Curriculum Vitae

Nima Mesgarani

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Field of specialization

Neurobiology of language, auditory neuroscience, speech processing technologies, brain-computer interfaces, computational and systems neuroscience

Education

2005-2008	Ph.D., Electrical and Computer Engineering, University of Maryland, College Park, MD, Advisor: Professor Shihab Shamma
2002-2005	M.Sc. Electrical and Computer Engineering, University of Maryland, College Park, MD, Advisor: Professor Shihab Shamma
1994-1999	B.Sc. Electrical Engineering, Sharif University of Technology, Tehran, Iran

Positions

2017-present	Principal Investigator, Zuckerman Mind Brain Behavior Institute (ZMBBI), Columbia University
2017-present	Associate Professor, Department of Electrical Engineering, Columbia University, New York, NY
2013-present	Principal Investigator, Neural Acoustic Processing Laboratory, Columbia University
2013-2017	Assistant Professor, Department of Electrical Engineering, Columbia University, New York, NY
2010-2013	Postdoctoral Scholar, Department of Neurological Surgery, University of California San Francisco, CA, Advisor: Dr. Edward Chang
2008-2010	Postdoctoral Scholar, Center for Language and Speech Processing, Johns Hopkins University, MD, Advisor: Dr. Hynek Hermansky
2007, summer	Research Internship, IBM T. J. Watson Research Center, New York, Speech technology group
2005-2008	Laboratory Assistant, Neural systems Laboratory, Institute for Systems Research, University of Maryland College Park
1998-2001	Research and Development supervisor, Tavaan Corporation, Tehran, Iran

Awards and recognitions

2019	Annual invited distinguished speaker, SHBT, Harvard Medical School
2019	Featured on NIH Director's Blog
2018	Grand prize winner at NYC Media Lab for mind-controlled hearing aid project
2018	Opening keynote speaker at the International Hearing Aid Research Conference, IHCON, California
2018	Plenary Perspective Speaker at the International Speech Communication Conference (Interspeech), India
2018	Young Investigator Award, Advances and Perspectives in Auditory Neuroscience, San Diego
2018	Top 10 most significant and promising tech innovators of the year award, UNICEF-NETEXPLO
2016	Faculty Early Career Development Award, National Science Foundation
2015	Pew Scholar in Biomedical Sciences Award, Pew Charitable Trust
2015	Professeur invité à l'École Normale, Supérieure, Paris
2007	Best Student Speaker Award, Electrical and Computer Engineering Graduate Student Association seminar series, University of Maryland
2005	George Harhalakis Outstanding Systems Engineering Graduate Student Award for Outstanding Contribution in Cross-disciplinary Research, Institute for System Research, University of Maryland
2005	Winner of the Golden Goose award for major contribution towards the enhancement of the graduate student experience, University of Maryland
1995	Sharif University Outstanding Undergraduate Fellowship
1994	Ranked among top %0.01 among participants in nationwide Iranian university entrance exam

Teaching (year , number of students , median evaluation out of 5.00)

ELEN6820:	Speech and Audio Signal Processing
	(Spring 2019, 38, 5.00 [midterm evaluation])
	(Spring 2017, 21, 4.79)
	(Spring 2015, 26, 4.60)
ECBME4090:	Brain Computer Interfaces Laboratory (new laboratory course)
	(Fall 2018, 19, 5.00)
	(Fall 2017, 17, 4.70)
	(Fall 2016, 15, 4.50)
EEBME9070:	Advanced Topics: Bio-Inspired Computation (new course)
	(Spring 2016, 9, no evaluation)

Experience as advisor

Postdoctoral Scholar:

Sam Norman-haignere, Zuckerman Institute, 2018-present

James O'Sullivan, Zuckerman Institute, 2014-2019 (Now at Roche)

PhD Graduates:

Zhuo Chen, Electrical Engineering, 2017 (now at Microsoft Research, Redmond)

PhD Candidates:

Tasha Nagamine, Electrical Engineering, (expected 2020)

