

Shrikanth S. Narayanan*Niki & C. L. Max Nikias Chair in Engineering**Professor of Electrical Engineering, Computer Science, Linguistics, Psychology, Neuroscience and Pediatrics***University of Southern California**

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Email: shri@sipi.usc.eduURL: <http://sail.usc.edu>**Professional Interests: HUMAN-CENTERED SENSING, COMPUTING AND INFORMATION PROCESSING**

- Human Behavioral Signal Processing, Emotions, Behavioral Informatics
- Speech and Language Processing, Automatic Speech/Speaker Recognition, Speech Translation
- Human-Machine and Mediated Interactions; Spoken dialog and Multimodal Systems; Virtual Humans
- Speech production modeling, Articulatory-Acoustics, Speech/Audio Synthesis; Audio/Music
- Biomedical Signal Processing and Modeling: Imaging & Instrumentation

Education:

- June 1995 **Ph.D.** in *Electrical Engineering*, University of California, Los Angeles (UCLA).
Fields of Specialty: Signal Processing, Controls and Communication, Operations Research.
Thesis: “*Fricative consonants: An articulatory, acoustic, and systems study*”
Committee: A. Alwan (Chair), A. V. Balakrishnan, P. Ladefoged, M. M. Sondhi, A. Wilson
- June 1992 **Engineer degree** in *Electrical Engineering*, UCLA.
- December 1990 **Master of Science** in *Electrical Engineering*, UCLA.
Thesis: “*Nonlinear filtering and smoothing for noisy alternating renewal process signals*”
Committee: A. V. Balakrishnan, Richard Mortensen, Paul Wang
- June 1988 **Bachelor of Engineering** in *Electrical Engineering*
 College of Engineering–Guindy, Anna University, Madras, India.

Professional Experience:

- 16-present Niki & C. L. Max Nikias Chair in Engineering, **University of Southern California (USC)**
- 10-present Director, Ming Hsieh Institute, Electrical Engineering, USC
- 07-16 Andrew J. Viterbi Professor of Engineering, USC
- 05-present Professor, Department of Electrical Engineering, Department of Computer Science (*Joint*),
 Department of Linguistics & Program in Computational Linguistics (*Joint*)
 Department of Psychology (*Joint*); Member, Signal and Image Processing Institute
 Program in Neuroscience; Department of Pediatrics
 Director, Signal Analysis and Interpretation Laboratory (SAIL)
- 16-present Chief Scientist, Behavioral Signal Technologies, Inc.
- 13-present Chief Scientist, Behavioral Informatix, Inc.
- 02-08 Research Area Director & Investigator, Integrated Media Systems Center (NSF-ERC)
- 03-05 Associate Professor, Department of Electrical Engineering (Computer Science, Linguistics: *Joint*)
- 00-03 Assistant Professor, Department of Electrical Engineering-Systems
- 95-00 **AT&T Labs-Research, Florham Park, NJ (formerly, AT&T Bell Labs, Murray Hill)**
- 99-00 Principal Technical Staff Member
- 95-99 Senior Technical Staff Member
Speech and Image processing Research Laboratory.
 Speech processing, Automatic speech recognition, Spoken dialog systems
 Multimodal interfaces, Communication and information service applications
 Experiments and modeling in speech acoustics.
- 9/92 - 5/95 **Research Assistant, Department of Electrical Engineering, UCLA.**
Speech Processing and Auditory Perception Laboratory.
 Speech analysis, modeling, synthesis; Biomedical imaging and instrumentation.
- 6/93-10/93 **Member of Technical Staff, AT&T Bell Laboratories, Murray Hill, NJ.** (intern)
 Speech analysis and articulatory synthesis research.
- 6/92-10/92 **Member of Technical Staff, AT&T Bell Laboratories, Murray Hill, NJ.**(intern)
 Video coding; Motion compensation techniques.
- 9/89 - 10/91 **Research Assistant, Department of Electrical Engineering, UCLA.**
 Filtering and control algorithms for energy systems modeling.

Awards and Honors:

- 2017 Fellow, National Academy of Inventors
- 2016 Fellow, International Speech Communication Association for “contributions to speech communication science and technologies and their human-centered engineering applications.”
- 2016 Co-Author, Best student paper award, Interspeech (with Tanner Sorensen)
- 2016 Co-Author, Best student paper award, ICASSP (with Zhaojun Yang)
- 2016 Co-Author, Winning paper on the sentiment analysis twitter challenge SemEval/NAACL 2016
- 2016 Google Faculty Research Award
- 2015 Distinguished Engineering Educator Award, Engineers Council
- 2015 Distinguished Lecturer, International Speech Communication Association (ISCA)
- 2015 Interspeech Computational Paralinguistics Challenge Award, Nativeness Degree Estimation in Speech
- 2014 Ten-year technical impact award, ACM International Conf Multimodal Interfaces, 2014
- 2014 Interspeech Computational Paralinguistics Challenge Award, Cognitive Load Estimation from Speech
- 2014 Co-author on two Northern Digital Excellence Award Papers, International Seminar on Speech Production’14 (with V. Ramnarayanan and with J. Kim)
- 2013 Interspeech’13 Paralinguistics Challenge Award, Social Signals (with R. Gupta, K. Audhkhasi, S. Lee)
- 2013 Co-author, Best student paper (C. Vaz, V. Ramnarayanan), ISCA Interspeech’13.
- 2012 Interspeech’12 Speaker Trait Challenge Award, Pathology (with J. Kim, N. Kumar, A. Tsiartas, M. Li)
- 2011 UCLA School of Engineering, Alumni Professional Achievement Award
- 2011 Interspeech’11 Speaker State Challenge Award (with D. Bone, M. Black, M. Li, A. Metallinou, S. Lee)
- 2011 Co-author, Best Student Paper, Northern Digital Inc. Excellence Award (A. Lammert), International Seminar on Speech Production (ISSP)
- 2010 Best Paper at InterSpeech 2010, International Speech Communication Association (for Black et al, “Automatic Classification of Married Couples' Behavior using Audio Features”)
- 2010 IBM Faculty Award
- 2010 Distinguished Faculty Service Award, USC
- 2010 IEEE Signal Processing Society Best Paper Award (for Lee & Narayanan, “Toward detecting emotions in spoken dialogs” published in IEEE Trans. Speech and Audio Processing)
- 2010 Fellow of AAAS for “outstanding contributions to human communication science and technologies and their applications to engineering systems development.”
- 2010 Distinguished Lecturer of the IEEE Signal Processing Society (2010-2011)
- 2009 Fellow of IEEE for “contributions to human-centered multimodal signal processing and applications”
- 2009 InterSpeech’09 Emotion Challenge Award (with C-C. Lee, E. Mower, C. Busso, S. Lee)
- 2009 Best Paper Award, IEEE International Conference on Distributed Computing in Sensor Systems
- 2009 Body Computing Conference, BodySlam Award
- 2008 IBM Faculty Award
- 2008 Okawa Foundation Research Award
- 2007 Co-author, Best student paper (J. Shin), IEEE Multimedia Signal Processing Workshop 2007.
- 2006 President, Phi Kappa Phi Academic Honor Society, USC Chapter
- 2006 IEEE Signal Processing Society Best Paper Award (for Narayanan & Potamianos, “Creating Conversational Interfaces for Children” published in IEEE Trans. Speech and Audio Processing)
- 2006 Co-author, best student paper (S. Sundaram), IEEE Multimedia Signal Processing Workshop 2006.
- 2006 Mellon Award for Excellence in Mentoring, USC
- 2005 Fellow of Acoustical Society of America (for “contributions to speech production and imaging”)
- 2005 Acoustical Society of America, “Hot topics” invited speaker (speech production)
- 2005 The Northrop Grumman High Visibility Research Award, USC Electrical Engineering
- 2005 Co-author, best student paper (S. Ananthkrishnan), IEEE ICASSP 2005.
- 2003 Faculty fellow, Phi Kappa Phi
- 2003 USC Engineering Junior Faculty Research Award
- 2003 Faculty Fellow, USC Provost Center for Interdisciplinary Research
- 2003 NSF CAREER award
- 2002 ISCA Best Student Paper, Second Place ICSLP 2002 (graduate student J. Shin & undergraduate student, A. Kazemzadeh).
- 2002 Senior Member, IEEE
- 2000,1997 AT&T Performance Award
- 1999,1996 AT&T True Achievement Award

1994,1993 Vinnell Foundation Fellowship, Anthony Fellowship
 1990-1991 DEED Scholarship, American Public Power Association

Professional Memberships:

