DONALD S. WILLIAMSON

Associate Professor ⋄ Computer Science & Engineering ⋄ The Ohio State University

2015 Neil Avenue ⋄ Columbus, OH 43210

williamson.413@osu.edu

RESEARCH AND TEACHING INTERESTS

My research broadly addresses ways that enable computers to process, understand, and respond to sound information. I have specific interests in the areas of speech separation, speech assessment, and audio privacy, to name a few, where I am interested in using these methods in real-world devices, such as cell phones, hearing aids, and robots. The algorithms that I develop are based on machine learning, signal processing, and statistics. I have developed and taught graduate-level courses on deep learning, machine perception and speech processing. I've also taught graduate and undergraduate courses on machine learning and programming.

PROFESSIONAL APPOINTMENTS

2022 - present	**Associate Professor**, The Ohio State University, Computer Science and Engineering
2022	**Associate Professor**, Indiana University, Computer Science
2021(summer)	**Instructor**, Spelman College, WiSTEM Program
2016 - 2022	**Assistant Professor**, Indiana University, Computer Science
	Affiliate: Cognitive Science Program
	Affiliate: Data Science Program
	Affiliate: Center for Machine Learning
2012 - 2016	**Research Associate**, The Ohio State University, Computer Science and Engineering
2014 (summer)	**Research Intern**, Audience, Inc. (Knowles), Advanced Research Team
2007 - 2010	**Member Engineering Staff**, Lockheed Martin, Moorestown NJ
2005 - 2007	**Research Assistant**, Drexel University, Electrical and Computer Engineering

EDUCATION

Ph.D.	Computer Science and Engineering	The Ohio State University	2016
	Thesis: *Deep Learning Methods for Improving the Perceptual Quality of Noisy and Reverberant Speech*		
M.S.	Computer Science and Engineering	The Ohio State University	2014
M.S.	Electrical Engineering	Drexel University	2007
	Thesis: *Automatic Music Similarity Assessment and Recommendation*		
B.EE	Electrical Engineering	University of Delaware	2005
	Minors: Math., Computer and Information Science		
	Honors: *cum laude*		

PUBLICATIONS: PEER REVIEWED

[36] Z. Zhang, **D. Williamson**, and Y. Shen, "Investigation on the Band Importance of Phase-aware Speech Enhancement," in *Proc. INTERSPEECH*, pp. 4651–4655, 2022.

[35] Y. Liu, A. Kapadia, and **D. Williamson**, "Preventing sensitive-word recognition using self-supervised learning to preserve user-privacy for automatic speech recognition," in *Proc. INTERSPEECH*, pp. 4207–4211, 2022 .

[34] G. Yi, W. Xiao, Y. Xiao, B. Naderi, S. Möller, W. Wardah, G. Mittag, R. Cutler, Z. Zhang, **D. Williamson**, F. Chen, F. Yang, and S. Shang, "ConferencingSpeech 2022 Challenge: Non-intrusive Objective Speech Quality Assessment (NISQA) Challenge for Online Conferencing Applications," in *Proc. INTERSPEECH*, pp. 3308–3312, 2022.

[33] Z. Zhang, Y. Xu, M. Yu, S.-X. Zhang, L. Chen, **D. Williamson**, and D. Yu, "Multi-channel multi-frame ADL-MVDR for target speech separation," *IEEE/ACM Trans. on Audio, Speech, and Language Processing*, vol. 29, pp. 3526–3540, 2021.

[32] K. Md. Nayem, and **D. Williamson**, "Incorporating Embedding Vectors from a Human Mean-Opinion Score Prediction Model for Monaural Speech Enhancement," in *Proc. INTERSPEECH*, pp. 216–220, 2021.

[31] P. Vyas, A. Kuznetsova, and **D. Williamson**, "Optimally Encoding Inductive Biases into the Transformer Improves End-to-End Speech Translation," in *Proc. INTERSPEECH*, pp. 2287–2291, 2021 (Best Student Paper Award).

[30] Y. Liu, Z. Xiang, E.J. Seong, A. Kapadia, and **D. Williamson**, "Defending against microphone-based attacks with personalized noise," in *Proc. Privacy Enhancing Technologies Symposium*, pp. 130–150, 2021.

