

Asif Salekin

<https://asalekin.github.io/>

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HIGHLIGHTS

- I have authored **39 peer-reviewed full papers**, which include papers in top-tier computer science venues, such as IMWUT/Ubicomp, EWSN, AAAI Applied Intelligence, DAC, INTERSPEECH, and more. Some key highlights underscoring the significance of my contributions through these publications:
 - My research has been featured in **11 'csrankings.org' listed** top-tier computer science venues. It's worth mentioning that I am the **Lead-PI**, i.e., the lead faculty formalizing and overseeing the project, or the **first author** in all of them.
 - My works have been featured in prestigious journals, such as **Nature** Molecular Psychiatry, 2023 (Impact factor: **13.437**), and **PNAS** 2022 (One of the top three most prestigious general science journals with an Impact factor: **11.1**).
- My research has been supported by **two NSF grants** (**Lead PI** for an NSF SCH Medium and **Co-PI** for an NSF CPS Small) and **Four NIH grants** (**PI** for a NIH AIM-Ahead grant, and **Co-I** for an NIH R01 NIDCD, an NIH R01 AI/ML administrative supplement award, and an NIH R21 NIDCD). These grants have collectively secured over **\$4.3 million** in funding, with more than **\$1.7 million** dedicated to my research.
- One of my lead-PI papers received the '**IAAI Deployed Application Award**' in 2021, and a paper I first authored in 2016 was **nominated for the Best Paper Award** at the Wireless Health 2016 conference. I received the **Graduate Student Award for Outstanding Research** from UVA, in 2018.

RESEARCH INTERESTS

Human-centered AI and Sensing, Foundation Models for Health, Mobile Health, Cyber-Physical Systems (CPS), Ubiquitous Computing, Human-Centered Robustness, Fairness, Privacy, Security, and Reliability.

EXPERIENCE

Arizona State University

Schools of Engineering - SBHSE

Graduate Faculty - Computer Science

Graduate Faculty - Biomedical Engineering

School of Medicine and Advanced Medical Engineering

Tenure Track Assistant Professor

2024 - now

(Affiliated) Assistant Professor

2024 - now

Mayo Clinic

Arizona RTP-RESEARCH FELLOW Program

Research Affiliate

2025 - now

Syracuse University

Department of Electrical Engineering and Computer Science

Tenure Track Assistant Professor

2020 - 2024

SUNY Upstate Medical University

Department of Psychiatry

Voluntary Faculty Assistant Professor

2020 - Now

Nokia Bell Labs, Murray hill, NJ, USA.

BHAG Realization Lab

Research Intern

June 2018-Aug 2018

BOSCH Research and Technology Center, CA, USA

Human-Machine Interaction Lab

Research Intern

May 2017 - Oct 2017

EDUCATION

University of Virginia	PhD in Computer Science, 2019 Advisor: Professor John A. Stankovic
University of Virginia	Masters of Computer Science (MCS) 2016
Bangladesh University of Engg. & Tech. (BUET)	BSc in Computer Science & Engineering 2012