- Fellow, Acoustical Society of America (ASA)
- Fellow, Institute of Electrical and Electronic Engineers (IEEE) – Signal Processing Society
- Fellow, American Association for the Advancement of Science (AAAS)
- Fellow, International Speech Communication Association (ISCA)
- Member, Association for Computing Machinery (ACM)
- Member, American Association for Engineering Education
- Member, Linguistic Society of America; Association for Psychological Science
- Member, International Phonetics Association
- Member, Tau Beta Pi, National Engineering Honor Society; Member, Eta Kappa Nu, National Electrical Engineering Honor Society; Phi Kappa Phi Academic Honor Society

Key Editorial Services:

2016-present Editor in Chief, IEEE Journal of Selected Topics in Signal Processing
 2007-present Editor, Computer, Speech and Language Journal, Elsevier
 2011-present Editorial Board, APSIPA Transactions on Signal and Information Processing, Cambridge Univ. Press
 2014-2016 Associate Editor, IEEE Transactions on Signal and Information Processing over Networks
 2009-2016 Associate Editor, The Journal of the Acoustical Society of America, American Institute of Physics
 2010-2016 Associate Editor, IEEE Transactions on Affective Computing
 2011 Guest Editor, EURASIP Journal on Advances in Signal Processing
 2011 Guest Editor, ACM Transactions on Audio, Speech and Language Processing
 2008-2012 Associate Editor, IEEE Transactions on Multimedia
 2006-2008 Associate Editor, IEEE Signal Processing Magazine
 2006 Area Editor, Speech Synthesis, Handbook on Speech Processing, Springer
 2002 Editorial Board, IEEE Trans. on Speech and Audio Processing, Spontaneous Speech Special Issue
 2000-2004 Associate Editor, IEEE Transactions on Speech and Audio Processing

Key Professional Society Services:

2018 General Co-Chair, Interspeech-Hyderabad, India
 2017 Plenary Co-Chair, EUSIPCO, Kos, Greece
 2016 Technical Program Chair, IEEE Multimedia Signal Processing Workshop, Montreal, Canada
 2016 Technical Program Chair, Interspeech-San Francisco, USA
 2014 Publications Chair, IEEE Spoken Language Technology Conference
 2014 Technical Area Chair, ACM International Conference on Multimodal Interaction
 2013 Co-Organizer, Dagstuhl Seminar on Computational Audio
 2012 General Co-Chair APSIPA Annual Summit and Conference
 2012 Technical Special Session Chair, Interspeech 2012
 2012 Technical Area Chair, ACM International Conference on Multimodal Interaction
 2010 Technical Program Co-Chair APSIPA Annual Summit and Conference
 2009 Technical Program Co-Chair HLT-NAACL Conference
 2009 Technical Program Co-Chair IEEE ASRU
 2009 General Co-Chair, Second International Workshop on Children, Computer and Interaction
 2007 General Co-Chair, IEEE Multimedia Signal Processing Workshop
 2004-2007 Speech Processing Technical committee – IEEE Signal Processing Society (Policy subcommittee)
 2005-2008 Multimedia Signal Processing Technical committee – IEEE Signal Processing Society
 2001-present Technical committee - Speech Communication, Acoustical Society of America
 2002-2014 ASA Committee on Standards Ex-officio member
 2008 Co-chair, Registration, ICASSP 2008
 2004 Publicity Chair, NAACL/Human Language Technology Conference (HLT)
 2004 Sensory Information Processing Area Co-Chair, Intl Conf. Multimodal Interfaces (ICMI)
 2003 Technical Program Chair, IEEE Automatic Speech Recognition and Understanding, Virgin Islands
 2003 Workshop Technical Program Committees: SigDIAL; Multimodal User Authentication
 2003 Education and Member subcommittee, IEEE Signal Processing Society Speech committee
 2002 Technical Program Co-Chair, IEEE Speech Synthesis Workshop
 2002 Tutorials Chair, International Conf. Spoken Language Processing

2002 Area Chair, Multilingual Processing, International Conf. Spoken Language Processing
 2002 Special Session Chair, "Features and Models for Speech", Acoustical Soc. of Am. Meeting
 2002 Co-Chair, Human-Machine Interface Track, International Conf. on Multimedia

Review Services:

- National Science Foundation
- National Institutes of Health (NIDCD Study Section member 2008-11, Language Communication);
- Israel Science Foundation; Irish Research Council for Science, Engineering and Technology, Indo-US Foundation, Science Foundations of Finland, France, Belgium, EU
- Several IEEE Transactions: Audio, Speech and Language Processing; Automatic Control; Signal Processing Letters; Multimedia; Medical Imaging; Signal Processing; Education
- Journal of the Acoustical Society of America; Speech Communication Journal
- Journal of the International Phonetic Association ; Journal of Speech and Hearing Research
- Several conferences including ICASSP, ICSLP, IJCAI, ACC, ICME, HLT, Interspeech and ASRU.

Sponsored Research Projects at USC (09/2000-present):

SPONSOR	ROLE	TITLE	DATES
CDC	USC PI	Testing a Family-Based Preventative Intervention on Childhood Obesity in Primary Care	2016-2018
NIH R01/NIAAA	PI	Implementation of Technologically-Based Evaluation of Motivational Interviewing	2016-2021
NSF	Co PI	Dating Couple Aggression: Using Mobile Technology to Assess Emotions, Vocalizations, and Physiology	2016-2019
NSF	Co PI	The Degree of Synchrony Across Physiological and Behavioral Indicators in Aggression	2016-2018
NSF	PI	Emotionally immersive tele learning	2016-2017
Google Faculty Award	PI	Enabling Affect Sensitive Experiences	2016-2017
NIH R01	PI	Dynamics of vocal tract shaping	2015-2020
NSF	PI	Understanding Individual Variability	2015-2019
DARPA RATS (with SRI)	USC PI	Robust Automatic Transcription of Speech	2015-2016
DoD	Co PI	Technologies for Assessing Behavioral and Cognitive Markers of Suicide risk	2015-2019
DARPA LORELEI	Co PI	Exploiting Language Information for Situational Awareness	2015-2019
Simons Foundation	Co PI	Developing Scalable Measures of Behavior Change for ASD treatments	2015-2018
NIH/NIDCD R01	Co Investigator; USC PI	Verbal/non-verbal asynchrony in adolescents with high-functioning Autism	2013-2017
Geena Davis Institute/ Google Foundation	PI	Rich and Efficient Media Content Processing	2013-2017
IBM	PI	Social Media Informatics	2012-2014
NIH/NICHHD R21	Co Investigator	Family Violence and Young Adult Dating Aggression: Reactivity and Compassion	2012-2014
NIH/NIDA R34	Co Investigator; USC PI	Development and feasibility of computer based fidelity monitoring for MI	2012-2015
NIH/NIDCD R01	Co Investigator	Speech Prosody and Articulatory Dynamics in Spoken Language	2012-2017
DoJ/MIT Lincoln Laboratory	PI	Data collection and Analysis of vocal tract MRI	2012-2015
IARPA/IBM BABEL Project	Co PI	Lorelei Consortium	2012-2016
ONR/BAE Systems	PI	Expeditionary Maneuver Warfare and Combating Terrorism: Basic and Applied Research	2012-2014
Army Research Office	PI	TATRC: Advancing Speech Recognition Technology to Support Training with Virtual Humans	2011-2014
NSF (NeTS Large)	Co PI	Exploration and Exploitation in Actuated Communication Networks	2012-2017
NSF (Medium)	Co PI	Quantitative Observational Practice in Family Studies: The case of reactivity	2011-2014
NSF (Small)	Co PI	Emotional Speech Production: Analysis, Modeling and Synthesis	2011-2015

