

DONALD S. WILLIAMSON

Assistant Professor ◊ Computer Science ◊ Indiana University
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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. A combination of machine learning, signal processing, and statistical-based techniques are used. 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

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

PUBLICATIONS: PEER REVIEWED

- [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," submitted to *IEEE/ACM Trans. on Audio, Speech, and Language Processing*, (under review)
- [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*, (to appear), 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*, (to appear), 2021.
- [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 Crowdsourced 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,” *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. Mowlae, 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

- [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

2021-2024	Toyota Research Institute (Co-PI): <i>Socially Enabling Robots to Support Ikigai and Community Engagement of Older Adults</i>	\$1,588,669
2020-2025	NSF CAREER (PI, RI-1942718): <i>CAREER: Optimizing Human Speech Perception in Noisy Environments with User-Guided Machine Learning</i>	\$550,000.00
2019-2020	IU Faculty Research Support Program (PI): <i>Quantifying the Importance of Phase to Improve Deep-Learning based Speech Enhancement for Individuals with Hearing Impairments</i>	\$23,797
2018-2021	NSF CRII (PI, RI-1755844): <i>Towards Human-Level Assessment of Speech Quality and Intelligibility in Real-World Environments</i>	\$174,995.00
2017-2021	IU Grand Challenge (Collaborator) - Precision Health Initiative (PHI)	\$110,000.00
2017	NVIDIA GPU Grant Program, donation of two Titan Xp GPUs	~\$2,000

RESEARCH SUPPORT: SUBMITTED

2021	NIH (PI, Submitted): <i>Improving the listening experience in noisy environments for adults with age-related hearing loss using phase-sensitive speech enhancement</i>	\$1,685,285
2020	NSF (Co-PI, Submitted): <i>SaTC: CORE: Small: Audible Spectrum Jamming Defenses Against Microphone-Based Eavesdropping</i>	\$499,999
2020	ECCALON (Collaborator, Submitted): <i>Indiana University National Security Academic Accelerator: Artificial Intelligence and Quantum Information Science Technical Foci for National Defense</i>	\$499,744

RESEARCH SUPPORT: REJECTED

2020	NSWC (Co-PI, Rejected): <i>Compact and Representative Feature Learning via End-to-End Deep Autoencoders: for Compression, Separation, and Detection</i>	\$500,000
2019	NIH (Collaborator, Rejected): <i>Development of Decision Support Tools for the Prevention of Neurodevelopmental Deficits among HIV exposed un-infected children</i>	
2019	IU Emerging Areas of Research (Co-PI, Rejected): <i>Human-in-the-loop Natural Language Processing for Minority Languages Spoken in Indiana and Beyond</i>	\$2,688,128
2019	IU Emerging Areas of Research (Co-PI, Rejected): <i>Improving Social Communication in a Sophisticated World</i>	\$1,737,996
2018	NSF STTR Phase I (Co-PI, Rejected): <i>STTR Phase I: Medical Interpretation Technology for Minority Languages</i>	\$112,475
2018	IU President's International Research Award (Co-PI, Rejected): <i>High Performance Computing Technology for Minority Languages</i>	\$50,000
2017	Amazon Research Award (PI, Rejected): <i>Recognizing Household Context by Integrating Audio and Visual Cues</i>	\$79,932
2017	IU Emerging Areas of Research (Co-PI, Rejected): <i>Human-in-the-loop Language Technology for Minority Languages</i>	\$3,000,000

2017	IU Emerging Areas of Research (Co-PI, Rejected): <i>Integrative Approaches to Cognitive Hearing Science</i>	\$2,799,604
2016	Google Faculty Research Award (PI, Rejected): <i>A Supervised-Learning Approach for Objectively Evaluating Speech Quality</i>	\$45,804