Bahar Khalighinejad, Electrical Engineering (expected 2021)

Laura Long, Neurobiology and Behavior program, (expected 2021)

Prachi Patel, Electrical Engineering, (expected 2022)

Yi Luo, Electrical Engineering, (expected 2022)

Menoua Keshishian, Electrical Engineering, (expected 2023)

Vinay Raghvan, Electrical Engineering, (expected 2024)

M.Sc. candidates:

Hassan Akbari, Wenhao Zhang, Hanyu Li, Haoyue Bai, Winston Mann, Minda Yang, Yi Luo, Rashida Tamiza, Guilherme Da Silva, Sarat Vysyaraju, Jungsik Kang, Malika Datta, Prachi Patel, Richard Warren, Zhong Zhuang, Yuzhou Cheng, Joshua Finer, Josiah Hutchinson

B.Sc. students:

Kathleen Gao, Michael Mournighan, Ignas Kazilas, James Olsen, Conrad Richardson, Arnold Hwang Jessy Lin, Kathleen Gao, Nathan Gubser, Dominique Evans

Experience as examiner:

Theresa Lye (2019), Ph.D., Electrical Engineering Department

Yow-Tyng Yeh (2019), Ph.D. Candidate in Neurobiology and Behavior Program

Anish Potnis (2018), Ph.D. Candidate in Systems Biology Program

Lev Givon (2016), Ph.D., Electrical Engineering Department

Josh Merrel (2016), Ph.D., Neurobiology and Behavior Program

Nina Lam So (2015), Ph.D., Neurobiology and Behavior Program

Collin Raffel (2016), Ph.D., Electrical Engineering Department

Linbi Hong (2015), Ph.D. proposal, Biomedical Engineering Department

Nikul H. Ukani, (2015), Ph.D. proposal, Electrical Engineering Department

Yiyin Zhou (2015), Ph.D. proposal, Electrical Engineering Department

Society memberships

2006- Society for Neuroscience

2003- Institute of Electrical and Electronic Engineers

2005- Association for Research in Otolaryngology

2004- Phi Kappa Phi

2004- Who's Who in Science and Engineering

Columbia university services

Intellectual Life committee, Zuckerman Mind Brain Behavior Institute
Neurobiology and Behavior graduate student committee, Zuckerman Mind Brain Behavior Institute
Master of science admission committee, Electrical Engineering Department
Undergraduate advising committee, Electrical Engineering Department
Teaching laboratories committee, Electrical Engineering Department
ABET 2018, Electrical Engineering Department
Newsletter and website design committee, Electrical Engineering Department
Distinguished lectures invitation committee, Electrical Engineering Department

Journal publications (underline denotes the supervised student or postdoc)