SPONSOR	ROLE	TITLE	DATES
DARPA (with BBN) BOLT Project	USC PI	Broad Operational Language Translation	2011-2014
DARPA (with IBM) RATS Project	USC PI	Targeted Robust Audio Processing (TRAP) System	2011-2014
ARL	CoPI (USC PI); collaborative research: Cogent	Improving Accuracy, Speed and Usability of Multi- Modal Biometric Handheld Devices	2009-2012
NSF (Large)	USC PI (collaborative research)	Be A Scientist	2010-2015
NIH/NIDCD R01 (through Haskins Labs)	Co Investigator	Variability and Error in Speech Production	2012-2013
NIH/NIAAA R01	USC PI; collaborative research: UWashingtton, UCI	Automating Behavioral Coding via Text-mining and Speech Signal Processing	2010-2015
NIH/NHLBI, R01	Co Investigator	Model-based Phenotyping of OSAS in Pediatric Obesity using Dynamic MR Imaging	2010-2014
DARPA	PI	Healing Heroes: Behavioral Signal Processing for PTSD	2011-2014
NSF (Expeditions in Computing)	PI (USC); collaborative research: GeorgiaTech, UIUC, MIT, BU, CMU	Computational Behavioral Science: Modeling, Analysis, and Visualization of Social and Communicative Behavior	2010-2015
NIH R01/NIDCD	PI	Dynamics of vocal tract shaping	2010-2016
ONR/BAE Systems	PI	Speaker Segmentation and Emotion Detection from Speech	2010-2011
NSF (Large)	PI	An Integrated Approach to Creating Context Enriched Speech Translation Systems	2009-2015
ONR	Co PI	Intelligent Coordination and Adaptive Classification for Naval Autonomous Systems	2009-2014
DARPA (sub to BAE)	PI	DeepGreen Phase II	2009-2010
Los Angeles Basin Clinical Translational Sciences Institute	Co PI	Translating automated bidirectional translation technologies to clinical settings	2009-2010
Army Research Labs	Co PI	Multimodal Biometrics	2009-2012
NIH/NIMH (ARRA)	Co Investigator	Disseminating Scientific Information about Autism to the Latino Community	2009-2011
Army	Co PI	Virtual Humans Research	2009-2011
DARPA	PI	SpeechLinks: Speech Translation for Tactical Communication	2006-2010
Fund for Innovative Undergraduate Teaching	PI	Engineers as Teachers	2009-2010
Army Research Office	Co PI	Virtual Sick Call	2009-2010
ONR	Co PI	INOTS: Interactive Naval Officer Training System	2009-2010
NSF	USC PI; Partner: Georgia Tech	Collaborative Research: Modeling Creative and Emotive Improvisation In Theater Performance	2008-2011
Army Research Office	Co PI	Joint Fires and Effects Trainer System	2008-2009
Autism Speaks	PI	Speech Processing Technology for the Facilitation of Social Communication Training in Children with Autism	2008-2010
NSF	PI Narayanan	Exploring Emotional Vocal Productions through the use of Real-time Magnetic Resonance Imaging	2008-2010
NIH	Co PI	Mobile Device Biomonitoring to Prevent and Treat Obesity in Underserved Minority Youth	2008-2010
NSF	PIs: Mataric, Narayanan	Personalized Socially-Assistive Human-Robot Interaction: Applications to Autism Spectrum Disorder	2008-2013
Qualcomm	PI	Mobile Metabolic Health Monitoring	2008-2009
NSF (sub to ICT)	Investigator	Responsive Virtual Human Museum Guides	2008-2011
Army Research Office	Co-PI	Gunslinger: Virtual Humans in a Kinetic Environment	2007-2008
DHS	Co-PI, Hovy, PI	Center for Knowledge and Information Discovery	2007-2012
Army	PI	Virtual Humans-Natural Language	2007-2009
Army	PI	Tactical Questioning	2006-2008
NSF CRI	Investigator; PI Mataric	Human-Robot Interaction and Socially Assistive Robotics	2007-2008
NSF MRI	Investigator; PI Schaal	Humanoid Robots	2006-2008
Annenberg Center	PI	Emotions in Speaking and Singing	2006-2007

SPONSOR	ROLE	TITLE	DATES
Provost Undergraduate Fund	Co-PIs: Byrd, Narayanan	Speech Production Modeling	2006
Zumberge Interdisciplinary Award	Co-PI; PI Zimmermann	Tele-rehabilitation	2006-2007
NIH R01/NIDCD	Co-I; Byrd, PI	Prosody and Articulatory Dynamics in Spoken Language	2006-2011
ONR	Co-PI; PI B. Mel	Bioinspired audiovisual processing	2006-2009
MURI – ONR U Wash, Stanford, USC	USC PI ;co PI, Byrd	Human-like speech processing	2005-2010
NIH R01	PI	Dynamics of vocal tract shaping	2005-2009
AT&T	PI	Multilingual processing	2005-07
Dept. of Interior/DARPA	PI	User interface for speech translation	2005-07
School of Social Work	Co-PI; PI Trickett	Planning grant for infrastructure creation for child social service research	2005-06
NSF ITR Collaborative Research (UCLA-UCB-USC)	USC PI; project director A. Alwan, UCLA	“Automating Early Assessment of Academic Standards for Very Young Native and Non-Native Speakers of American English”	2003-2007
ARDA VACE	Co-Investigator; PI Nevatia	“Multimodal Speaker Identification”	2004-05
Sandia Labs	PI	“Multimodal systems”	2004-2005
LASER ACTD	PI	Training for Speech Translation	2004-2005
Army Science Conference	Investigator	Interactive Virtual Soldier System	2004
Freedom Forum	Investigator; ICTsubcontract	“Newseum: Be a Reporter”	2003-2004
Provost Undergraduate Research Fund	with E. Andersen	“Cross-Cultural Issues in Child-Machine Interactions	2003-2004
Provost Undergraduate Research Fund	with D. Byrd	“Toward Illuminating Fine Details in Human Speech Production: Investigations of Vocal Tract Movements”	2003-2004
Center for Interdisciplinary Research	Fellow	“Multimodal-Multilingual Communication Technologies”	2003-2004
Pratt & Whitney Institute for Collaborative Engineering	PI; co-PIs Helmy, Lee, Ortega, Zimmerman	“Wireless Mobile and Distributed Networking System for Efficient Aircraft Engine Inspection and Maintenance”	2003-2006
ONR/DARPA	co-PI; Lewis Johnson, PI	“Training Superiority: Rapid Development of Mission-Oriented Communication Skills”	2003-2005
NSF CAREER award	PI	“Modeling and Optimizing User-Centric Mixed-Initiative Spoken Dialogue Systems”	2003-2009
Provost Undergraduate Research Fund	co-PIs D. Byrd, E. Andersen	“Monolingual and Bilingual Spoken Language Interactions of Preschoolers”	2002-2003
NIH R01	co-PI; Byrd, PI	“Prosody and Articulatory Dynamics in Spoken Language”	2002-2007
NSF ITR	PI, co-PIs E. Chew, C. Kuo	“Content Based Query and Retrieval of Music Using Signal Processing and Knowledge-Based Methods”	2002-2005
DARPA Babylon/CAST Project	PI	“Multilingual Speech to Speech Translation Systems”	2002-2005
US Army/STRICOM	PI	“Robust Speech Recognition for Immersive Training”	2001-2004
US Army	joint PI with L. Johnson	“Expressive Speech Synthesis for Animated Characters in Training Applications”	2002-2004
Acorn Technologies	PI	“Robust Speech Processing”	2002
ALI Microelectronic Corp	PI	“Processing and Retrieval of Music”	2002
Lockheed Martin	PI	“Multimodal Speech Interfaces”	2001-2002
Lucent Technologies	PI	“Speech Interfaces for Mobile Devices”	2001
Zumberge Interdisciplinary Grant	co-PIs: Andersen, McLaughlin	“Investigations Into Preschool Children Interacting with Machines”	2002-2003
USC Arts Initiative	PI: M. Lazzari; co-PIs: Breisch, McLaughlin, Narayanan	Tactile experiences for Arts	2002-2003
Provost Undergraduate Research Fund	co-PIs: Andersen, Byrd	“Analysis of Child-Machine Spoken Dialogues”	2002
NSF-ERC Integrated Media Systems Center	Co-PI with several USC investigators	Integrated Media Systems Center	2000-2008
Powell Foundation	PI	“Speech Analysis and Interpretation Lab Set-Up”	2000-2002

Invited Talks:

- Dec 2016 Keynote Lecture, 16th Speech Science and Technology Conference (SST2016), Australia
- Dec 2016 ISCA Distinguished Lecture, University of New South Wales, Sydney, Australia
- Dec 2016 ISCA Distinguished Lecture, University of Auckland, Auckland, NZ
- Nov 2016 Distinguished Lecture, Electrical and Computer Engineering, Johns Hopkins University, Baltimore
- Oct 2016 Keynote, ROCLING 2016 Taiwan Conf. on Computational Linguistics and Speech Processing, Taiwan
- Oct 2016 ISCA Distinguished Lecture, National Tsing Hua University, Hsinchu, Taiwan
- Oct 2016 ISCA Distinguished Lecture, National Taiwan University, Taipei, Taiwan
- July 2016 ISCA Distinguished Lecture, Indian Institute of Technology, Madras, India
- July 2016 ISCA Distinguished Lecture, Summer School on Speech and Audio Processing, Ahmedabad, India
- July 2016 ISCA Distinguished Lecture, Indian Institute of Technology, Bombay, India
- July 2016 ISCA Distinguished Lecture, Indian Institute of Science, Bangalore, India
- June 2016 Distinguished Lecture, Universidad Politécnica de Madrid (UPM), Madrid, Spain
- June 2016 Distinguished Lecture, Universidad Carlos III de Madrid, Madrid, Spain
- June 2016 Keynote Lecture, Odyssey2016-The Speaker and Language Recognition Workshop, Bilbao, Spain
- Feb 2016 Distinguished Human Language Technology Lecture, CSAIL, MIT, Cambridge, MA
- November 2015 Invited Talk, TCS Innovation forum, San Jose, CA
- October 2015 Keynote Lecture, Oriental COCODA, Shanghai, China
- October 2015 ISCA Distinguished Lecture, University of Science and Technology, Hefei, China
- May 2015 Invited Lecture, Technical University, Berlin, Germany
- May 2015 ISCA Distinguished Lectures, Koc University, Bogacazi University, Istanbul, Turkey
- April 2015 Invited talk, ICASSP, Brisbane Australia
- April 2015 Invited talk, Macquarie University, Sydney, Australia
- March 2015 Distinguished Lecture, Carnegie Mellon University, Pittsburgh
- Jan 2015 Distinguished Lecture, Centre of Excellence in Signal Processing, IIIT, Hyderabad, India
- Jan 2015 Invited Lectures, Winter School on Speech and Audio Processing, Ahmedabad, India
- Nov 2014 Distinguished Lecture, Electrical & Computer Engineering Department, Rutgers University
- Oct 2014 Distinguished Lecture in Computing, Instituto Tecnológico Autónomo de México (ITAM), Mexico
- Sept 2014 Keynote Lecture, Workshop on Speech, Language and Audio in Multimedia (SLAM 2014), Malaysia
- Sept 2014 Invited Lecture, Workshop on Formalizing Dialogue Genres for Efficient Virtual Character Creation
- June 2014 Distinguished Lecture, Instituto Superior Técnico, Lisbon, Portugal
- May 2014 Invited Lecture, Autism Center of Excellence Workshop, Emory University, Atlanta
- Dec 2013 Keynote Lecture, Symposium on Pathways to Clinical Forecasting, Long beach, CA
- Oct 2013 Keynote Lecture, SSPNet Workshop on Conflict and Communication, Rome, Italy
- Aug 2013 Keynote Lecture, ISCA Workshop Speech Production in Automatic Speech Recognition, Lyon, France
- May 2013 Plenary Lecture, NSF Workshop on Automatically Annotated Repository of Digital Audio and Video Resources Community, Ann Arbor, MI
- Apr 2013 Invited Lecture, SenSIP Center, Arizona State University
- Apr 2013 Distinguished Lecture, Intelligent Systems Program, University of Pittsburgh
- Feb 2013 Invited Lecture, Behavioral Imaging Seminar, GeorgiaTech
- Nov 2012 Distinguished Lecture, The Universidad Nacional Autónoma de México (UNAM), Mexico City
- Oct 2012 Invited Lecture, Electrical Engineering Seminar Series, UCLA
- Oct 2012 Invited Lecture, NSF Workshop on Sentiment Analysis, University of Pennsylvania
- April 2012 Invited Lecture, Columbia University, NY, NY
- April 2012 Keynote Lecture, CREST Symposium on Human Harmonized Information Technology, Kyoto University, Japan
- Mar 2012 Invited Lecture, Johns Hopkins University, Baltimore, MD
- Mar 2012 Invited Lecture, Providence Tarzana Medical Center, Encino, CA
- Dec 2011 Keynote, IEEE Automatic Speech Recognition and Understanding Workshop, Hawaii, HI
- Nov 2011 Keynote, Social Signal Processing Workshop-ACM Multimedia, ACM'2011, Phoenix, AZ
- Sep 2011 Booz Allen Hamilton Distinguished Colloquium, University of Maryland, College Park, MD
- Jul 2011 Plenary Talk, International Conference on Multimedia and Expo (ICME), Barcelona, Spain
- Jul 2011 Invited Talk, Telefonica Research Multimedia Workshop, Barcelona, Spain
- Jun 2011 IEEE Distinguished Lecture, Princeton, NJ
- Apr 2011 Distinguished Lecture in Computing, Imperial College, London
- Apr 2011 Invited Lecture, Cambridge University, UK
- Apr 2011 Invited Lecture, Philips Research, Eindhoven, Netherlands
- Oct 2010 Invited Lectures: Chinese University of Hong Kong; Hong Kong University of Science&Technology

Oct 2010	IEEE SPS Distinguished Lecture, Hong Kong
Oct 2010	Invited Lectures: Tsinghua University, Beijing; Microsoft Research, Asia
Oct 2010	Keynote, International Conference on Signal Processing Beijing
July 2010	Invited lecture, 8th International Conference on Signal Processing and Communication, Bangalore
July 2010	IEEE SPS Distinguished Lecture, Hyderabad, India
July 2010	Invited Lectures, IIT Madras
May 2010	Keynote Lecture, Speech Prosody Conference, Chicago
Apr 2010	Keynote Lecture, Undergraduate Linguistics Conference, UCLA, Los Angeles
Apr 2010	IEEE SPS Distinguished Lecture, University of Texas, Dallas
Apr 2010	CML Distinguished Speaker Series, University of California, Irvine
Nov 2009	University of California, Merced
May 2007	Tsinghua-USC Workshop on Emerging Technologies, Beijing
Feb 2007	Microsoft Research Seminar, Redmond, Washington
Dec 2006	Indian Institute of Science/IEEE Signal processing Society, Bangalore, India
Dec 2006	National University of Singapore-School of Computing, Singapore
Mar 2006	Indian National Academy of Sciences Seminar, IIT-Madras, India
Nov 2005	Samsung Electronics, Korea
Aug 2005	AT&T Shannon Labs, University Collaboration Seminar, Florham Park, NJ
July 2005	Cognitive Systems Workshop, Human Cognitive Models in System Design, Santa Fe, New Mexico
May 2005	Hot Topics in Speech Communication, Acoustical Society of America, Vancouver, BC
Mar 2005	Yonsei University EE Department Seminar, Seoul, Korea
Oct 2004	International Conference on Spoken Language Processing
Oct 2004	InHa University, Incheon, Korea
Apr 2004	DARPA Workshop on Speech to Speech Translation, San Diego, CA
Sept 2003	Technical University of Athens, Technical University of Crete, Greece
May 2003	Massachusetts Institute of Technology & Harvard, Cambridge, MA
Dec 2002	Cross EU-NSF ISLE Workshop, University of Edinburgh, Scotland
Mar 2002	UCLA-EE Department Communications-Signal Proc. Seminar, LA, CA
Oct 2001	California Institute of Technology-EE Department, Pasadena, CA
Sept 2001	UC-Santa Barbara, ECE Department, Santa Barbara, CA
Jun 2001	Panasonic Speech Technology Labs, Santa Barbara, CA
Nov 2000	Rockwell Science Center, Thousand Oaks, CA
Oct 2000	HRL Laboratories, Malibu, CA
Mar 2000	University of Southern California, CA
Nov 1999	Boston University, Boston, MA
Nov 1998	University of California, Los Angeles, CA
May 1997	Haskins Labs/Yale University, New Haven, CT
Oct 1996	Intl. Conf. Spoken Language Processing, Philadelphia, PA
Feb 1996	SPIE Conf. Medical Imaging, Newport Beach, CA
Oct 1995	Intl. Conf. on Signals, Systems and Electronics, Monterey, CA
Jun 1995	Haskins Labs, New Haven, CT

Key University Services/USC:

- USC Strategic Planning Subcommittee, 2016-present
- University Committee on Academic Promotions and Tenure, 2012-present
- Co-chair, USC Strategic Planning Subcommittee, Graduate Programs, 2010-11
- USC Academy of Polymathic Studies, Steering Committee, 2010-11; Executive Board, 2011-present
- Chair, USC University Research Committee, 2006-2009 (Co-Chaired, 2007-08); Member URC, 2010-11
- Faculty Advisory Council, USC Shoah Foundation Institute, 2008-present
- Member, USC University Research Committee, 2005-06; 2009-2012
- Academic Promotions & Tenure Committee, USC Viterbi School of Engineering, 2004-2006
- Research Area Director (Applications Research), Integrated Media Systems Center (NSF-ERC), 2001-2008
- Research Vision Leader – Communications Systems, Integrated Media Systems Center, 2002-2008
- Research Leader, Pratt & Whitney Institute for Collaborative Engineering, USC, 2003-2008
- Faculty Coordinator, Electrical Engineering Systems Teaching Assistants, 2001-2004

- Graduate Student Recruitment, Fellowship Committees, 2001-2006
- Mentor: Undergraduate Research Program, Dean's Merit Research Program for freshmen engineers
- Freshmen interviews (Presidential Scholars/Trustee Scholars)
- Interdisciplinary program in Computational Linguistics

Pre-USC Services:

- AT&T Bell Labs Intern Mentor: Several graduate, undergraduate and high school students mentored in speech and language projects (1995-2000)
- AT&T Labs PhD Recruiter (1997-99)
- AT&T United Way volunteer
- UCLA Graduate Students Association: EE Departmental representative
- UCLA Minority Engineering Program Facilitator

Industry Collaborations and Partnerships (2000-present):

- Google
- Lockheed International
- HRL Labs
- Speech works International
- AT&T Research
- Bell Labs-Lucent
- IBM
- Qualcomm
- Raytheon BBN Technologies
- BAE Systems
- 3M Cogent Systems

Teaching and Mentoring:

Fall'00-02,04-05,06-07 **EE519: Digital Speech Processing** (*Course Developed*)

Spr 10, Fall 10,11,12, Graduate level course on speech signal processing.