FUNDING AND GRANTS

- Title:** Trustworthy Human-Centered AI for Craving Detection in Substance Use Disorder (SUD): Generalizable, Personalized, and Privacy-Preserving
NIH AIM-AHEAD Program (CDP FAIR-MED)
PI: Asif Salekin
Co-PI: Tyler S. Oesterle, M.D., M.P.H. (Mayo Clinic. MN)
Total budget: \$800k
Asif Salekin budget: \$420k
Performance period: 2025-2027
This funding supports the development of a human-centered, community-engaged AI framework for substance craving detection that combines domain generalization, adaptive personalization, and privacy protection to ensure accurate, trustworthy, and deployable solutions. By involving a community advisory board throughout the project, we aim to deliver ethically grounded, patient- and clinician-empowering outcomes with real-world impact.
- Title:** PREDICT-BC: Precision Response Evaluation using Deep Imaging and Clinical Transfer-learning for Bladder Cancer
The 2025 Mayo Clinic and Arizona State University Alliance for Health Care Collaborative Research Seed Grant Program
PI: Asif Salekin
Co-PI: Dr. Singh (Mayo Clinic)
Asif Salekin budget: One Graduate Research Assistant for 1year (Total budget: Direct cost \$100k)
Performance period: 2025-2026
This funding supports the development of AI models for predicting the final pathologic stage and chemotherapy response in bladder cancer patients using early-stage imaging and pathology data, aiming to advance more precise and individualized treatment decisions
- Title:** Collaborative Research: SCH: Psychophysiological Sensing to Enhance Mindfulness-Based Interventions for Self-Regulation of Opioid Cravings
Supporting agency: National Science Foundation (NSF) Medium
PI: Asif Salekin (**Lead PI**)
Co-PI: Dessa Bergen-Cico
Total budget amount (Syracuse University): \$756,356
Asif Salekin budget: \$451,000
Performance period: 2022-2025
This project focuses on developing and testing innovative technologies to aid sustainable recovery of opioid use disorders by in-home craving and psychological cues monitoring and generation of adaptive, personalized, and just-in-time mindfulness-based interventions (MBIs).
- Title:** CPS: Small: Developing a Socio-Psychological CPS for the Health and Wellness of Dairy Cows.
Supporting agency: National Science Foundation (NSF) Small
PI: Sucheta Soundarajan
Co-PI : Asif Salekin
Total budget amount (Syracuse University): \$500,000
Asif Salekin: \$250,000
Performance period: 2022-2025
This project focuses on building a cyber-physical system that integrates the social interactions of dairy cattle with other biometric data, develop predictive models that use such data to perform early identification of sick or vulnerable cattle, and creates algorithms to provide adaptive interventions to cattle farmers.
- Title:** Intensive Speech Motor Chaining Treatment and Artificial Intelligence Integration for Residual Speech Sound Disorders (most recent)
Supporting agency: NIH R01: NIDCD Low Risk Clinical Trials in Communication Disorders
Award Document # RDC020959A
Status: Funded, Confirmation Received (The pay memos have been signed by the NIDCD budget officer).
PI: Jonathan L Preston

Co-investigator : Asif Salekin

Asif Salekin budget: \$304,000

Performance period: 2023-2027

Speech sound disorder (SSD) is the most common communication impairment treated by speech-language pathologists (SLPs). About 25% of preschoolers with SSD retains misarticulations as adolescents on /r, s, z/ due to ineffective treatment or barriers limiting access to SLPs. The project aims to develop automated motor-based assessment and treatment for residual SSD (RSSD).

6. **Title: The influence of contextual and constitutional emotional processes on speech motor control and speech motor learning in early childhood stuttering, Inst. no. SP-31861-2**

Supporting agency: 1R21DC018103-01A, National Institute on Deafness & Other Communication Disorders/NIH/DHHS

PI: Victoria Tumanova

Co-investigator : Asif Salekin

Total Direct Costs (Syracuse University): \$275,000

Performance period: 03/2021-02/2023

This project aims to advance the understanding of stuttering development in preschool-age children and inform future fluency treatment. Specifically, the researchers are interested in how different aspects of emotional reactivity influence children's speech-motor control and speech-motor learning.

7. **Title: Biofeedback-Enhanced Treatment for Speech Sound Disorder: Randomized Controlled Trial and Delineation of Sensorimotor Subtypes.**

Supporting agency: NIH R-01, 2021 - The Artificial Intelligence/Machine Learning administrative supplement award.

Co-investigator : Asif Salekin

Total Direct Costs (Syracuse University): \$100,000

Performance period: 08/2021-07/2022

The project aims to develop an automated speech-to-text transcription approach accessible to individuals with speech disfluency/disorder. Additionally, generate a benchmark public dataset on speech disfluency to facilitate AI approach development in this domain.

7. **Title: Developing a Clinical Speech Recognition System for Childhood Speech Disorders**

Supporting agency: Syracuse University Collaboration for Unprecedented Success and Excellence (CUSE)

PI: Jonathan L Preston

Co-PI : Asif Salekin

Total Direct Costs: \$22,000

Project Period: 2021-2023

The project aims to develop an automated software platform for accurate classification and feedback on children's articulation errors. It has high significance and impact for potentially improving the ability to effectively improve a speech sound error (/r/) that is challenging to remediate.

AWARDS

IAAI Deployed Application Award , The Thirty-Third Annual Conference on Innovative Applications of Artificial Intelligence (IAAI-21).

