Journal Paper**, Volume 35, Issue 1-2, pp 31-51, August 2001.
- 2000 Alex Waibel, Petra Geutner, Laura Mayfield-Tomokiyo, Tanja Schultz and Monika Woszczyna, *Multilinguality in Speech and Spoken Language Systems*, Proceedings of the IEEE, Special Issue on Spoken Language Processing, Volume 88 (8), pp 1297-1313, August 2000.
- 1997 Karl Paul und Tanja Schultz, *Evaluation of a pocket-sized turbine spirometer for clinical use with children*. Respiratory Medicine 1997, 91: 369-372.

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- 2015 J. Hennrich, C. Herff, D. Heger, T. Schultz, Investigating Deep Learning for Fnrirs Based BCI. In Engineering in Medicine and Biology Society (EMBC), 2015 37th Annual International Conference of the IEEE, 2015.
- 2015 D. Heger, C. Herff, F. Putze, T. Schultz, Joint optimization for discriminative, compact and robust Brain-Computer Interfacing. In Neural Engineering (NER), 2015 7th International IEEE/EMBS Conference on, 2015.
- 2015 C. Herff, O. Fortmann, Chun-Yu Tse, Xiaoqin Cheng, F. Putze, D. Heger, T. Schultz, Hybrid fNIRS-EEG based discrimination of 5 levels of memory load. In Neural Engineering (NER), 2015 7th International IEEE/EMBS Conference on, 2015.
- 2015 Felix Stahlberg, Tim Schlippe, Stephan Vogel, Tanja Schultz, Cross-lingual Lexical Language Discovery from Audio Data Using Multiple Translations. In The 40th International Conference on Acoustics, Speech, and Signal Processing, Brisbane, Australia, 2015.
- 2015 Felix Putze, Sonja Ehret, Heike Miller-Teynor, Andreas Kruse, Tanja Schultz, Model-based Evaluation of Playing Strategies in a Memo Game for Elderly Users. In Proceedings of IEEE International Conference on Systems, Man and Cybernetics, 2015.
- 2015 Felix Putze, Robert Pröpper, Tanja Schultz, Dummy Model based Workload Modeling. In Proceedings of IEEE International Conference on Systems, Man and Cybernetics, 2015.
- 2015 Felix Putze, Christoph Amma, Tanja Schultz, Design and Evaluation of a Self-Correcting Gesture Interface Based on Error Potentials from EEG. In Proceedings of the 33rd Annual ACM Conference on Human Factors in Computing Systems, ACM, 2015.
- 2015 Dominic Heger, Christian Herff, Adriana de Pestors, Dominic Telaar, Peter Brunner, Gerwin Schalk, Tanja Schultz, Continuous Speech Recognition from ECoG. In Sixteenth Annual Conference of the International Speech Communication Association, 2015.
- 2015 Marcus Georgi, Christoph Amma, Tanja Schultz, Recognizing Hand and Finger Gestures with IMU based Motion and EMG based Muscle Activity Sensing. In International Conference on Bio-inspired Systems and Signal Processing, 2015. **Best Student Paper.**
- 2015 Stefan Escaida Navarro, Franz Heger, Felix Putze, Tim Beyl, Tanja Schultz, Björn Hein, Telemanipulation with Force-Based Display of Proximity Fields. In Proceedings of IEEE/RSJ International Conference on Intelligent Robots and Systems, 2015.
- 2015 Lorenz Diener, Matthias Janke, Tanja Schultz, Direct Conversion from Facial Myoelectric Signals to Speech using Deep Neural Networks. In International Joint Conference on Neural Networks, 2015.
- 2015 Lorenz Diener, Matthias Janke, Tanja Schultz, Codebook Clustering for Unit Selection Based EMG-to-Speech Conversion. In Sixteenth Annual Conference of the International Speech Communication Association, 2015.

- 2015 Christoph Amma, Thomas Krings, Jonas Böer, Tanja Schultz, Advancing Muscle-Computer Interfaces with High-Density Electromyography. In Proceedings of the 33rd Annual ACM Conference on Human Factors in Computing Systems, 2015.
- 2014 D. Heger, C. Herff, T. Schultz, Combining feature extraction and classification for fNIRS BCIs by regularized least squares optimization. In Engineering in Medicine and Biology Society (EMBC), 2014 36th Annual International Conference of the IEEE, 2014.