- Keshishian, M., Akbari, H., Khalighinejad, B., Herrero, J., Mehta, A., Mesgarani, N., Characterizing the nonlinear properties of speech processing in the human auditory cortex, *Neuron, submitted*
- O'Sullivan, J., Herrero, J., Hansen, E., Schevon, C., Mehta, A., Mesgarani, N., Hierarchical representation of auditory objects in the human auditory cortex, *Neuron, in review*
- Khalighinejad, B., Herrero, J., Mehta, A., Mesgarani, N., Adaptive noise reduction in the human auditory cortex, *Nature Communication, in revision*
- Lu, Y., Mesgarani, N., TASNet: Surpassing ideal time-frequency masking in real-time speech separation, *in revision, IEEE Journal for Speech and Audio Signal Processing*
- Nagamine, T., Keshishian, M., Mesgarani, N., Characterizing feedforward neural networks via sample-dependent linear transforms, *Neural Networks, In review*
- Han, C., O'Sullivan, J., Lu, Y., Herrero, J., Mehta, A., Mesgarani, N., Speaker independent auditory attention decoding without access to clean sources, *Science Advances, in Press*
- Akbari, H., Khalighinejad, B., Herrero, J., Mehta, A., Mesgarani, N., Towards reconstructing intelligible speech from the human auditory cortex, *Scientific Reports*, 9(1), 847, 2019
- Patel, P., Long, L., Herrero, J., Mehta, A., Mesgarani, N., Joint representation of spatial and phonetic features in human core auditory cortex, *Cell Reports,* 24(8), 2051-2062, 2018
- Luo, Y., Chen, Z., Mesgarani, N., Speaker-independent Speech Separation with Deep Attractor Network. *IEEE/ACM Transactions on Audio, Speech, and Language Processing*., 2018
- Khoshkhoo, S., Leonard, M.K., Mesgarani, N. and Chang, E.F., Neural correlates of sine-wave speech intelligibility in human frontal and temporal cortex. *Brain and Language*., 2018
- O'Sullivan, J., Chen, Z, Herrero, J., McKhann, M. G., Sheth, A. S., Mehta, A. D., Mesgarani, N., Neural decoding of attentional selection in multi-talker environments without access to clean sources, *Journal of Neural Engineering*, 2017
- Khalighinejad, B., Cruzatto da Silva, G., Mesgarani, N., Dynamic Encoding of Acoustic Features in Neural Responses to Continuous Speech, (2017), Journal of Neuroscience
- Yildiz, I., Mesgarani, N., Deneve, S., Predictive ensemble decoding of acoustical features explains context dependent receptive fields, (2016), Journal of Neuroscience
- Moses, D., Mesgarani, N., Leonard, M., Chang, E., (2016), Continuous phoneme decoding using spatiotemporal representation of human cortical activity, Journal of Neural Engineering

- Hullet, P., Hamilton, L., Mesgarani, N., Schreiner, C., Chang, E., (2016), Human superior temporal gyrus organization of spectrotemporal modulation tuning derived from speech stimuli, The Journal of Neuroscience, 36.6: 2014-2026
- Zai, A., Bhargava, S., Mesgarani, N., & Liu, S. C. (2015). Reconstruction of audio waveforms from spike trains of artificial cochlea models. *Frontiers in Neuroscience*, *9*, 347.
- Mesgarani, N. (2014). Stimulus Reconstruction from Cortical Responses. In *Encyclopedia of Computational Neuroscience* (pp. 1-3). Springer New York.
- Suied, C., Agus, T. R., Thorpe, S. J., Mesgarani, N., & Pressnitzer, D. (2014). Auditory gist: Recognition of very short sounds from timbre cues. *The Journal of the Acoustical Society of America*, *135*(3), 1380-1391.
- Mesgarani, N., Cheung, C., Jonson, K., Chang, E. F., (*2014*), Phonetic feature encoding in human superior temporal gyrus, *Science* 1245994
- Mesgarani, N., David, S. V., Fritz, J., Shamma, S., (2014), "Mechanisms of noise robust Representation of Speech in Primary Auditory Cortex", *Proceedings of the National Academy of Sciences (PNAS),* 111.18
- O'Sullivan, J. A., Power, A. J., Mesgarani... & Lalor, E. C. (2014). Attentional selection in a cocktail party environment can be decoded from single-trial EEG. *Cerebral Cortex*
- Bouchard, K., Mesgarani, N., Johnson, K., Chang, E. F., (*2013*), "Functional Organization of Human Ventral Sensorimotor Cortex in Speech Articulation", *Nature* 1476
- Mesgarani, N., Chang, E. F., (*2012*) "Selective cortical representation of attended speaker in multi-talker speech perception", *Nature* 485
- Pasley, B., David, S., Mesgarani, N., Flinker, A., Shamma, S., Crone, N., Knight, R., Chang, E., (2012), Reconstructing speech from human auditory cortex. *PLoS-Biology* 10
- Mesgarani, N., Thomas, S., & Hermansky, H. (2011). Toward optimizing stream fusion in multistream recognition of speech. *The Journal of the Acoustical Society of America*, *130*(1), EL14-EL18
- Sivaram, G. S., Nemala, S. K., Mesgarani, N., & Hermansky, H. (2010). Data-driven and feedback based spectro-temporal features for speech recognition. *Signal processing Letters, IEEE*, *17*(11), 957-960
- Mesgarani, N., David, S. V., Fritz, J. B., & Shamma, S. A. (2009). Influence of context and behavior on stimulus reconstruction from neural activity in primary auditory cortex. *Journal of neurophysiology*, *102*(6), 3329-3339
- Mesgarani, N., Fritz, J., & Shamma, S. (2010). A computational model of rapid task-related plasticity of auditory cortical receptive fields. *Journal of computational neuroscience*, *28*(1), 19-27
- David, S. V., Mesgarani, N., Fritz, J. B., & Shamma, S. A. (2009). Rapid synaptic depression explains nonlinear modulation of spectro-temporal tuning in primary auditory cortex by natural stimuli. *The Journal of Neuroscience*, *29*(11), 3374-3386
- David, S. V., Mesgarani, N., & Shamma, S. A. (2007). Estimating sparse spectro-temporal receptive fields with natural stimuli. *Network: Computation in Neural Systems*, *18*(3), 191-212
- Mesgarani, N., David, S. V., Fritz, J. B., & Shamma, S. A. (2008). Phoneme representation and classification in primary auditory cortex. *The Journal of the Acoustical Society of America*, *123*(2), 899-909