Graduate Student Award for Outstanding Research , UVA Department of Computer Science, 2018

Nominated for best paper award , (AsthmaGuide) at Wireless health, 2016

Selected for Third Annual Public Days Showcase Event

The Public Days showcase highlights exemplary scholarship, research, and creative work of the University's undergraduate and graduate students, as well as post-docs. Our project, AsthmaGuide, was selected to represent the highest achievements of scholarship, research, and creative work from undergraduate and graduate students across Grounds.

Student Travel Award : SenSys Student Grant, NSF, 2015, and Wireless Health Travel Grant, NIH, 2014

PEER REVIEWED FULL PAPERS | PUBLISHED/ACCEPTED

J : Journal, **C** : Conference, **W** : Workshop.

Lead-PI : Asif Salekin was the lead faculty formalizing and overseeing the project, and the first authors are Asif's students.

First-Author : Asif Salekin was the first author of the paper.

Remarks Regarding Esteemed Conferences and Journals.

- (J+C) **'csrankings' listed Top Conference , Lead-PI**
Human Heterogeneity Invariant Stress Sensing.
 Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT) , 2025. (UbiComp 2025)
 Paper pre-print Link:<https://doi.org/10.1145/3749465>
 Yi Xiao, Harshit Sharma, Sawinder Kaur, Dessa Bergen-Cico, and **Asif Salekin**
- (J+C) **'csrankings' listed Top Conference , Lead-PI**
CRoP: Context-wise Robust Static Human-Sensing Personalization.
 Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT) , 2025. (UbiComp 2025)
 Paper Link:<https://dl.acm.org/doi/10.1145/3729483>
 Sawinder Kaur, Avery Gump, Jingyu Xin, Yi Xiao, Harshit Sharma, Nina R. Benway, Jonathan L. Preston, and **Asif Salekin**
- (C) **Lead-PI**
Psychophysiology-aided Perceptually Fluent Speech Analysis of Children Who Stutter.
 In Proceedings of the ACM/IEEE 16th International Conference on Cyber-Physical Systems (with CPS-IoT Week 2025), pp. 1-11. 2025.
 Paper Link:<https://dl.acm.org/doi/abs/10.1145/3716550.3722019>
 Xiao, Yi, Harshit Sharma, Victoria Tumanova, and **Asif Salekin**
- (C) **Lead-PI**
Decoding Hostility from Conversations through Speech and Text Integration
 12th International Conference on Affective Computing and Intelligent Interaction (ACII), 2024
 Paper Link:<https://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=10970287&tag=1>
 Jingyu Xin, Brooks Gump, Stephen Maisto, Randall Jorgensen, Tej Bhatia, Vir Phoha, **Asif Salekin**
- (C) **'csrankings' listed Top Conference , Lead-PI**
VeriCompress: A Tool to Streamline the Synthesis of Verified Robust Compressed Neural Networks from Scratch
 Proceedings of the AAAI Conference on Artificial Intelligence, 2024.
 Paper Link:<https://ojs.aaai.org/index.php/AAAI/article/view/30327/32349>
 Sawinder Kaur, and **Asif Salekin** .
- (J) **Reputable Journal with Impact Factor 13.437**
A Primer on the Use of Machine Learning to Distill Knowledge from Data in Biological Psychiatry
Nature Molecular Psychiatry, 2024.
 Paper Link:<https://www.nature.com/articles/s41380-023-02334-2>
 Quinn et al. (Asif Salekin is one of the contributing authors)
- (J+C) **'csrankings' listed Top Conference , Lead-PI**
"Reading Between the Heat": Co-Teaching Body Thermal Signatures for Non-intrusive Stress Detection
 Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT) , 2023. (UbiComp 2024)
 Paper Link:<https://dl.acm.org/doi/10.1145/3631441>
 Yi Xiao, Harshit Sharma, Zhongyang Zhang, Dessa Bergen-Cico, Tauhidur Rahman, and **Asif Salekin**
- (J+C) **'csrankings' listed Top Conference , Lead-PI**
Privacy against Real-Time Speech Emotion Detection via Acoustic Adversarial Evasion of Machine Learning
 Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT) , 2023. (UbiComp 2023)
 Paper Link:<https://dl.acm.org/doi/10.1145/3610887>
 Brian Testa, Yi Xiao, Harshit Sharma, Avery Gump, and **Asif Salekin**
- (C) **Core A Conference, 2023**
Classifying Rhoticity of /r/ in Speech Sound Disorder using Age-and-Sex Normalized Formants
 Proc. INTERSPEECH 2023, 4563-4567.
 Paper Link:https://www.isca-speech.org/archive/pdfs/interspeech_2023/benway23_interspeech.pdf
 Nina Benway, Jonathan L. Preston, **Asif Salekin** , Yi Xiao, Harshit Sharma, and Tara McAllister
- (J) **Genomic Machine Learning Meta-regression: Insights on Associations of Study Features with Reported Model Performance**
 The IEEE/ACM Transactions on Computational Biology and Bioinformatics 2024.
 Paper Link:<https://ieeexplore.ieee.org/abstract/document/10364963>
 Eric J. Barnett, Daniel G. Onete, **Asif Salekin** , Stephen V. Faraone
- (C) **Detecting PTSD Using Neural and Physiological Signals: Recommendations from a Pilot Study**
 The 11th International Conference on Affective Computing and Intelligent Interaction (ACII) . IEEE. 2023.