[29] K. Md. Nayem and **D. Williamson**, "Towards an ASR approach for speech enhancement to generate more realistic spectra across time and frequency," in *Proc. IEEE International Conference on Acoustics, Speech, and Signal Processing*, pp. 7123-7127, 2021.

[28] Y. Li, Y. Liu, and **D. Williamson**, "On loss functions for deep-learning based T60 estimation," in *Proc. IEEE International Conference on Acoustics, Speech, and Signal Processing*, pp. 486–490, 2021.

[27] Z. Zhang, P. Vyas, X. Dong, and **D. Williamson**, "An end-to-end non-intrusive model for subjective and objective real-world speech assessment using a multi-task framework," in *Proc. IEEE International Conference on Acoustics, Speech, and Signal Processing*, pp. 316–320, 2021 (Outstanding Student Paper Award).

[26] X. Dong and **D. Williamson**, "Towards real-world objective speech quality and intelligibility assessment using speech-enhancement residuals and convolutional long short-term memory networks," Journal of the Acoustical Society of America (JASA), vol. 148, pp. 3348-3359, 2020.

[25] X. Dong and **D. Williamson**, "A Pyramid Recurrent Network for Predicting Crowd-sourced Speech-Quality Ratings of Real-World Signals," in *Proc. INTERSPEECH*, pp. 4631-4635, 2020.

[24] Z. Zhang, **D. Williamson**, Y. Shen, "Investigation of Phase Distortion on Perceived Speech Quality for Hearing-impaired Listeners," in *Proc. INTERSPEECH*, pp. 2512-2516, 2020.

[23] Z. Zhang, C. Deng, Y. Shen, **D. Williamson**, *et al.*, "On Loss Functions and Recurrency Training for GAN-based Speech Enhancement Systems," in *Proc. INTERSPEECH*, pp. 3266-3270, 2020.

[22] Y. (Grace) Li and **D. Williamson**, "A Return to Dereverberation in the Frequency Domain using a Joint Learning Approach," in *Proc. IEEE International Conference on Acoustics, Speech, and Signal Processing*, pp. 7549-7553, 2020.

[21] K. Nayem and **D. Williamson**, "Monaural Speech Enhancement using Intra-spectral recurrent layers in the Magnitude and Phase Response," in *Proc. IEEE International Conference on Acoustics, Speech, and Signal Processing*, pp. 6224-6228, 2020.

[20] X. Dong and **D. Williamson**, "An Attention Enhanced Multi-Task Model for Objective Speech Assessment in Real-World Environments," in *Proc. IEEE International Conference on Acoustics, Speech, and Signal Processing*, pp. 911-915, 2020.

[19] H. Krishnakumar and **D. Williamson**, "A Comparison of Boosted Deep Neural Networks for Voice Activity Detection," in *Proc. IEEE Global Conference on Signal and Information Processing (GlobalSIP)*, pp. 1-5, 2019.

[18] K. Nayem and **D. Williamson**, "Incorporating Intra-Spectral Dependencies with a Recurrent Output Layer for Improved Speech Enhancement," in *Proc. IEEE International Workshop on Machine Learning for Signal Processing (MLSP)*, pp. 1-6, 2019.

[17] X. Dong and **D. Williamson**, "A Classification-aided Framework for Non-Intrusive Speech Quality Assessment," in *Proc. IEEE Workshop on Applications of Signal Processing to Audio and Acoustics (WASPAA)*, pp. 100-104, 2019.

[16] Z. Zhang, **D. Williamson**, and Y. Shen, "Impact of Amplification on Speech Enhancement Algorithms using an Objective Evaluation Metric," in *Proc. International Congress on Acoustics (ICA)*, pp. 3090-3097, 2019

[15] Z. Zhang, Y. Shen, and **D. Williamson**, "Objective comparison of speech enhancement algorithms with hearing loss simulation," in *Proc. IEEE International Conference on Acoustics, Speech, and Signal Processing*, pp. 6845-6849, 2019

[14] K. Berkson,..., S. Kübler, **D. Williamson**, and M. Anderson, "Building a Common Voice Corpus for Laiholh (Hakha Chin)," in *Proc. Workshop on the Use of Computational Methods in the Study of Endangered Languages (ComputEL)*, pp. 5-10, 2019.