- Mesgarani, N., & Shamma, S. (2007). Denoising in the domain of spectrotemporal modulations. *EURASIP Journal on Audio, Speech, and Music Processing*, *2007*(3), 3
- Mesgarani, N., Slaney, M., & Shamma, S. (2006). Discrimination of speech from non-speech based on multiscale spectro-temporal modulations. *Audio, Speech, and Language Processing, IEEE Transactions on*, *14*(3), 920-930

Peer-reviewed conference publications (underline denotes the supervised student or postdoc)

- Han. C., Lu, Y., Mesgarani, N., Online deep attractor network for real-time single-channel speech separation, in Proc. *IEEE Int. Conf. Acoust. Speech and Signal Process*. 2019
- Lu, Y., Mesgarani, N., Augmented time-frequency mask estimation in cluster-based source separation algorithms, in Proc. *IEEE Int. Conf. Acoust. Speech and Signal Process*. 2019
- Lu, Y., Mesgarani, N., Real-time single-channel dereverberation and separation with time-domain audio separation network, in Proc. International Speech Communication Research (Interspeech), India, 2018
- Kumar, R., Luo, Y., Mesgarani, N., Music source activity detection and separation using deep attractor network, in Proc. International Speech Communication Research (Interspeech), India, 2018
- Akbari, H., Arora, H., Cao, L. and Mesgarani, N., Lip2AudSpec: Speech reconstruction from silent lip movements video. in Proc. *IEEE Int. Conf. Acoust. Speech and Signal Process*. 2018
- Luo, Y. and Mesgarani, N., TasNet: time-domain audio separation network for real-time, single-channel speech separation. in Proc. *IEEE Int. Conf. Acoust. Speech and Signal Process*. 2018
- Nagamine, T. and Mesgarani, N., Understanding the Representation and Computation of Multilayer Perceptrons: A Case Study in Speech Recognition. In *International Conference on Machine Learning* (*ICML*) (pp. 2564-2573). 2017
- O'Sullivan, J., Chen, Z., Herrero, J., Sheth, S., McKann, G., Mehta, A., Mesgarani, N. (2017), neural decoding of attentional selection in multi-speaker environments without access to separated sources, International Conference of the IEEE Engineering in Medicine and Biology Society
- Khalighinejad, B., Nagamine, T., Mehta, A, Mesgarani, N., (2017), NapLib: An open source toolbox for real-time and offline neural acoustic processing, International Conference of Acoustic, Speech and Signal Proc (ICASSP)
- Chen, Z., Luo, Yi, Mesgarani, N., (2017), An attractor network for single microphone speech separation, International Conference of Acoustic, Speech and Signal Proc (ICASSP)
- Luo, Yi, Chen, Z., Le Roux, J., Hershey, J., Mesgarani, N., (2017), Monaural singing voice separation using deep clustering, International Conference of Acoustic, Speech and Signal Proc (ICASSP)
- Nagamine, T., Chen, Z., Mesgarani, N., (2016), Adaptation of neural networks constrained by prior statistics of node co-activations, In Sixteenth Annual Conference of the International Speech Communication Association, San Francisco, CA
- Nagamine, T., Seltzer, M., Mesgarani, N., (2016), On the Role of Nonlinear Transformations in Deep Neural Network Acoustic Models, In Sixteenth Annual Conference of the International Speech Communication Association, San Francisco, CA
- Khalighinejad, B., Long, L., Mesgarani, N., (2016), Designing a Hands-On Brain Computer Interface Laboratory Course, Engineering in Medicine and Biology Conference Management System, Florida
- Zhang, W., Li, H., Yang, M., Mesgarani, N., (2016), Synaptic depression in deep neural networks for speech processing, *Proc. of Acoustic, Speech and Signal Proc. (ICASSP)*, Shanghai, China