INVITED PRESENTATIONS AND PANELS

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| [47] | <i>Towards An ASR Approach Using Acoustic and Language Models for Speech Enhancement</i> (oral, virtual), IEEE ICASSP, Toronto, Ontario | 2021 |
| [46] | <i>On loss functions for deep-learning based T60 estimation</i> (oral, virtual), IEEE ICASSP, Toronto, Ontario | 2021 |
| [45] | <i>An end-to-end non-intrusive model for subjective and objective real-world speech assessment using a multi-task framework</i> (oral, virtual), IEEE ICASSP, Toronto, Ontario | 2021 |
| [44] | <i>The Winding Path to a Career in Academia</i> (plenary, virtual), IEEE Promoting Diversity in Signal Processing (PROGRESS) Workshop at the International Conference on Acoustics, Speech and Signal Processing (ICASSP) | 2021 |
| [43] | <i>Impact of phase distortion and phase-insensitive speech enhancement on speech quality perceived by hearing-impaired listeners</i> (poster, virtual), Meeting of the Acoustical Society of America: Acoustics Virtually Everywhere (AVE) | 2020 |
| [42] | <i>Promoting Diversity in Signal Processing (PROGRESS)</i> (panelist, virtual), IEEE International Conference on Image Processing (ICIP) | 2020 |
| [41] | <i>Computers, Speech, and The Engineering Experience</i> (oral, virtual), Drexel University, Philadelphia, PA | 2020 |
| [40] | <i>A Pyramid Recurrent Network for Predicting Crowdsourced Speech-Quality Ratings of Real-World Signals</i> (oral, virtual), INTERSPEECH, Shanghai, China | 2020 |
| [39] | <i>Investigation of Phase Distortion on Perceived Speech Quality for Hearing-impaired Listeners</i> (oral, virtual), INTERSPEECH, Shanghai, China | 2020 |
| [38] | <i>On Loss Functions and Recurrency Training for GAN-based Speech Enhancement Systems</i> (oral, virtual), INTERSPEECH, Shanghai, China | 2020 |
| [37] | <i>Towards Perceptually and Scientifically Valid Machine Learning for Speech Processing</i> (oral,virtual), Indiana University Luddy AI Seminar, Bloomington, IN | 2020 |
| [36] | <i>A Return to Dereverberation in the Frequency Domain Using a Joint Learning Approach</i> (oral, virtual), IEEE ICASSP, Barcelona, Spain | 2020 |
| [35] | <i>Monaural Speech Enhancement Using Intra-Spectral Recurrent Layers in the Magnitude and Phase Responses</i> (oral, virtual), IEEE ICASSP, Barcelona, Spain | 2020 |
| [34] | <i>An Attention Enhanced Multi-Task Model for Objective Speech Assessment in Real-World Environments</i> (oral, virtual), IEEE ICASSP, Barcelona, Spain | 2020 |
| [33] | <i>Using Machine Learning to Optimize Human Speech Perception in Noisy Environments</i> (oral), Indiana University AI Luddy Showcase, Bloomington, IN | 2020 |
| [32] | <i>A Comparison of Boosted Deep Neural Networks for Voice Activity Detection</i> (oral/poster), IEEE Global Conference on Signal and Information Processing (GlobalSIP), Ottawa, Ontario | 2019 |
| [31] | <i>Incorporating Intra-Spectral Dependencies with a Recurrent Output Layer for Improved Speech Enhancement</i> (poster), IEEE International Workshop on Machine Learning for Signal Processing (MLSP), Pittsburgh, PA | 2019 |
| [30] | <i>A Classification-aided Framework for Non-Intrusive Speech Quality Assessment</i> (poster), IEEE Workshop on Applications of Signal Processing to Audio and Acoustics (WASPAA), New Paltz, NY | 2019 |
| [29] | <i>Capturing Speech for Deep Learning using Lombard Grid Dataset in an Anechoic Chamber</i> (poster), IU ProHealth REU, Bloomington, IN | 2019 |

- [28] *Just-Noticeable Speech Enhancement* (poster), IU GTAP Scholars Symposium, 2019
Bloomington, IN
- [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), Research Day, Drexel University, Philadelphia, PA 2006

TEACHING ACTIVITIES

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 Taught (at Indiana University, Computer Science)

CSCI-P556: Applied Machine Learning (graduate)	2021
CSCI-Y799: Computer Science Colloquium (graduate)	2020, 2021
CSCI-C200: Introduction to Computers and Programming (undergraduate)	2020
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
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UNIVERSITY SERVICE

Colloquium Committee, Computer Science	2018 - present
Faculty Affairs Committee, Computer Science	2018 - 2019
Admissions and Awards Committee, Computer Science	2016 - 2018
Grant Thornton (GT) Scholar, SICE	2019 -present
Precision Health Initiative (PHI) Hiring Committee	2018, 2019, 2020
OurCS HelloResearch co-project lead, SICE	2018

PROFESSIONAL SERVICE

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

PROFESSIONAL MEMBERSHIPS

Association for Computing Machinery (ACM)	2017 - present
American Society for Engineering Education (ASEE)	2015 - present
Institute of Electrical and Electronics Engineers (IEEE)	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

Xuan Dong (Ph.D. graduate, CS)	2017 - 2021
Khandokar Md. Nayem (Ph.D. candidate, CS)	2017 - present
Zhuohuang Zhang (Ph.D. candidate, SPHS and CS)	2017 - present
Grace Li (Ph.D. candidate, ISE)	2018 - present
Yuchen Liu (Ph.D. candidate, CS)	2018 - present
Anastasia Kuznetsova (Ph.D. student, CS and CL)	2020 - present
Piyush Vyas (M.S. graduate, CS)	2020 - present
Ziyu Violet Xiang (M.S. graduate, CS)	2018 - 2019
Harshit Krishnakumar (M.S. graduate, DS)	2017 - 2018

Undergraduate advisees

Christopher Alexeev, Independent Study	2021
JeVante Qaiyim, Independent Study	2020
Muhammad Asghar, ProHealth REU	2019
Danial Quintans, ProHealth REU	2019
Chitrang 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

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

Shujon Naha	2020
Satoshi Tsutsui	2020
John Stein	2018
Zhenhua Chen	2018
Zeeshan Ali Sayyed	2018

M.S. Thesis Committee

Benjamin Cutilli	2018
Soumik Dey	2017

AWARDS AND HONORS

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	