[13] **D. Williamson**, "Monaural speech separation using a phase-aware deep denoising auto encoder," in *Proc. IEEE International Workshop on Machine Learning for Signal Processing*, pp. 1-6, 2018.

[12] X. Dong and **D. Williamson**, "Long-term SNR estimation using noise residuals and a two-stage deep-learning framework," in *Proc. International Conference on Latent Variable Analysis and Signal Separation (LVA/ICA)*, pp. 351-360, 2018.

[11] **D. Williamson** and D. L. Wang, "Time-Frequency Masking in the Complex Domain for Speech Dereverberation and Denoising," *IEEE/ACM Trans. on Audio, Speech, and Lang. Process.*, vol. 25, pp. 1492-1501, 2017.

[10] F. Mayer, **D. Williamson**, P. Mowlaee, and D. L. Wang, "Impact of Phase Estimation on Single-Channel Source Separation Based on Time-Frequency Masking," *Journal of the Acoustical Society of America*, vol. 141, pp. 4668-4679, 2017.

[9] **D. Williamson** and D. L. Wang, "Speech Dereverberation and Denoising using Complex Ratio Masks" in *Proc. IEEE International Conference on Acoustics, Speech, and Signal Processing*, pp. 5590-5594, 2017.

[8] **D. Williamson**, Y. Wang, and D. L. Wang, "Complex ratio masking for joint enhancement of magnitude and phase" in *Proc. IEEE International Conference on Acoustics, Speech, and Signal Processing*, pp. 5220-5224, 2016.

[7] **D. Williamson**, Y. Wang, and D. L. Wang, "Complex ratio masking for monaural speech separation," *IEEE/ACM Trans. on Audio, Speech, and Lang. Process.*, vol. 24, pp. 483-492, 2016.

[6] **D. Williamson**, Y. Wang, and D. L. Wang, "Estimating nonnegative matrix model activations with deep neural networks to increase perceptual speech quality," *Journal of the Acoustical Society of America*, vol. 138, pp. 1399-1407, 2015.

[5] **D. Williamson**, Y. Wang, and D. L. Wang, "Deep neural networks for estimating speech model activations," in *Proc. IEEE International Conference on Acoustics, Speech, and Signal Processing*, pp. 5113-5117, 2015.

[4] **D. Williamson**, Y. Wang, and D. L. Wang, "Reconstruction techniques for improving the perceptual quality of binary masked speech," *Journal of the Acoustical Society of America*, vol. 136, pp. 892-902, 2014.

[3] **D. Williamson**, Y. Wang, and D. L. Wang, "A two-stage approach for improving the perceptual quality of separated speech" in *Proc. IEEE International Conference on Acoustics, Speech, and Signal Processing*, pp. 7084-7088, 2014.

[2] **D. Williamson**, Y. Wang, and D. L. Wang, "A sparse representation approach for perceptual quality improvement of separated speech" in *Proc. IEEE International Conference on Acoustics, Speech, and Signal Processing*, pp. 7015-7019, 2013.

[1] Y. Kim, **D. Williamson**, and S. Pilli, "Towards quantifying the album effect in artist classification," in *Proc. International Conference on Music Information Retrieval*, Victoria, Canada, 2006 (online abstract).

UNPUBLISHED THESES

[4] Z. Zhang, *Investigations on the Deep Learning Based Speech Enhancement Algorithms for Hearing-Impaired Population*, Ph.D. Dissertation, Departments of Computer Science and Speech, Language, and Hearing Sciences, Indiana University, Bloomington, IN 2022.

[3] X. Dong, *Data-Driven Non-Intrusive Speech Quality and Intelligibility Assessment*, Ph.D. Dissertation, Department of Computer Science, Indiana University, Bloomington, IN, 2021.