- Rasanen, O., Nagamine, T., Mesgarani, N., (2016), Analyzing distributional learning of phonetic categories in unsupervised deep neural networks, Cognitive Science Conference, Philadelphia, PA
- Nagamine, T., Seltzer, M. L., Mesgarani, N. (2015). Exploring How Deep Neural Networks Form Phonemic Categories. In Fifteen Annual Conference of the International Speech Communication Association, Dresden, Germany
- Yang, M., Sheth, S. A., Schevon, C. A., II, G. M. M., & Mesgarani, N. (2015). Speech reconstruction from human auditory cortex with deep neural networks. In *Sixteenth Annual Conference of the International Speech Communication Association*.
- Chang, Y., Edwards, E., Morgan, N., Ellis, D., Mesgarani, N., Chang, E., (2015), Phoneme recognition for mixed speech signals: comparison of human auditory cortex and machine performance, International Computer Science Institute, Berkley, CA, TR-15-002
- Mahajan, N., Mesgarani, N., & Hermansky, H. (2014). Principal Components of Auditory Spectro-Temporal Receptive Fields. In *Fifteenth Annual Conference of the International Speech Communication Association*.
- Plchot, Oldrich, et al. "Developing a speaker identification system for the DARPA RATS project." *ICASSP*. 2013
- Ng, T., Zhang, B., Nguyen, L., Matsoukas, S., Zhou, X., Mesgarani, N., ... & Matejka, P. (2012, September). Developing a Speech Activity Detection System for the DARPA RATS Program. In *INTERSPEECH*.
- Mesgarani, N., Chang, E. F., (2012), "Speech and speaker separation in human auditory cortex", *Interspeech*, Portland
- Zhou, X., Garcia-Romero, D., Mesgarani, N., Stone, M. C., Espy-Wilson, C. Y., & Shamma, S. A. (2012). Automatic intelligibility assessment of pathologic speech in head and neck cancer based on auditory-inspired spectro-temporal modulations. In *Interspeech*.
- Thomas, S., Mallidi, S. H. R., Janu, T., Hermansky, H., Mesgarani, N., Zhou, X., ... & Matsoukas, S. (2012). Acoustic and Data-driven Features for Robust Speech Activity Detection. In *INTERSPEECH*.
- Hermansky, H., Mesgarani, N., & Thomas, S. (2011, June). Performance monitoring for robustness in automatic recognition of speech. In *MLSLP* (pp. 31-34).
- Mesgarani, N., Thomas, S., & Hermansky, H. (2011, August). Adaptive Stream Fusion in Multistream Recognition of Speech. In *INTERSPEECH* (pp. 2329-2332).
- Mesgarani, N., & Shamma, S. (2011, May). Speech processing with a cortical representation of audio. In *Acoustics, Speech and Signal Processing (ICASSP), 2011 IEEE International Conference on* IEEE.
- Mesgarani, N., Shamma, S., (2010) "Noise Robust Encoding of Speech in Primary Auditory Cortex", in proc. of IEEE Asilomar Conference on Signals, Systems and Computers, Asilomar, CA
- Jansen, A., Mesgarani, N., Niyogi, P., (2010), "Point Process Models of Spectro-Temporal Modulation Events for Speech Recognition", in proc. Of IEEE Asilomar Conference on Signals, Systems and Computers, Asilomar, CA
- Mesgarani, N., Thomas, S., Hermansky, H., (2010), "A multistream multiresolution framework for phoneme recognition", *International Conference on Speech and Language (Interspeech)*, Makuhari, Japan
- Thomas, S., Patil, K., Ganapathy, S., Mesgarani, N., & Hermansky, H. (2010). A phoneme recognition framework based on auditory spectro-temporal receptive fields. In *INTERSPEECH* (pp. 2458-2461).
- Liu, S., Mesgarani, N., Hermansky, H., (2010), "The use of spike-based representations for hardware audition systems, IEEE International Symposium on Circuit and Systems, (ISCAS), France