Applications to coding, recognition and synthesis

Spr'01 **EE599: Graduate Seminar on advanced topics in speech processing**

Spr'02,04,05,06,07,09 **EE619: Speech recognition and Spoken Language Engineering** (*Course Developed*)

Emphasis on statistical approaches

9/90 - 6/94 **Teaching Associate/Fellow, UCLA.**

Undergraduate engineering courses in Electrical and Electronic circuits, Signals and Systems, Feedback Control.

POSTDOCTORAL ASSOCIATES/RESEARCH FACULTY:

- Daniel Bone, Postdoctoral Associate, Behavioral Signal Processing, (*2016-present*)
- Sajan Gouda Lingala, Postdoctoral Associate, Imaging Research, (With K. Nayak) (*2014-present*)
- Benjamin Girault, Postdoctoral Associate, Graph Signal Processing, (With A. Ortega) (*2016-present*)
- Asterios Toutios, Research Associate, Speech Production Research, (*2012-present*)
- Tanaya Guha, Postdoctoral Associate, Multimodal Signal Processing/multimedia informatics, (*2013-2015*)
- Maarten Van Segbroeck, Postdoctoral Associate, Robust Speech Processing, (*2012-2015*)
- Yoon-chul Kim, Postdoctoral Associate, Imaging Research, (K. Nayak primary supervisor) (*2010-2014*)
- Emily Mower, Postdoctoral Associate, Emotions Research, *2010*
- Michael Proctor, Postdoctoral Associate, Speech Production, (*2009-2012*)
- Athanasios Katsamanis, Postdoctoral Associate, Multimodal Signal Processing, (*2009-2012*)
- Carlos Busso, Postdoctoral Associate, Multimodal Processing, (*2008-2009*)
- Matteo Gerosa, Postdoctoral Associate, Speech Recognition, (*2006-2007*)
- Panayiotis Georgiou, Postdoctoral Associate/Research Asst Professor, *Speech/Audio processing* (*2002-2013*)
- Sungbok Lee, Research Assistant Professor, *Speech Production* (*2001-present*)

- Jon Nielsen, Postdoctoral Associate, *Imaging* (K. Nayak primary supervisor) (2005-2007)
- Scott Millward, Postdoctoral Associate, *User interfaces* (2004-05)

PH.D STUDENTS GRADUATED

1. Naveen Kumar, "Exploiting Latent Reliability Information for Classification Tasks", Sony.
2. Rahul Gupta, "Computational methods for modeling non-verbal communication in human interaction", Amazon
3. Bo Xiao, "Modeling expert assessment of empathy through multimodal signal cues", Amazon
4. Daniel Bone, "Computational modeling of human interaction behavior towards clinical translation in autism spectrum disorder", USC
5. Jangwon Kim, "Emotional speech production: From data to computational models and applications", Cobalt Speech & Language, Inc.
6. Karthik Audhkhasi, "A computational framework for diversity in ensembles of humans and machine systems", IBM T J Watson Research Center
7. Andreas Tsiartas, "Enhancing Speech to Speech translation through exploitation of bilingual resources and paralinguistic information", SRI International
8. Vikram Ramanarayanan, "Toward understanding speech planning by observing its execution-representations, modeling and analysis", Educational Testing Service
9. Adam Lammert, "Structure and Function in Speech Production", MIT Lincoln Laboratory USC Viterbi Best Thesis Award]
10. Angeliki Metallinou, Dynamics of multimodal emotional expressions, Amazon Labs
11. Abe Kazemzadeh, Natural language expressions of emotions, USC Annenberg Innovation Lab
12. Chi-chun Jeremy Lee, Behavioral Modeling in Interactions, Asst. Professor, National Tsing Hua University
13. Ming Li, "Joint variability modeling", Asst. Professor, Sun Yat-Sen Univ./C.M.U. Joint Institute of Engineering
14. Qun Feng Tan, "Sparse representaions in pattern recognition"
15. Matthew Black, "Automating behavioral assessments", Behavioral Informatix; Farmers Insurance
16. Prasanta Kumar Ghosh, "Novel Signal Representations for Speech", INSPIRE Faculty, Indian Institute of Science
17. Erik Bresch, "Dynamic models in speech production", Philips Research
18. Selina Chu, "Unstructured Audio Processing" (co-advisor C. C. Jay Kuo), JPL
19. Samuel Kim, "Audio Modeling and Indexing", IDIAP/EPFL
20. Emil Ettelaie, "Speech Translation through Classification", Data Mining Research-Reunify
21. Viktor Rozgic, "Multimodal detection and tracking", Raytheon BBN Technologies
22. Emily Mower (Provost), "Affective interactions: analysis and recognition" (co- advisor, M. Mataric), Asst. Prof., U Michigan, Ann Arbor
23. Kyu Jeong Han, "Speaker modeling methods", (Fall 2009), Ford Research Center
24. Ozlem Kalinli, "Attention-based methods in speech and audio processing", (Fall 2009), Sony
25. Joseph Tepperman, "Pronunciation modeling and assessment", (Spring 2009), Sensory Inc.
26. Jorge Silva, "Information theoretic representations and models for classification", (Fall 2008), Assoc. Prof., University of Chile [USC Viterbi Best Thesis Award]
27. Erdem Unal, "Music Information Retrieval under uncertainty: Polyphonic Music" (Spring 2008), Scientific and Technological Research Council of Turkey (TUBITAK)
28. Vivek Kumar Rangarajan Sridhar, "Prosody enriched speech translation", (Spring 2008), Apple
29. Carlos Busso, "Multimodal processing of Emotions" (Spring 2008), Assoc. Prof., University of Texas-Dallas
30. Shiva Sundaram, "Data-driven methods in speech and audio processing" (Spring 2008), Amazon Labs
31. Chu Ping Liu, "Cochlear Implant Speech Processing" (jointly with Qian-Jie Fu) (Spring 2008), Logitech
32. Sankaranarayanan Ananthakrishnan, "Prosody models for speech applications" (Spring 2008), Amazon
33. Jongho Shin, "User modeling in human-machine conversations" (Fall 2007), LG Electronics/Emory Univ.
34. Murtaza Bulut, "Data-driven approaches to expressive speech synthesis" (Fall 2007), Philips Research
35. Abhinav Sethy, "Unsupervised methods for Speech and language modeling" (Spring 2007), IBM Watson
36. Chartchai Meesookho, "Collaborative Classification and Tracking of multiple targets" (with U. Mitra)
37. Dagen Wang, "Embedded Speech Systems with applications to speech translation" (Spring 2006), IBM
38. Serdar Yildirim, "Multimodal processing for child-machine interactions" (Spring 2006), Assistant Professor, Mustafa Kemal University, Turkey
39. Soonil Kwon, "Unsupervised speaker indexing" (Spring 2005), Sejong University, Seoul, Korea
40. Chul Min Lee, "Automatic Emotion Recognition from Speech and Language Information" (Fall 2004), LG Electronics

41. Naveen Srinivasamurthy, "Joint compression and classification with applications to distributed speech recognition" (jointly with A. Ortega) (2003 Fall), Qualcomm
42. Hsuan-Huei Maverick Shih, "Statistical Recognition and Theme finder for Query by Humming Systems" (jointly with C.-C. Kuo) (2003 Spring), Vice President, ACER, Taiwan

CURRENT PH.D STUDENTS (research topic)

- James Gibson, "Multimodal Signal Processing"
- Dogan Can, "Spoken Language Processing"
- Theodora Chaspari, "Behavioral Signal Processing"
- Zhaojun Yang, "Multimodal Human Behavior Modeling"
- Colin Vaz, "Robust Audio Processing"
- Pavlos Papadopoulos
- Nikos Malandrakis
- Chi-Wei Huang, "Media content processing"
- Ruchir Trivedi, "Statistical methods for pattern recognition"
- Zisis Iason Skordilis
- Md Nasir
- Anil Ramakrishna
- Manoj Prabhakar
- Krishna Somandepalli
- Yongwan Lim
- Karel Mundnich
- Victor Martinez
- Tanner Sorensen
- Brandon Booth
- Nikolaos Flemotomos
- Amrutha Nadarajan
- Timothy Greer
- Raghuveer Peri
- Karan Singla
- Zhuohao Chen

M.S. STUDENTS (research topic)

- Tartan Agrawal "Media processing" (2016)
- Prashanth Shivakumar, "Robust recognition of children's speech" (2015)
- Andreas Zavou, "Diversity in fusion of ASR Systems" (2013)
- Thomas Murray, "Speech Translation Technologies"
- Dhaval Shah, "Audiovisual Biometrics", (2009)
- Stephen Tobin, "Speech Production Analysis using realtime MRI" (2007)
- Farhad Farahani, "Multiresolution analysis of pitch for speaker recognition" (2005)
- Donal McErlean, "Graphical Models for Collaborative Processing in Sensor Networks" (2003)
- Alvertos Diamantopolous, "Multimodal speech interfaces" (2002)
- Jeff Haynes, "Optimization in sensor networks using genetic algorithms" (2002)

UNDERGRADUATE RESEARCH STUDENTS (research topic)

The students were funded through the undergraduate research program (NSF funded or funded by the USC Provost Research Fund), or the Dean's Merit Research Program. Some of their work has contributed to conference publications.