(J) Reproducible Speech Research with the Artificial-Intelligence-Ready PERCEPT Corpora

The Journal of Speech, Language, and Hearing Research, 2023.

Paper Link:https://pubs.asha.org/doi/abs/10.1044/2023_JSLHR-22-00343

Nina Benway, Rachel Theodore, Elaine Hitchcock, Yuan Rose, **Asif Salekin** , Wendy Liang, Tara McAllister, and Jonathan L. Preston.

(J) Organoid intelligence: Integration of organoid technology and artificial intelligence in the new era of in vitro models

The Journal of Medicine in Novel Technology and Devices, Volume 21, 2024, 100276, ISSN 2590-0935.

Paper Link:<https://doi.org/10.1016/j.medntd.2023.100276>

Huaiyu Shi, Andrew Kowalczewski, Danny Vu, Xiyuan Liu, **Asif Salekin** , Huaxiao Yang, Zhen Ma.

(W) Feature Selection for Mispronunciation Detection in Child Speech Sound Disorders Impacting /ɹ/.

Signal Analytics for Motor Speech Workshop, Motor Speech 2024. San Diego, CA. (Accepted).

Nina Benway, Jonathan L. Preston, **Asif Salekin** , and Tara McAllister.

(J+C) 'csrankings' listed Top Conference , Lead-PI

Psychophysiological Arousal in Young Children Who Stutter: An Interpretable AI Approach

Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT) , 2022. (UbiComp 2022)

Paper Link:<https://dl.acm.org/doi/10.1145/3550326>

Harshit Sharma, Yi Xiao, Victoria Tumanova, **Asif Salekin**

(J+C) 'csrankings' listed Top Conference , Lead-PI

Combating False Data Injection Attacks on Human-Centric Sensing Applications

Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT) , 2022. (UbiComp 2022)

Paper Link:<https://dl.acm.org/doi/10.1145/3534577>

Jingyu Xin, Vir V. Phoha, **Asif Salekin**

(J) One of the top three prestigious general science journals with an Impact factor of 11.1

Evaluation of individual and ensemble probabilistic forecasts of COVID-19 mortality in the US

The Proceedings of the National Academy of Sciences USA (PNAS) , 2022.

Paper Link:<https://www.pnas.org/doi/10.1073/pnas.2113561119>

Cramer et al. (Asif Salekin is one of the contributing authors)

(C) Core A Conference, 2022

PERCEPT-R: An Open-Access American English Child/Clinical Speech Corpus Specialized for the Audio Classification of /ɹ/

Proc. Interspeech 2022, 3648-3652.

Paper Link:https://www.isca-speech.org/archive/interspeech_2022/benway22_interspeech.html

Nina Benway, Jonathan L. Preston, Elaine Hitchcock, **Asif Salekin** , Harshit Sharma and Tara McAllister

(W) Hyperspectral Image Super-Resolution in Arbitrary Input-Output Band Settings

Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision (WACV) Workshops, 2022.