- Mirbagheri, M., Mesgarani, N., Shamma, S., (2010), "Speech enhancement using nonlinear filtering of spectrotemporal representation", *IEEE International Conference on Acoustic, Speech and Signal Processing (ICASSP)*, Dallas (Cited 29)
- Sivaram, G., Nemala, S., Mesgarani, N., Elhilali, M., Hermansky, H., (2010), "Augmented discriminant spectrotemporal features for speech recognition", IEEE *Int. Conference on Acoustic, Speech and Signal Processing (ICASSP),* Dallas
- Mesgarani, N., Sivaram, G., Hermansky, H., *(2009)* "Discriminant spectrotemporal features for phoneme recognition", *International Conference on Speech and Language (Interspeech)*, U.K.
- Mesgarani, N., Elhilali, M., Shamma, S., (2008) "Encoding of phonemes in the auditory cortex (and its implications for robust speech perception and recognition)", *International conference on speech and language (Interspeech)*, Australia
- Mesgarani, N., David, S., Shamma, S., (2007) "Representation of phonemes in primary auditory cortex: how the brain analyzes speech", *IEEE International Conference on Acoustic, Speech and Signal Processing (ICASSP)*, Hawaii
- Rifkin, R., Mesgarani, N., (2006) "Discriminating Speech and Non-Speech with Regularized Least Squares", *International Conference on Spoken Language Processing (ICSLP)*, Pittsburg
- Mesgarani, N., Shamma, S., (2005) "Speech enhancement based on filtering the spectrotemporal modulations", *IEEE International Conference on Acoustic, Speech and Signal Processing (ICASSP)*, Philadelphia
- Mesgarani, N., Slaney, M., Shamma, S., (2004) "Speech discrimination based on multiscale spectro-temporal features", *IEEE International Conference on Acoustic, Speech and Signal Processing (ICASSP)*, Montreal (Cited 57)
- Mesgarani N., Shamma, S., (2003) "Birdcall classification using a multi-resolution auditory model", *International Conference on Acoustic Communication by Animals*, College Park
- Mesgarani, N., Grant, K., Shamma, S., Duriswami, S., (2003) "Augmented intelligibility in simultaneous multi-talker environments", *International Conference on Auditory Display (ICAD)*, Boston
- Duraiswami, R., Zotkin, D., Mesgarani, N., Shamma, S., Grant, K., Davis, L., (2003) "Extending the visual field via perceptually-processed audio in high-bandwidth user interfaces", *Symposium On Risk Management and Cyber-Informatics*, Orlando
- Movahedian, H., Mesgarani, N., Abdolvand, R., Rahnavard, N., (2000) "Digital Line Isolation Monitor for Operating rooms", *Iranian International Conference of Electrical Engineering*. Tehran

Patents (underline denotes the supervised student or postdoc)