[2] D. Williamson, *Deep Learning Methods for Improving the Perceptual Quality of Noisy and Reverberant Speech*, Ph.D. Dissertation, Department of Computer Science and Engineering, The Ohio State University, Columbus, OH, 2016.

[1] D. Williamson, *Automatic Music Similarity Assessment and Recommendation*, M.S. Thesis, Department of Electrical and Computer Engineering, Drexel University, Philadelphia, PA, 2007.

RESEARCH SUPPORT: ACCEPTED OR RECOMMENDED

2022-2023	IU Social Sciences Research Funding Program (Co-PI): *The Persuasion of Voice: Investigating How Smart Voice Assistants Improve Human Decision Making*	$31,000
2021-2022	Toyota Research Institute (Co-PI): *Socially Enabling Robots to Support Ikigai and Community Engagement of Older Adults*	$1,588,669
2021-2022	Purdue University - US DOD (PI): *Radiation-Hard Microelectronics Workforce Development Consortium*	$2,321,224 ($171,866)
2020-2025	NSF CAREER (PI, RI-1942718): *CAREER: Optimizing Human Speech Perception in Noisy Environments with User-Guided Machine Learning*	$550,000
2019-2020	IU Faculty Research Support Program (PI): *Quantifying the Importance of Phase to Improve Deep-Learning based Speech Enhancement for Individuals with Hearing Impairments*	$23,797
2018-2021	NSF CRII (PI, RI-1755844): *Towards Human-Level Assessment of Speech Quality and Intelligibility in Real-World Environments*	$174,995
2017-2021	IU Grand Challenge (Collaborator) - Precision Health Initiative (PHI)	$110,000
2017	NVIDIA GPU Grant Program, donation of two Titan Xp GPUs	∼$2,000

RESEARCH SUPPORT: SUBMITTED

2022	NSF (Co-PI): *Collaborative Research: SaTC: CORE: Medium: Socio-Technical Strategies for Addressing Eavesdropping and Coercion Threats Posed by Smart Voice Assistants*	$ 740,545

RESEARCH SUPPORT: REJECTED

2021	NIH (PI, Rejected): *Improving the listening experience in noisy environments for adults with age-related hearing loss using phase-sensitive speech enhancement*	$1,685,285
2020	ECCALON (Collaborator, Rejected): *Indiana University National Security Academic Accelerator: Artificial Intelligence and Quantum Information Science Technical Foci for National Defense*	$499,744
2020	NSF (Co-PI, Rejected): *SaTC: CORE: Small: Audible Spectrum Jamming Defenses Against Microphone-Based Eavesdropping*	$499,999
2020	NSWC (Co-PI, Rejected): *Compact and Representative Feature Learning via End-to-End Deep Autoencoders: for Compression, Separation, and Detection*	$500,000
2019	NIH (Collaborator, Rejected): *Development of Decision Support Tools for the Prevention of Neurodevelopmental Deficits among HIV exposed un-infected children*	
2019	IU Emerging Areas of Research (Co-PI, Rejected): *Human-in-the-loop Natural Language Processing for Minority Languages Spoken in Indiana and Beyond*	$2,688,128
2019	IU Emerging Areas of Research (Co-PI, Rejected): *Improving Social Communication in a Sophisticated World*	$1,737,996
2018	NSF STTR Phase I (Co-PI, Rejected): *STTR Phase I: Medical Interpretation Technology for Minority Languages*	$112,475
2018	IU President's International Research Award (Co-PI, Rejected): *High Performance Computing Technology for Minority Languages*	$50,000
2017	Amazon Research Award (PI, Rejected): *Recognizing Household Context by Integrating Audio and Visual Cues*	$79,932
2017	IU Emerging Areas of Research (Co-PI, Rejected): *Human-in-the-loop Language Technology for Minority Languages*	$3,000,000
2017	IU Emerging Areas of Research (Co-PI, Rejected): *Integrative Approaches to Cognitive Hearing Science*	$2,799,604
2016	Google Faculty Research Award (PI, Rejected): *A Supervised-Learning Approach for Objectively Evaluating Speech Quality*	$45,804