- 2014 D. Heger, E. Terziyska, T. Schultz, Connectivity based feature-level filtering for single-trial EEG BCIs. In Acoustics, Speech and Signal Processing (ICASSP), 2014 IEEE International Conference on, 2014.
- 2014 Marlene Zahner, Matthias Janke, Michael Wand, Tanja Schultz, Conversion from Facial Myoelectric Signals to Speech: A Unit Selection Approach. In The 15th Annual Conference of the International Speech Communication Association, Singapore, 2014.
- 2014 Michael Wand, Tanja Schultz, Towards Real-life Application of EMG-based Speech Recognition by using Unsupervised Adaptation. In The 15th Annual Conference of the International Speech Communication Association, Singapore, 2014.
- 2014 Michael Wand, Matthias Janke, Tanja Schultz, The EMG-UKA Corpus for Electromyographic Speech Processing. In The 15th Annual Conference of the International Speech Communication Association, Singapore, 2014.
- 2014 Michael Wand, Tanja Schultz, Pattern Learning with Deep Neural Networks in EMG-based Speech Recognition. In 36th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, 2014.
- 2014 Michael Wand, Christopher Schulte, Matthias Janke, Tanja Schultz, Compensation of Recording Position Shifts for a Myoelectric Silent Speech Recognizer. In The 39th International Conference on Acoustics, Speech, and Signal Processing, 2014.
- 2014 Ngoc Thang Vu, Jochen Weiner, Tanja Schultz, Investigating the Learning Effect of Multilingual Bottle-Neck Features for ASR. In The 15th Annual Conference of the International Speech Communication Association, Singapore, 2014.
- 2014 Ngoc Thang Vu, Yuanfan Wang, Marten Klose, Zlatka Mihaylova, Tanja Schultz, Improving ASR Performance On Non-native Speech Using Multilingual and Crosslingual Information. In The 15th Annual Conference of the International Speech Communication Association, Singapore, 2014.
- 2014 Dominic Telaar, Michael Wand, Dirk Gehrig, Felix Putze, Christoph Amma, Dominic Heger, Ngoc Thang Vu, Mark Erhardt, Tim Schlippe, Matthias Janke, Christian Herff, Tanja Schultz, BioKIT - Real-time Decoder For Biosignal Processing. In The 15th Annual Conference of the International Speech Communication Association, Singapore, 2014.
- 2014 Felix Stahlberg, Tim Schlippe, Stephan Vogel, Tanja Schultz, Towards Automatic Speech Recognition without Pronunciation Dictionary, Transcribed Speech and Text Resources in the Target Language using Cross-Lingual Word-to-Phoneme Alignment. In The 4th Workshop on Spoken Language Technologies for Under-resourced Languages, St. Petersburg, Russia, 2014.
- 2014 Niyawadee Jib Srisuwan, Chusak Limsakul, Pornchai Phukpattaranont, Tanja Schultz, Michael Wand, Matthias Janke, Enhancement of EMG-based Thai Number Words Classification using Frame-based Time Domain Feature with Stacking Filter. In Proceedings of 2014 APSIPA Annual Summit and Conference, 2014.
- 2014 Tanja Schultz, Tim Schlippe, GlobalPhone: Pronunciation Dictionaries in 20 Languages. In The 9th edition of the Language Resources and Evaluation Conference, Reykjavik, Iceland, 2014.
- 2014 Tim Schlippe, Matthias Merz, Tanja Schultz, Methods for Efficient Semi-Automatic Pronunciation Dictionary Bootstrapping. In The 15th Annual Conference of the International Speech Communication Association, Singapore, 2014.

- 2014 Tim Schlippe, Wolf Quaschnigk, Tanja Schultz, Combining Grapheme-to-Phoneme Converter Outputs for Enhanced Pronunciation Generation in Low-Resource Scenarios. In The 4th Workshop on Spoken Language Technologies for Under-resourced Languages, St. Petersburg, Russia, 2014.
- 2014 Felix Putze, Daniel V. Holt, Tanja Schultz, Joachim Funke, Model-based Identification of EEG Markers for Learning Opportunities in an Associative Learning Task with Delayed Feedback. In Proceedings of 24th International Conference on Artificial Neural Networks, 2014.