- Mesgarani, N., Luo, Y., O'Sullivan, J., Chen, Z., Systems and methods for speech separation and neural decoding of attentional selection in multi-speaker environments, *United States Patent*, US20190066713A, 2019
- Mesgarani, N., Luo, Y., Time-domain Audio separation network, Patent pending, 2018
- Mesgarani, N, Shamma, S., "Discrimination of components of audio signals based on multiscale spectro-temporal modulation", *United States Patent* 7,505,902, 2009

Prior, current, and pending grants

- 2019-2024 National Institute of Health (NIDCD), R01, Pending. Role: Site PI (multiple PI)($125k) (with Oregon Health and Science University)
- 2019-2024 National Institute of Health (NIDCD), R01, Pending. Role: Co-PI ($125k) (with University of Maryland)
- 2016-2021 National Institute of Neurological Disorders and Stroke (NINDS), U01, Role: Co-PI ($30k), PI: Charles Schroeder
- 2017-2021 National Institute of Mental Health (NIMH), R21-500771, $250, Role: Co-PI ($125k), PI: Ashesh Mehta
- 2018-2020 MIT-Lincoln Labs, $320k, Role: Co-PI ($160k), PI: Christopher Smalt
- 2018-2019 Columbia Technology Transfer Office, $72k, Role: PI
- 2017-2018 Starkey Laboratories, $50k, Role: PI
- 2016-2021 National Science Foundation (NSF) IIS-1555079, Faculty Early Career Development Award, $500k, Role: PI
- 2016-2018 Collaborative and Multidisciplinary Pilot Research Award for Basic Science and Clinical/Translational Investigators (CaMPR BASIC), Irving Institute, $40k, Role: PI
- 2015-2020 Pew Charitable Trust, Pew Scholar in the Biomedical Sciences Award, $270k, Role: PI
- 2014-2020 National Institute of Health, Deafness and Other Communication Disorders (NIH-NIDCD), R01-DC014279, $1.4M, Role: PI, Co-PIs: Sameer Sheth, Guy McKhann, Catherine Schevon
- 2015-2017 Research Initiatives in Science and Engineering Award (RISE), Columbia University, $160k, Role: PI, Co-PI: Sameer Sheth
- 2015-2016 Kavli Institute for Brain Science Award, Kavli Institute, $40k, Role: Co-PI. PI: Sarah Woolley
- 2009-2011 Intelligence Advanced Research Projects Activity (IARPA), $800k, Role: Co-PI. PI: Shihab Shamma

Invited talks

2019

- Plenary speaker, International EMBS Conference on Neural Engineering, San Francisco
- Annual invited distinguished speaker, Speech and Hearing Bioscience and Technology (SHBT), Harvard University
- PEW Charitable Trust scholars in biomedical sciences, Florida
- Data Science Day at Columbia University
- Auditory EEG signal processing symposium, Belgium

2018

- Perspective Plenary Speaker, International Speech Communication Associate Conference (Interspeech), Hyderabad, India
- Attention to Sound, United Kingdom
- Plenary Speaker, Deep learning to accelerate biomedical research, The New York Academy of Sciences
- Opening Keynote Speaker, International Hearing Aid Research Conference (IHCON), Lake Tahoe
- Acoustical Society of America, Minneapolis
- Hearing Loss Association of America, Minneapolis

- Top 10 innovation of the year meeting presentation, UNICEF, Paris

2017

- Signal and Noise along the Auditory Pathway (SNAP), Lubek, Germany
- Indian Institute of Science (IISC), Bangalore
- Association for Research in Otolaryngology (ARO), Baltimore
- Speech Representation, Perception, Recognition Workshop, Center for Brains Minds and Machines (CBMM), Boston
- Computational Music Department, New York University

2016

- Distinguished speaker, Future of Hearing Symposium, Oldenburg
- Speech and Audio in the North East, MIT, Boston
- Department of Otolaryngology, Head and Neck surgery, Columbia University
- Functional Neurosurgery, Neuroscience, and Neuromodulation Update, New York
- CNRS-NTT Joint Seminar, Bourron-Marlotte
- Laboratoire des systemes perceptifs, Paris
- International Workshop on Brain Computer Interfaces, Asilomar, California
- Group for Neural Theory, École Normale, Supérieure, Paris
- Keynote Speaker, Brain Awareness Week, Dana Foundation, New York
- Starkey Hearing Technologies, Minneapolis, MN
- Pew Biomedical Scholars workshop