INVITED PRESENTATIONS AND PANELS

[54]	*Investigation on the Band Importance of Phase-aware Speech Enhancement* (oral, virtual), INTERSPEECH, Incheon, Korea	2022
[53]	*Preventing sensitive-word recognition using self-supervised learning to preserve user-privacy for automatic speech recognition* (oral, virtual), INTERSPEECH, Incheon, Korea	2022
[52]	*Speech, Perception and Machine Learning* (oral, virtual), Indiana University, Cognitive Science course	2021
[51]	*Perception is Reality: Using Human Perception to Improve Listening Experiences in Noisy Environments* (oral, virtual), The Ohio State University	2021
[50]	*Incorporating Embedding Vectors from a Human Mean-Opinion Score Prediction Model for Monaural Speech Enhancement* (oral, virtual), INTERSPEECH, Brno, Czech Republic	2021
[49]	*Optimally Encoding Inductive Biases into the Transformer Improves End-to-End Speech Translation* (oral, virtual), INTERSPEECH, Brno, Czech Republic	2021

[48] *Defending against microphone-based attacks with personalized noise* (oral, virtual), Privacy Enhancing Technologies Symposium — 2021

[47] *Towards An ASR Approach Using Acoustic and Language Models for Speech Enhancement* (oral, virtual), IEEE ICASSP, Toronto, Ontario — 2021

[46] *On loss functions for deep-learning based T60 estimation* (oral, virtual), IEEE ICASSP, Toronto, Ontario — 2021

[45] *An end-to-end non-intrusive model for subjective and objective real-world speech assessment using a multi-task framework* (oral, virtual), IEEE ICASSP, Toronto, Ontario — 2021

[44] *The Winding Path to a Career in Academia* (plenary, virtual), IEEE Promoting Diversity in Signal Processing (PROGRESS) Workshop at the International Conference on Acoustics, Speech and Signal Processing (ICASSP) — 2021

[43] *Impact of phase distortion and phase-insensitive speech enhancement on speech quality perceived by hearing-impaired listeners* (poster, virtual), Meeting of the Acoustical Society of America: Acoustics Virtually Everywhere (AVE) — 2020

[42] *Promoting Diversity in Signal Processing (PROGRESS)* (panelist, virtual), IEEE International Conference on Image Processing (ICIP) — 2020

[41] *Computers, Speech, and The Engineering Experience* (oral, virtual), Drexel University, Philadelphia, PA — 2020

[40] *A Pyramid Recurrent Network for Predicting Crowdsourced Speech-Quality Ratings of Real-World Signals* (oral, virtual), INTERSPEECH, Shanghai, China — 2020

[39] *Investigation of Phase Distortion on Perceived Speech Quality for Hearing-impaired Listeners* (oral, virtual), INTERSPEECH, Shanghai, China — 2020

[38] *On Loss Functions and Recurrency Training for GAN-based Speech Enhancement Systems* (oral, virtual), INTERSPEECH, Shanghai, China — 2020

[37] *Towards Perceptually and Scientifically Valid Machine Learning for Speech Processing* (oral,virtual), Indiana University Luddy AI Seminar, Bloomington, IN — 2020

[36] *A Return to Dereverberation in the Frequency Domain Using a Joint Learning Approach* (oral, virtual), IEEE ICASSP, Barcelona, Spain — 2020

[35] *Monaural Speech Enhancement Using Intra-Spectral Recurrent Layers in the Magnitude and Phase Responses* (oral, virtual), IEEE ICASSP, Barcelona, Spain — 2020

[34] *An Attention Enhanced Multi-Task Model for Objective Speech Assessment in Real-World Environments* (oral, virtual), IEEE ICASSP, Barcelona, Spain — 2020

[33] *Using Machine Learning to Optimize Human Speech Perception in Noisy Environments* (oral), Indiana University AI Luddy Showcase, Bloomington, IN — 2020

[32] *A Comparison of Boosted Deep Neural Networks for Voice Activity Detection* (oral/poster), IEEE Global Conference on Signal and Information Processing (GlobalSIP), Ottawa, Ontario — 2019