- 2014 Felix Putze, Tanja Schultz, Investigating Intrusiveness of Workload Adaptation. In Proceedings of International Conference on Multimodal Interfaces, 2014.
- 2014 Sebastian Leidig, Tim Schlippe, Tanja Schultz, Automatic Detection of Anglicisms for the Pronunciation Dictionary Generation: A Case Study on our German IT Corpus. In The 4th Workshop on Spoken Language Technologies for Under-resourced Languages, St. Petersburg, Russia, 2014.
- 2014 Matthias Janke, Kishore Prahallad, Michael Wand, Till Heistermann, Tanja Schultz, Fundamental Frequency Generation for Whisper-to-Audible Speech Conversion. In The 39th International Conference on Acoustics, Speech, and Signal Processing, 2014.
- 2014 Jutta Hild, Felix Putze, David Kaufman, Christian Kühnle, Tanja Schultz, Jürgen Beyerer, Spatio-Temporal Event Selection in Basic Surveillance Tasks using Eye Tracking and EEG. In Proceedings of the 7th Workshop on Eye Gaze in Intelligent Human Machine Interaction: Eye-Gaze & Multimodality, ACM, 2014.
- 2014 Till Heistermann, Matthias Janke, Michael Wand, Tanja Schultz, Spatial Artifact Detection for Multi-Channel EMG-Based Speech Recognition. In 7th International Conference on Bio-inspired Systems and Signal Processing, 2014.
- 2014 Heike Adel, Kartin Kirchhoff, Dominic Telaar, Ngoc Thang Vu, Tim Schlippe, Tanja Schultz, Features for Factored Language Models for Code-Switching Speech. In The 4th Workshop on Spoken Language Technologies for Under-resourced Languages, St. Petersburg, Russia, 2014.
- 2014 Heike Adel, Katrin Kirchhoff, Ngoc Thang Vu, Dominic Telaar, Tanja Schultz, Comparing Approaches to Convert Recurrent Neural Networks into Backoff Language Models For Efficient Decoding. In The 15th Annual Conference of the International Speech Communication Association, Singapore, 2014.
- 2014 Heike Adel, Dominic Telaar, Ngoc Thang Vu, Katrin Kirchhoff, Tanja Schultz, Combining Recurrent Neural Networks and Factored Language Models During Decoding of Code-Switching Speech. In The 15th Annual Conference of the International Speech Communication Association, Singapore, 2014.
- 2013 Udhayakumar Nallasamy, Mark Fuhs, Monika Woszczyna, Florian Metze and Tanja Schultz, Neighbour Selection and Adaptation for Rapid Speaker-dependent ASR, Automatic Speech Recognition and Understanding (ASRU), December 2013.
- 2013 Tim Schlippe, Lukasz Gren, Ngoc Thang Vu, Tanja Schultz, Unsupervised Language Model Adaptation for Automatic Speech Recognition of Broadcast News Using Web 2.0, 14th Annual Conference of the International Speech Communication Association (Interspeech), Lyon, France, 2013.
- 2013 Ngoc Thang Vu and Tanja Schultz, Multilingual Multilayer Perceptron For Rapid Language Adaptation Between and Across Language Families, 14th Annual Conference of the International Speech Communication Association (Interspeech), Lyon, France, 2013.
- 2013 Melvin Jose Johnson Premkumar, Ngoc Thang Vu, Tanja Schultz, Experiments towards a better LVCSR System for Tamil, 14th Annual Conference of the International Speech Communication Association (Interspeech), Lyon, France, 2013.

- 2013 Tim Schlippe, Mykola Volovyk, Kateryna Yurchenko, Tanja Schultz, Rapid Bootstrapping of a Ukrainian Large Vocabulary Continuous Speech Recognition System, ICASSP, Vancouver Canada, May 2013.
- 2013 Heike Adel, Ngoc Thang Vu, Franziska Kraus, Tim Schlippe, Haizhou Li, Tanja Schultz, Recurrent Neural Network Language Modeling for Code Switching Conversational Speech, The 38th International Conference on Acoustics, Speech, and Signal Processing (ICASSP) 2013.