2015

- Keynote Speaker, IEEE Workshop on Application of Signal Processing to Speech and Audio (WASPAA), New York
- Keynote Speaker, Jelinek Summer Workshop on Speech and Language Technology, Seattle
- Carnegie Mellon University, Computer Science Department, Pittsburg
- University of Pennsylvania, Department of Psychology, Philadelphia
- Future of Neural Interfaces, DARPA, New York
- 13th Annual Eastern Auditory Retreat, Rutgers University
- Association for Research in Otolaryngology, Baltimore
- Neuromorphic Engineering Workshop, Telluride, Colorado

2014

- Toyota Research Center, University of Chicago, Chicago
- Cornel Medical Center, New York
- NYU Medical Center, New York
- Microsoft Faculty Research Summit, Frontiers in Speech Technologies session, Redmond
- Applied Physics Lab, Johns Hopkins University, Baltimore
- Grossman Workshop on Quantifying Structure in Large Neural Datasets, New York
- Language and Cognition Lecture Series, Barnard College, New York
- Neuro-inspired Computational Elements Workshop, Sandia National Labs, New Mexico

2013

- IBM Watson Research Center, New York
- Center for Language and Speech Technologies, Johns Hopkins University

- Advances and Perspectives in Auditory Neurophysiology, Chicago
- University of Washington, Seattle
- Workshop on Computational and Experimental Auditory Neuroscience, Boston
- Astronomy department of California State University

Prior to 2012

- Keynote speaker at Workshop on Statistical and Perceptual Audition, Portland
- Workshop on Mathematical Models of Sound Analysis, Paris
- Ear Club Lecture Series, University of California Berkeley
- ETH Zurich, Switzerland
- Microsoft Research, Redmond, Seattle
- International Computer Science Institute, UC. Berkeley
- Center for Computer Research in Music and Acoustics, Stanford University
- Machine Hearing Research Group, Google
- Telluride Neuromorphic Engineering Workshop, Colorado
- Johns Hopkins Speech Workshop, Baltimore

Selected popular press coverage

2019 NIH director's blog
Financial Times
BBC
The Independent
US News & World Report
Gizmodo & CNet
The Tribune

2018 The Economist
Le Point
Science Magazine
Boston Globe (STAT news)

2015 The Record, Columbia Press

2014 National Public Radio (*NPR*)
The Economist
Time magazine

2012 USA Today
LA Times
BBC Guardian
Wall Street Journal

Professional services

Journal Reviewer: Neuron, Nature Neuroscience, Nature Communication, IEEE Transactions on Speech and Audio Processing, EUROSIP Journal on Audio, Speech and Music Processing, International Conference on Speech and Language Processing, International Conference on Audio, Speech and Signal Processing,

Cerebral Cortex, Current Biology, Journal of Neuroscience, Journal of Neural Engineering, International Journal of Psychophysiology, PLoS Biology, Journal of Neurophysiology

Site Visit Team (SVT) member: NSF Engineering Research Center (ERC) for Sensory and Neural Engineering

Conference session chair: International Conference on Acoustic, audio, and speech processing, Association for Research in Otolaryngology (ARO)

Professional consultations

SonicCloud, California
Roche, Germany
Urgo Laboratoires, France
BBN Technologies, Boston
Johns Hopkins Applied Physics Laboratories, Baltimore
Audience Corporation, Mountain View
Honda Research, Boston
Advance Acoustic Concept, New York
Southwest Research Institute, San Antonio

Outreach activities

Brain Bee Competition (Dana Foundation)
Pint of Science US
BCI demo at TSC Science & Engineering Expo
NYU Girl's STEM Program
Lawrenceville and Great Neck North high schools
Science Saturday, Zuckerman Institute, Columbia University