[31] *Incorporating Intra-Spectral Dependencies with a Recurrent Output Layer for Improved Speech Enhancement* (poster), IEEE International Workshop on Machine Learning for Signal Processing (MLSP), Pittsburgh, PA — 2019

[30] *A Classification-aided Framework for Non-Intrusive Speech Quality Assessment* (poster), IEEE Workshop on Applications of Signal Processing to Audio and Acoustics (WASPAA), New Paltz, NY — 2019

[29] *Capturing Speech for Deep Learning using Lombard Grid Dataset in an Anechoic Chamber* (poster), IU ProHealth REU, Bloomington, IN — 2019

[28] *Just-Noticeable Speech Enhancement* (poster), IU GTAP Scholars Symposium, Bloomington, IN — 2019

[27] *The UCAN method for automatic assessment of speech quality* (oral), Midwest Music and Audio Day, Bloomington, IN — 2019

[26] *Impact of Amplification on Speech Enhancement Algorithms using an Objective Evaluation Metric* (oral/poster), International Congress on Acoustics, Aachen, Germany — 2019

[25] *Incorporating Intra-spectral Dependencies With A Recurrent Output Layer For Improved Speech Enhancement* (oral), Midwest Music and Audio Day, Bloomington, IN — 2019

[24] *Deep Learning for the Enhancement and Evaluation of Noisy Speech* (oral), Indiana University, Bloomington, IN — 2019

[23] *Objective Comparison of Speech Enhancement Algorithms with Hearing Loss Simulation* (poster), IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP), Brighton, UK — 2019

[22] *Deep Learning for the Enhancement and Evaluation of Noisy Speech*, Center for Algorithms and Machine Learning Seminar, Indiana University, Bloomington, IN — 2018

[21] *Monaural Speech Separation Using A Phase-Aware Deep Denoising Auto Encoder* (oral), IEEE International Workshop on Machine Learning for Signal Processing (MLSP), Aalborg, Denmark — 2018

[20] *Long-term SNR estimation using noise residuals and a two-stage deep-learning framework* (poster/oral), International Conference on Latent Variable Analysis and Signal Separation (LVA/ICA), Guildford, UK — 2018

[19] *Deep Learning for Auditory Environment Analysis* (poster), Air Force's Science and Technology 2030 workshop, Indiana University, Bloomington, IN — 2018

[18] *Speech Dereverberation and Denoising using Complex Ratio Masks* (poster), Midwest Music and Audio Day (MMAD), Northwestern University, Evanston, IL — 2017

[17] *Separating Speech from Background Noise using a Deep Neural Network and a Complex Mask* (oral), Indiana University Data Science Club, Bloomington, IN — 2017

[16] *Speech Dereverberation and Denoising using Complex Ratio Masks* (poster), IEEE ICASSP, New Orleans, LA — 2017

[15] *Separating Speech from Background Noise using a Deep Neural Network and a Complex Mask* (oral), Intelligent and Interactive Systems Talk Series, Indiana University — 2016

[14] *Applied Machine Learning for Machine Listening* (oral), Indiana University, Bloomington, IN — 2016

[13] *Improving the Perceptual Quality of Speech In Noisy Environments* (oral), Communication Disorders Technology, Inc., Bloomington, IN — 2016

[12] *Complex ratio masking for joint enhancement of magnitude and phase* (oral), IEEE ICASSP, Shanghai, China — 2016

[11] *Speech Separation in Noisy Environments Using Deep Neural Networks* (oral), University of Maryland Baltimore County , Baltimore, MD — 2016

[10] *Speech Separation in Noisy Environments Using Deep Neural Networks* (oral), University of California Santa Barbara, Santa Barbara, CA — 2016

[9] *Speech Separation in Noisy Environments Using Deep Neural Networks* (oral), Brown University, Providence, RI — 2016

[8] *Speech Separation in Noisy Environments Using Deep Neural Networks* (oral), Indiana University, Bloomington, IN — 2016

[7] *Deep neural networks for estimating speech model activations* (poster), IEEE ICASSP, Brisbane, Australia — 2015