- Yanxi Li
- Sidharth Raguraman
- Frank Pol
- Pooja Nikki Bisarya
- Alexander Young
- Tvisha Gangwani
- Madelyn Douglas
- Taylor Seamans
- Maddie Mendlen
- Neha Anand

- Agnes Youn
- Rachel Alexander
- Sriram Somasundaram
- Yan Zhu
- Nimisha Patil
- Simon Berman, “Structure Function Interplay in Speech Production”, 2012 (RoseHills Foundation)
- Alex Onopa, “Multimodality in Speech Production”, 2012 (RoseHills Foundation)
- Li Hsuan Lu, “Analysis and Modeling of Speech Production”
- Leah Gum, “Creative Information Technologies”, 2012-present
- Sumukh Anand, “Human interaction modeling”, 2012-present
- Naa Adei Mante, “Speech Imaging Research”, 2011-present
- Ellen Feldman, “Emotions Research”, 2011-present
- Juanchen Li, “Affective Computing”, 2011-present
- James Li, “Multimodal Biometrics”, 2010-present
- Stephanie Aceves, “Emotion Modeling”, 2010-2011
- Michelle Dee, “Human Interaction Analysis”, 2008-present
- Ilene Rafii, “Motion capture based behavior analysis”, 2008-2010
- Jonathan Chang, “Child Machine Interaction”, 2008-2010
- Johnson Wang, “Emotions research”, 2009-2010
- David Grayson Smith, “Emotions research from multimodal perspective”, 2009-2010
- Karie Lau, “Nonverbal signals of emotion”, 2007-08
- Nathan Dahlin, “Vocal Beatbox Production Models”, 2007-08
- Jesse Hans, “Articulatory signatures of spontaneous speech phenomena”, 2007-08
- Matthew Tan, “Expressive Inging Voices”, 2007 Summer (from U California, Berkeley)
- Jeannette Chang, “Detecting Certainty in Problem Solving: Multimodal Processing”, 2006-2010
- Jeremy Chi-chun Lee, “Gesture information processing from motion capture”, 2006-2007
- Joshua Izumigawa, “Toward modeling multiperson interactions”, 2006-2007
- Celeste De Frietas, “Speech production modeling from real time MRI data”, 2006-2007
- Sharad Rao, “Audio modeling: Creating ontologies”, Summer 2005 (from U Illinois, Urbana-Champaign)
- David Hunt and Nathan Go, “Creating a novel speech production database”, 2005
- Nirali Shah, “Analysis of MRI Speech production data”, (2003-04)
- Jason Adams and Daylen Riggs, “Speech production”, (2004-05)
- Sonia Khurana, Marni Landes, Lewis Lawyer, “Children’s Interactive Multimedia Project”, (2003-04).
- Sonia Khurana and Talip Ucar, “Acoustic Analysis of Children’s speech”, (2002-03).
- Joe Tepperman, “Spoken Name Recognition”, (2002-03).
- Marni Landes, “Human factors for child machine interactions”, (2002-03).
- Abe Kazemzadeh, “Analysis of user behavior in spoken dialogs”, (2000-02). *Honor’s Thesis: Towards biological models for Linguistics: Human-computer dialog analysis and protein folding*
- Sudha Arunachalam (Neuroscience) and Dylan Gould (Linguistics), “Politeness and frustration language in child-machine interactions (2000-01)
- Joshua Katz (Annenberg) and Sonia Khurana (EE), “Experimental design and tools for investigating preschoolers talking to machines” (2001-02)
- Dylan Gould (Linguistics) and Ryan Cunningham (EE), “Design and collection of data for expressive speech synthesis” (2001-02)
- Ahmet Certen (EE) and Unal Erdem (EE), “Signal Analysis and User modeling for Query by Humming Systems”, (2001-02)

VISITING RESEARCH STUDENTS

- Sergi Hernanz, Technical University of Catalunya, Barcelona, 2004, “Robust Speaker Recognition” (Diploma Thesis)
- Matteo Gerosa, IRST/University of Padova, 2005, “Modeling and recognizing children’s speech (Ph.D)
- David Suunderman, Siemens, Germany, 2005, “Signal transformation for synthesis” (Ph.D.)
- Michael Grimm, Karlsruhe University, 2005, “Emotions in speech” (Ph.D.)
- Andreu Fernandez, Technical University of Catalunya, Barcelona, 2006, “Error propagation and models for speech recognition” (Diploma Thesis)
- Arthur Pouzet, “Speech Imaging and Acoustic Modeling”, 2006

- Tsuneo Kato, “Articulatory information driven Speech recognition”, KDDI/Japan, 2007-08
- Jorge Gilabert, “Spanish English Speech to Speech Translation”, University of Catalunya, Barcelona 2007-2008
- Carlos Molina, “Novel methods for speech assessment”, University of Chile, 2008 (Ph.D.)
- Chi-Sang Jung, “Speech Biometrics”, Yonsei University, 2009-10 (Ph.D.)
- Ozan Cakmak, “Affective computing form text”, Mustafa Kemal University, Turkey, 2011

Peer-reviewed Publications and Patents

Shrikanth S. Narayanan

Journals

1. Adela C. Timmons, Theodora Chaspari, Sohyun C. Han, Laura Perrone, Shrikanth S. Narayanan, and Gayla Margolin. Multimodal Detection of Conflict in Couples Using Wearable Technology. *IEEE Computer*. Special Issue on Quality-of-Life Technologies. March 2017.
2. Sajan Lingala, Yinghua Zhu, Yongwan Lim, Asterios Toutios, Yunhua Ji, Wei-Ching Lo, Nicole Seiberlich, Shrikanth Narayanan, Krishna Nayak. Feasibility of Spiral Through-Time GRAPPA for low latency accelerated Real-time MRI of speech. *Magnetic Resonance in Medicine*. 2017
3. Pavlos Papadopoulos, Andreas Tsiartas, Shrikanth Narayanan. Long-term SNR Estimation of Speech Signals in Known and Unknown Channel Conditions. *IEEE/ACM Transactions on Audio, Speech and Language Processing*. 2016
4. Christina Hagedorn, Michael Proctor, Louis Goldstein, Stephen M. Wilson, Bruce Miller, Maria Luisa Gorno Tempini, Shrikanth Narayanan. Characterizing Articulation in Apraxic Speech Using Real-time Magnetic Resonance Imaging. *Journal of Speech, Language, and Hearing Research*. 2016
5. Rahul Gupta, Karthik Audhkhasi, Zach Jacokes, Agata Rozga and Shrikanth Narayanan. Modeling multiple time series annotations based on ground truth inference and distortion. *IEEE Transactions on Affective Computing*. 2016
6. Tanaya Guha, Zhaojun Yang, Ruth Grossman and Shrikanth Narayanan. A Computational Study of Expressive Facial Dynamics in Children with Autism. *IEEE Transactions on Affective Computing*. 2016
7. Theodora Chaspari, Andreas Tsiartas, Panagiotis Tsilifis, and Shrikanth Narayanan. Markov Chain Monte Carlo Inference of Parametric Dictionaries for Sparse Bayesian Approximations. *IEEE Transactions on Signal Processing*. 2016
8. Naveen Kumar, Fatemeh Fazel, Milica Stojanovic and Shrikanth Narayanan. Online rate adjustment for adaptive random access compressed sensing of time-varying fields. *EURASIP Journal on Advances in Signal Processing*. 2016:48, 2016
9. Brian Pace, Michael Tanana, Bo Xiao, Aaron Dembe, Christina Soma, Mark Steyvers, Shrikanth Narayanan, David Atkins, and Zac Imel. What about the words?: Natural language processing in psychotherapy. *Psychotherapy Bulletin*, 50(1): 14-18, 2016
10. Daniel Bone, Somer Bishop, Matthew P. Black, Matthew S. Goodwin, Catherine Lord, Shrikanth S. Narayanan. Use of Machine Learning to Improve Autism Screening and Diagnostic Instruments: Effectiveness, Efficiency, and Multi-Instrument Fusion. *Journal of Child Psychology and Psychiatry*. 57(8): 927-937, August 2016
11. Zhaojun Yang and Shrikanth Narayanan. Modeling Dynamics of Expressive Body Gestures In Dyadic Interactions. *IEEE Transactions on Affective Computing*. 2016
12. Bo Xiao, Chewei Huang, Zac Imel, David Atkins, Panayiotis Georgiou, and Shrikanth Narayanan. A technology prototype system for rating therapist empathy from audio recordings in addiction counseling. *PeerJ Comput. Sci.* 2:e59, 2016