- 2013 Tim Schlippe, Chenfei Zhu, Daniel Lemcke, Tanja Schultz, Statistical Machine Translation based Text Normalization with Crowdsourcing, The 38th International Conference on Acoustics, Speech, and Signal Processing (ICASSP), 2013.
- 2013 Tanja Schultz, Ngoc Thang Vu, Tim Schlippe, GlobalPhone: A Multilingual Text & Speech Database in 20 Languages, The 38th International Conference on Acoustics, Speech, and Signal Processing (ICASSP), Vancouver, Canada, May 2013.
- 2013 Christian Herff, Dominic Heger, Felix Putze, Cuntai Guan, Tanja Schultz, Self-paced BCI with NIRS based on speech activity, International BCI Meeting 2013, Asilomar, USA, 2013.
- 2013 Dominic Heger, Christian Herff, Felix Putze, Tanja Schultz, Towards Biometric Person Identification using fNIRS, International BCI Meeting 2013, Asilomar, USA, 2013.
- 2013 Christian Herff, Dominic Heger, Felix Putze, Johannes Hennrich, Ole Fortmann, Tanja Schultz, Classification of mental tasks in the prefrontal cortex using fNIRS, International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), Osaka, Japan, 2013.
- 2013 Michael Wand, Adam Himmelsbach, Till Heistermann, Matthias Janke, Tanja Schultz, Artifact Removal Algorithm for an EMG-based Silent Speech Interface, International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), Osaka, Japan, 2013.
- 2013 Dominic Heger, Felix Putze, Christian Herff, Tanja Schultz, **Geographic Finalist Europe**, Subject-To-Subject Transfer for CSP based BCIs: Feature Space Transformation and Decision-Level Fusion, International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), Osaka, Japan
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- 2013 Diliana Rebelo, Christoph Amma, Hugo Gamboa, Tanja Schultz, Activity Recognition for an Intelligent Knee Orthosis, 6th International Conference on Bio-inspired Systems and Signal Processing (BIOSIGNALS 2013), February 2013.
- 2013 Michael Wand, Christopher Schulte, Matthias Janke, Tanja Schultz, **Best Student Paper**, Array-based Electromyographic Silent Speech Interface, 6th International Conference on Bio-inspired Systems and Signal Processing (BIOSIGNALS 2013).
- 2012 Dominic Heger, Rainer Jäkel, Felix Putze, Martin Lösch, Tanja Schultz, Filling a Glass of Water: Continuously Decoding the Speed of 3D Hand Movements from EEG Signals, International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC'12), San Diego, USA.
- 2012 Christoph Amma, Marcus Georgi, Tanja Schultz, **Best Paper**, Airwriting: Hands-free Mobile Text Input by Spotting and Continuous Recognition of 3d-Space Handwriting with Inertial Sensors, 16th International Symposium on Wearable Computers (ISWC '12), Newcastle, UK.
- 2012 Christian Herff, Dominic Heger, Felix Putze, Cuntai Guan, Tanja Schultz, Cross-subject classification of speaking modes using fNIRS, 19th International Conference on Neural Information Processing (ICONIP 2012), Doha, Qatar.
- 2012 Ngoc Thang Vu, Wojtek Breiter, Florian Metze, Tanja Schultz, Initialization Schemes for Multilayer Perceptron Training and their Impact on ASR Performance using Multilingual

- Data, 13th Annual Conference of the International Speech Communication Association (Interspeech 2012), Portland, Oregon.
- 2012 Tim Schlippe, Sebastian Ochs, Ngoc Thang Vu, Tanja Schultz, Automatic Error Recovery for Pronunciation Dictionaries, 13th Annual Conference of the International Speech Communication Association (Interspeech 2012), Portland, Oregon.
- 2012 Tim Schlippe, Edy Guevara Komgang Djomgang, Ngoc Thang Vu, Sebastian Ochs, Tanja Schultz, Hausa Large Vocabulary Continuous Speech Recognition, The third International Workshop on Spoken Languages Technologies for Under-resourced Languages (SLTU'12), Cape Town, South Africa.
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- 2012 Christoph Amma, Tanja Schultz, Airwriting: demonstrating mobile text input by 3D-space handwriting, International Conference on Intelligent User Interfaces (IUI '12), Lisbon, Portugal.
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