[6] *A two-stage approach for improving the perceptual quality of separated speech* (poster), IEEE ICASSP, Florence, Italy — 2014

[5] *Reconstruction Techniques for Improving the Perceptual Quality of Masked Speech*, Audience, Inc. (Knowles), Mountain View, CA — 2014

[4] *A Sparse Representation Approach for Perceptual Quality Improvement of Separated Speech* (poster), IEEE ICASSP, Vancouver, British Columbia — 2013

[3] *Sparse Reconstruction for Improving the Perceptual Quality of Binary Masked Speech* (oral), Midwest Cognitive Science Conference, Columbus, OH — 2013

[2] *Music Similarity Analysis* (poster), Research Day, Drexel University, Philadelphia, PA — 2007

[1]   *Improving the iPod: Automatic Identification and Classification of Music* (poster),   2006
      Research Day, Drexel University, Philadelphia, PA

TEACHING ACTIVITIES

Courses Developed (at The Ohio State University, Computer Science and Engineering)
CSE-5539: Deep Learning for Speech Auditory Perception (graduate)   2022

Courses Developed (at Indiana University, Computer Science)
CSCI-B659: Machine Perception and Audition (graduate)   2016
CSCI-B659: Deep Learning for Speech Processing (graduate)   2018, 2019

Courses Developed (at Spelman College, WiSTEM Summer Bridge Accelerator)
Artificial Intelligence and Machine Learning Project Module (undergraduate)   2021

Courses Taught (at Indiana University, Computer Science)
CSCI-P556: Applied Machine Learning (graduate)   2021, 2022
CSCI-Y799: Computer Science Colloquium (graduate)   2020 - 2022
CSCI-C200: Introduction to Computers and Programming (undergraduate)   2020 - 2021
CSCI-B555: Machine Learning (graduate)   2017, 2019
CSCI-B455: Principles of Machine Learning (undergraduate)   2018

Courses Taught (at The Ohio State University, Computer Science and Engineering)
CSE-101: Computer-Assisted Problem Solving (undergraduate)   2012

UNIVERSITY SERVICE

Faculty Hiring Committee, Computer Science and Engineering	2022 -
Curriculum Committee, Computer Science and Engineering	2022 -
Colloquium Committee, Computer Science	2018 - 2022
Luddy Pre-College Summer Program, Presenter and Co-Organizer	2021
Faculty Affairs Committee, Computer Science	2018 - 2019
Admissions and Awards Committee, Computer Science	2016 - 2018
Grant Thornton (GT) Scholar, SICE	2019 -2021
Precision Health Initiative (PHI) Hiring Committee	2018, 2019, 2020
OurCS HelloResearch, co-project lead, SICE	2018

PROFESSIONAL SERVICE

Meta-Reviewer, ICASSP	2022 -
Program Committee, Usable Security and Privacy (USEC) Symposium	2022 -
Co-Organizer, ConferencingSpeech 2022 Challenge @ INTERSPEECH	2021 -2022
Panelist, IEEE ICIP PROGRESS Workshop	2020
Co-Organizer, Midwest Music and Audio Day	2019
Technical Program committee, INTERSPEECH	2018 - present
Reviewer, INTERSPEECH	2018 - present
Reviewer, IEEE Access	2018 - present

Reviewer, Speech Communication	2018 - present
Reviewer, The Journal of the Acoustical Society of America (JASA)	2017 - present
Reviewer, Transactions of the International Society for Music Information Retrieval	2017 - present
Reviewer, EURASIP Journal on Audio, Speech, and Music Processing	2016 - present
Reviewer, Trends in Hearing	2015 - present
Reviewer, IEEE Transactions on Audio Speech and Language Processing	2014 - present
Reviewer, IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)	2014 - present
Reviewer, Springer Journal of Circuits, Systems, and Signal Processing	2014 - present

PROFESSIONAL MEMBERSHIPS

Association for Computing Machinery (ACM)	2017 - present
American Society for Engineering Education (ASEE)	2015 - present
Institute of Electrical and Electronics Engineers (IEEE), Senior Member	2013 - present
IEEE, Signal Processing Society	2013 - present
IEEE, Robotics and Automation Society	2015 - present
Upsilon Pi Epsilon Honor Society	2010 - present
Tau Beta Pi Engineering Honor Society	2004 - present
National Society of Black Engineers (NSBE)	2002-2005, 2020-present
Golden Key International Honor Society	