13. Asterios Toutios and Shrikanth Narayanan. Advances in real-time magnetic resonance imaging of the vocal tract for speech science and technology research. *APSIPA Transactions on Signal and Information Processing*. 2016.
14. Bo Xiao, Zac Imel, Panayiotis Georgiou, David Atkins and Shrikanth Narayanan. Computational Analysis and Simulation of Empathic Behaviors. A Survey of Empathy Modeling with Behavioral Signal Processing Framework. *Current Psychiatry Reports*. 2016
15. James Gibson, Athanasios Katsamanis, Francisco Romero, Bo Xiao, Panayiotis Georgiou, Shrikanth Narayanan. Multiple Instance Learning for Behavioral Coding. *IEEE Transactions on Affective Computing*, 2016
16. Abe Kazemzadeh, James Gibson, Panayiotis Georgiou, Sungbok Lee, Shrikanth Narayanan. A Socratic Epistemology for Verbal Emotional Intelligence. *PeerJ Comput. Sci.* 2:e40;DOI 10.7717/peerj-cs.40. 2016
17. S. Weusthoff, G. Gaut, M. Steyvers, D. C. Atkins, K. Hahlweg, J. Hogan, T. Zimmermann, M. S. Fischer, D. H. Baucom, P. Georgiou, S. Narayanan, and B. R. Baucom, The language of interpersonal interaction: An interdisciplinary approach to assessing and processing vocal and speech data. *The European Journal of Counselling Psychology*. 2016.
18. Clara M. Lajonchere, Barbara Y. Wheeler, Thomas W. Valente, Cary Kreutzer, Aron Munson, Shrikanth Narayanan, Abe Kazemzadeh, Roxana Cruz, Irene Martinez, Sheree M. Schragger, Lisa Schweitzer, Tara Chklovski, Darryl Hwang. Strategies for Disseminating Information on Biomedical Research on Autism to Hispanic Parents. *Journal of Autism and Developmental Disorders*, 46(3): 1038-1050, 2016
19. Sajan Lingala, Yinghua Zhu, Yoon-Chul Kim, Asterios Toutios, Shrikanth Narayanan, Krishna Nayak. A fast and flexible MRI system for the study of dynamic vocal tract shaping. *Magnetic Resonance in Medicine*. 2016
20. Rahul Gupta, Kartik Audhkhasi, Sungbok Lee and Shrikanth Narayanan. Detecting paralinguistic events in audio stream using context in features and probabilistic decisions. *Computer, Speech, and Language*. 36: 72-92, 2016
21. Rahul Gupta, Daniel Bone, Sungbok Lee and Shrikanth Narayanan. Analysis of engagement behavior in children during dyadic interactions using prosodic cues. *Computer, Speech, and Language*. 37: 47-66, 2016
22. Vikram Ramanarayanan, Maarten Van Segbroeck and Shrikanth S Narayanan. Directly data-derived articulatory gesture-like representations retain discriminatory information about phone categories. *Computer, Speech, and Language*. 36: 330-346, March 2016.
23. Adam Lammert and Shrikanth Narayanan. On short-time estimation of vocal tract length from formant frequencies. *PLoS ONE*, 10(7): e0132193, 2015
24. Bo Xiao, Zac Imel, Panayiotis Georgiou, David Atkins and Shrikanth Narayanan. "Rate my therapist": Automated detection of empathy in drug and alcohol counseling via speech and language processing. *PLoS ONE*, 10(12): e0143055. 2015
25. Florian Eyben, Klaus Scherer, Bjorn Schuller, Johan Sundberg, Elisabeth Andre, Carlos Busso, Laurence Devillers, Julien Epps, Petri Laukka, Shrikanth Narayanan, Khiat Truong. The Geneva minimalistic acoustic parameter set (GeMAPS) for voice research and affective computing. *IEEE Transactions on Affective Computing*, 2015.
26. Dogan Can, Rebeca A. Marín, Panayiotis Georgiou, Zac Imel, David Atkins and Shrikanth Narayanan. "It sounds like...": A Natural Language Processing Approach to Detecting Counselor Reflections in Motivational Interviewing. *Journal of Counseling Psychology*. 2015

27. Donna Spruijt-Metz, Cheng K.F. Wen, Gillian O'Reilly, Ming Li, Sangwon Lee, Adnar Emken, Urbashi Mitra, Murali Annavaram, Gisele Ragusa, Shrikanth Narayanan. Innovations in the Use of Interactive Technology to Support Weight Management. *Current Obesity Reports*. 2015
28. Ming Li, Jangwon Kim, Adam Lammert, Prasanta Ghosh, Vikram Ramanarayanan and Shrikanth Narayanan. Speaker verification based on the fusion of speech acoustics and inverted articulatory signals. *Computer, Speech, and Language*. 36: 196-211, March 2016
29. Bo Xiao, Panayiotis Georgiou, Brian Baucom and Shrikanth S. Narayanan. Head Motion Modeling for Human Behavior Analysis in Dyadic Interaction. *IEEE Transactions on Multimedia*. 17(7): 1107-1119, July 2015
30. Brian R. Baucom, Elisa Sheng, Andrew Christensen, Panayiotis Georgiou, Shrikanth Narayanan, David Atkins. Behaviorally-based couple therapies reduce emotional arousal during couple conflict. *Behaviour Research and Therapy*. 72: 49-55, September 2015
31. Sajan Lingala, Yinghua Zhu, Yoon-Chul Kim, Asterios Toutios, Shrikanth Narayanan, Krishna Nayak. Towards High Frame Rate Real-Time Magnetic Resonance Imaging of Speech Production. *SPIE News Room*, (invited article). 2015.
32. Angeliki Metallinou, Zhaojun Yang, Chi-Chun Lee, Carlos Busso, Sharon Carnicke and Shrikanth Narayanan. The USC CreativeIT Database of Multimodal Dyadic Interactions: From Speech and Full Body Motion Capture to Continuous Emotional Annotations. *Journal of Language Resources and Evaluation*. pp. 1-25, 2015
33. Maarten Van Segbroeck, Ruchir Travadi and Shrikanth Narayanan. Rapid Language Identification. *IEEE/ACM Transactions on Audio, Speech and Language Processing*. 23(7): 1118 - 1129, July 2015
34. Jangwon Kim, Asterios Toutios, Sungbok Lee and Shrikanth Narayanan. A kinematic study of critical and non-critical articulators in emotional speech production. *J. Acoust. Soc. Am.* 137(3): 1411-1429, March 2015.
35. Theodora Chaspari, Andreas Tsiartas, Leah I. Stein, Sharon A. Cermak, and Shrikanth S. Narayanan. Sparse Representation of Electrodermal Activity with Knowledge-Driven Dictionaries. *IEEE Transactions on Biomedical Engineering*. 62(3): 960-971, March 2015
36. Daniel Bone, Matthew S. Goodwin, Matthew P. Black, Chi-Chun Lee, Kartik Audhkhasi, and Shrikanth Narayanan. Applying Machine Learning to Facilitate Autism Diagnostics: Pitfalls and promises. *Journal of Autism and Developmental Disorders*. 45(5), 1121-1136, 2015
37. Perigrine Lord, Dogan Can, Michael Yi, Rebecca Marín, Christopher Dunn, Zac Imel, Panayiotis Georgiou, Shrikanth Narayanan, Mark Steyvers, and David Atkins. Advancing methods for reliably assessing motivational interviewing fidelity using the Motivational Interviewing Skills Code. *Journal of Substance Abuse Treatment*. 49: 50-57, 2015
38. Jangwon Kim, Naveen Kumar, Andreas Tsiartas, Ming Li and Shrikanth S. Narayanan. Automatic intelligibility classification of sentence-level pathological speech. *Computer, Speech, and Language*. 29(1): 132-144, 2015
39. Adam Lammert, Louis Goldstein Vikram Ramanarayanan, and Shrikanth Narayanan. Gestural control in the English past-tense suffix: an articulatory study using real-time MRI. *Phonetica*. 71 (4) :229–248, 2014 (*Editors Choice*)

40. Sungbok Lee, Alexandros Potamianos, and Shrikanth Narayanan. Developmental acoustic study of American English diphthongs. *J. Acoust. Soc. Am.* 136(4):1880-1894, October 2014.
41. Vikram Ramanarayanan, Adam Lammert, Louis Goldstein and Shrikanth Narayanan. Are articulatory settings mechanically advantageous for speech motor control? *PLoS ONE*, 9(8): e104168. doi:10.1371/journal.pone.0104168, 2014.
42. Naveen Kumar, Urbashi Mitra, and Shrikanth S. Narayanan. Robust object classification in underwater sidescan sonar images by using reliability aware fusion of shadow features. *IEEE Journal of Oceanic Engineering.* 2014.
43. Shrikanth Narayanan, Asterios Toutios, Vikram Ramanarayanan, Adam Lammert, Jangwon Kim, Sungbok Lee, Krishna Nayak, Yoon-Chul Kim, Yinghua Zhu, Louis Goldstein, Dani Byrd, Erik Bresch, Prasanta Ghosh, Athanasios Katsamanis, and Michael Proctor. Real-time magnetic resonance imaging and electromagnetic articulography database for speech production research (TC). *J. Acoust. Soc. Am.* 136(3): 1307-1311, September 2014.
44. Zhaojun Yang, Angeliki Metallinou and Shrikanth S. Narayanan. Analysis and Predictive Modeling of Body Language Behavior in Dyadic Interactions from Multimodal Interlocutor Cues. *IEEE Transactions on Multimedia.* 16(6): 1766-1778, October 2014.
45. Daniel Bone, Chi-chun Lee and Shrikanth S. Narayanan. Robust Unsupervised Arousal Rating: A rule-based framework with knowledge-inspired vocal features. *IEEE Transactions on Affective Computing.* 5(2): 201-213, April-June, 2014.
46. Ming Li and Shrikanth S. Narayanan. Simplified Supervised i-vector Modeling with application to Robust and Efficient Language Identification and Speaker Verification. *Computer, Speech, and Language.* 28(4): 940-958, July 2014
47. Kartik Audhkhasi, Andreas Zavou, Panayiotis Georgiou And Shrikanth Narayanan. Theoretical Analysis of Diversity in an Ensemble of Automatic Speech Recognition Systems. *IEEE/ACM Transactions on Audio, Speech and Language Processing.* 22(3), March 2014
48. Daniel Bone, Ming Li, Matthew P. Black and Shrikanth S. Narayanan. Intoxicated Speech Detection: A Fusion Framework with Speaker-Normalized Hierarchical Functionals and GMM Supervectors. *Computer, Speech, and Language.* 28(2): 375-391, March 2014
49. Jangwon Kim, Adam Lammert, Prasanta Ghosh, and Shrikanth Narayanan. Co-registration of speech production datasets from electromagnetic articulography and real-time magnetic resonance imaging. *J. Acoust. Soc. Am.* 135(2): EL115-EL121, February 2014.
50. Daniel Bone, Matthew P. Black, Chi-Chun Lee, Marian E. Williams, Pat Levitt, Sungbok Lee and Shrikanth Narayanan. The Psychologist as an Interlocutor in Autism Spectrum Disorder Assessment: Insights from a Study of Spontaneous Prosody. *Journal of Speech, Language, and Hearing Research.* 57:1162-1177, August 2014
51. Chi-Chun Lee, Athanasios Katsamanis, Matthew P Black, Brian R Baucom, Andrew Christensen, Panayiotis G Georgiou and Shrikanth S Narayanan. Computing Vocal Entrainment: A Signal-derived PCA-based Quantification Scheme with Application to Affect Analysis in Married Couple Interactions. *Computer, Speech, and Language.* 28(2): 518-539, March 2014
52. Carlos Busso, Soroosh Mariooryad, Angeliki Metallinou and Shrikanth Narayanan. Iterative Feature Normalization Scheme for Automatic Emotion Detection from Speech. *IEEE Transactions on Affective Computing.* 4(4):386-397S, October 2013.

53. Nikolaus Malandrakis, Alexandros Potamianos, Elias Iosif, and Shrikanth Narayanan. Distributional Semantic Models for Affective Text Analysis. *IEEE Transactions on Audio, Speech and Language Processing*. 21(11): 2379-2392, November 2013
54. Yihe Zu, Shrikanth Narayanan, Yoon-Chul Kim, Krishna Nayak, Christina Bronson-Lowe, Brenda Villegas, Melody Ouyoung, Uttam Sinha. Evaluation of swallow function post tongue cancer treatment using real-time MRI: A pilot study. *JAMA Otolaryngology - Head & Neck Surgery*. 139(12):1312-1319, December 2013
55. Adam Lammert, Michael Proctor and Shrikanth Narayanan. Interspeaker Variability in Hard Palate Morphology and Vowel Production. *Journal of Speech, Language, and Hearing Research*. 56(6): 1924-1933, December 2013
56. Vikram Ramanarayanan, Louis Goldstein, and Shrikanth Narayanan. Spatio-temporal articulatory movement primitives during speech production -- extraction, interpretation and validation. *J. Acoust. Soc. Am.* 134(2): 1378-1394, August 2013.
57. Prasanta Ghosh and Shrikanth Narayanan. On smoothing articulatory trajectories obtained from Gaussian Mixture Model based acoustic-to-articulatory inversion. *J. Acoust. Soc. Am.* 134(2): EL258-EL264, August 2013.
58. Vikram Ramanarayanan, Louis Goldstein, Dani Byrd, and Shrikanth Narayanan. An investigation of articulatory setting using real-time magnetic resonance imaging. *J. Acoust. Soc. Am.* 134(1): 510-519, July 2013.
59. Gaël Richard, Shiva Sundaram and Shrikanth Narayanan. An Overview on Perceptually Motivated Audio Indexing and Classification. *Proceedings of IEEE*. 101(9): 1939 - 1954, September 2013.
60. Abe Kazemzadeh, Sungbok Lee, and Shrikanth Narayanan. Fuzzy Logic Models for the Meaning of Emotion Words. *IEEE Computational Intelligence Magazine*. Special Issue on Computational Intelligence and Affective Computing. 8(2): 34-49, May 2013.
61. Shrikanth Narayanan and Panayiotis Georgiou. Behavioral Signal Processing: Deriving Human Behavioral Informatics from Speech and Language. *Proceedings of IEEE*. 101(5): 1203 - 1233, May 2013.
62. Michael Proctor, Erik Bresch, Dani Byrd, Krishna Nayak, and Shrikanth Narayanan. Paralinguistic Mechanisms of Production in Human 'Beatboxing': a Real-time Magnetic Resonance Imaging Study. *J. Acoust. Soc. Am.* 133(2): 1043-1054, 2013.
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SAIL research reported in the public media

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Research led by Shri Narayanan with his SAIL members and collaborators has received local/national/international media attention (print, online and broadcast radio/television):

Media Informatics (2015-2016)

The work on media content analysis and informatics related to gender representations in feature films has been reported in *New York Times*, *Washington Post*, *NPR/KPCC*, *NBC* among other venues.

Behavioral Informatics and Applications in Health (2008-ongoing)

The work on behavioral informatics and its application in the domain of family studies, Autism Spectrum Disorders and Addiction counseling has received broad media mention in numerous venues including *Washington Post*, *Wall Street Journal*, *Huffington Post*, *Business Insider*, *Science Today*, *Daily Telegraph*, *The Mail*, *Times of India*, *Social Work Today*,...

Beatboxing (2013-15)

The work on beatboxing has received mention in *Science update*, *BBC*, *Wired*, *NPR*, *Fox news*, *Popular Science*, *LA Times*, *Discovery Channel Daily Planet* among other venues.

Speech Translation (2005-07)

The work on speech to speech translation has been reported in *Business Week*, *KCET TV*, and a number of print/online outlets including *Ventura County Star*, *Persian Journal*, *Clinical Window Journal* and the *Daily Trojan*.

Emotion Recognition (2004-08)

The work on automatic emotion detection has been highlighted in television (*MSNBC*, *CBS*, *CNN*, *KCAL-Los Angeles*), radio (*BBC*, *Australian Broadcast Corporation*, *National Public Radio*, *Irish National Radio* and other local stations in the USA such as in Los Angeles *KPCC*, and Boston/Rhode Island) and print media (*MIT Technology Review*, *Wired*, *Newsweek*, *Financial Times of London*, *Australian Financial Review*, *Inc. Magazine*, *German Focus*, *Italian Panorama*, *Miami Herald*, *New Yorker*).

Language Training (2004-05)

The work on language training using speech recognition and virtual reality technologies has appeared on *ABC*, *NPR*, *NY Times*, *IEEE Intelligent Systems*.

Expressive Synthesis (2005)

National Academy of Engineering Radio (WTOP Baltimore), *BBC 4* and *BBC World Service*, *Baltimore Sun*

Speech Production (2004,2008)

USC College Magazine, *Medical Science News*, *ADVANCE for Speech-Language Pathologists & Audiologists*.

Interdisciplinary Research (2004,2007,2008)

USC Daily Trojan, *USC Trojan Family Magazine*, *USC Chronicle*, *USC Engineer*, *USC College Magazine*