STUDENT ADVISING

Graduate advisees

Ada Barach (Ph.D. student, CSE)	2022 - present
Imran Kibria (M.S. student, ECE)	2022 - present
Subrina Sultana (Ph.D. student, CSE)	2021 - present
Ali Alavi (Ph.D. student, CSE)	2021 - present
Junyi Fan (Ph.D. student, CSE)	2021 - present
Yuchen Liu (Ph.D. candidate, CS)	2018 - present
Grace Li (Ph.D. candidate, ISE)	2018 - present
Khandokar Md. Nayem (Ph.D. candidate, CS)	2017 - present
Zhuohuang Zhang (Ph.D. graduate, SPHS and CS)	2017 - 2022
Anastasia Kuznetsova (Ph.D. candidate, CS and CL)	2020 - 2022
Xuan Dong (Ph.D. graduate, CS)	2017 - 2021
Piyush Vyas (M.S. graduate, CS)	2020 - 2021
Ziyu Violet Xiang (M.S. graduate, CS)	2018 - 2019
Harshit Krishnakumar (M.S. graduate, DS)	2017 - 2018

Undergraduate advisees

Sam Estrada, Trusted AI project	2021 - present
Evan Chapple, Trusted AI project	2021 - present
Srishti Kama, Trusted AI project	2021 - 2022
Connor Mahern, Trusted AI project	2021 - 2022
Christopher Alexeev, Independent Study	2021
JeVante Qaiyim, Independent Study	2020
Muhammad Asghar, ProHealth REU	2019

Danial Quintans, ProHealth REU	2019
Chitrank Gupta, GTAP program	2019
Dominic Matthys, UROC program	2018
Cheng Qian, UROC program	2018
Vikrant Garg, GTAP program	2018
Tianqi Cai, Independent Study	2018
Brandon Hummel, Independent Study	2018

Ph.D. Dissertation Committee

Zhuohuang Zhang (Chair)	2022
Satoshi Tsutsui	2021
Zeeshan Ali Sayyed	2021
Hai Hu	2021
Kai Zhen	2021
Eman Hassan	2021
Sanna Wager	2021
Bardia Doosti	2021
Xuan Dong (Chair)	2020
Ishtiak Zaman	2020
Donghyeon Yun (SPHS)	2020
Atreyee Mukherjee	2020
Mingze Xu	2020
Gregory Zynda	2019
Mark Jenne	2019
Jangwon Lee (Informatics)	2018
Kurt Zimmer	2018

Ph.D. Advisory Committee

Yixuan Zhang	2022
Qingyang (Keith) Xiao	2021
Parichit Sharma	2021
Chuhua Wang	2021
Shujon Naha	2020
John Stein	2018
Zhenhua Chen	2018

M.S. Thesis Committee

Benjamin Cutilli	2018
Soumik Dey	2017

AWARDS AND HONORS

IU Trustees Teaching Award	2021
Best Student Paper Award, INTERSPEECH	2021
Outstanding Student Paper Award, IEEE ICASSP	2021
Graduate Research Award, The Ohio State University	2016
Dean's Graduate Enrichment Fellowship, The Ohio State University	2010 - 2016
FOCUS Fellows Program, Georgia Institute of Technology	2015
NSF Bridge to the Doctorate Fellow, Drexel University	2005 - 2007
Honorable Mention, Research Day Poster Award, Drexel University	2006

African American Students of Distinction Award, University of Delaware	2002 - 2005
RISE Outstanding Academic Achievement Award, University of Delaware	2002 - 2005
Engineering Scholars Program, University of Delaware	2003 - 2004
Merit Scholarship, University of Delaware	2001 - 2005
MBNA Delaware Scholar, University of Delaware	2001 - 2005
RISE Corporate Friends Award, University of Delaware	
RISE Conectiv Power Award, University of Delaware	