Paper Link:<https://arxiv.org/abs/2103.10614>

Zhang, Z., Xu, Z., Ahmed, Z., **Salekin, A.** , Rahman, T.

(C) 'csrankings' listed Top Conference , Lead-PI

Preclinical Stage Alzheimer's Disease Detection Using Magnetic Resonance Image Scans

Proceedings of the AAAI Conference on Artificial Intelligence, 2021, 35(17), 15088-15097.

(Received **the IAAI Deployed Application Award**)

Paper Link:<https://doi.org/10.1609/aaai.v35i17.17772>

Co-first authors(Fatih Altay, Guillermo Ramón Sánchez), Yanli James, Stephen V. Faraone, Senem Velipasalar, **Asif Salekin** .

(J) Emotion Recognition Robust to Indoor Environmental Distortions and Non-targeted Emotions Using Out-Of-Distribution Detection.

ACM Transactions on Computing for Healthcare, 2021.

Paper Link:<https://dl.acm.org/doi/abs/10.1145/3492300>

Y. Gao, **A. Salekin** , K. Gordon, K. Rose, H. Wang, J. Stankovic

(W) Lead-PI & First-Author

Understanding autism: the power of EEG harnessed by prototypical learning.

Proceedings of the Workshop on Medical Cyber Physical Systems and Internet of Medical Things. 2021.

Paper Link:<https://dl.acm.org/doi/10.1145/3446913.3460317>

Asif Salekin and Natalie Russo.

- (W) **HirePreter: A Framework for Providing Fine-grained Interpretation for Automated Job Interview Analysis**
In 2021 9th International Conference on Affective Computing and Intelligent Interaction Workshops (ACIIW). IEEE.
Paper Link:<https://www.computer.org/csdl/proceedings-article/aciw/2021/09666201/1A3hSbWACyc>
Wasifur Rahman, Sazan Mahbub, **Asif Salekin**, Md Kamrul Hasan and Ehsan Hoque.
- (C) **'csrankings' listed Top Conference , Lead-PI**
Exploring Inherent Sensor Redundancy for Automotive Anomaly Detection
The 57th Design Automation Conference (DAC 2020) .
Paper Link:<https://dl.acm.org/doi/abs/10.5555/3437539.3437617>
Tianjia He, Lin Zhang, Fanxin Kong, and **Asif Salekin** .
- (C) **First-Author**
A Real-Time Audio Monitoring Framework with Limited Data for Constrained Devices
The 15th International Conference on Distributed Computing in Sensor Systems (DCOSS 2019).
Paper Link:<https://ieeexplore.ieee.org/abstract/document/8804744>
A. Salekin , S. Ghaffarzadegan, Z. Feng, and J. Stankovic
- (C) **Core A Conference, 2019**
ARASID: Artificial Reverberation-Adjusted Indoor Speaker Identification Dealing with Variable Distances
International Conference on Embedded Wireless Systems and Networks (EWSN), 2019.
Paper Link:<https://dl.acm.org/doi/abs/10.5555/3324320.3324339>
Z. Chen, M. Ahmed, **A. Salekin** , J. Stankovic
- (J+C) **'csrankings' listed Top Conference , First-Author**
A Weakly Supervised Learning Framework For Detecting Social Anxiety And Depression
ACM Interactive, Mobile, Wearable, and Ubiquitous Technologies (IMWUT) , Vol. 2, Issue. 2 (UbiComp 2018) .
Paper Link:<https://dl.acm.org/doi/abs/10.1145/3214284>
A. Salekin , J. Eberle, J. Glenn, B. Teachman, J. Stankovic
- (J+C) **'csrankings' listed Top Conference , First-Author**
Distant Emotion Recognition
ACM Interactive, Mobile, Wearable, and Ubiquitous Technologies (IMWUT) , Vol. 1, Issue. 3 (UbiComp 2017) .
Paper Link:<https://dl.acm.org/doi/abs/10.1145/3130961>
A. Salekin , Z. Chen, M. Ahmed, J. Lach, D. Spruijt-Metz, K. Haye, B. Bell, J. Stankovic
- (C) **First-Author**
DAVE: Detecting Agitated Vocal Events
IEEE/ACM Conference on Connected Health: Applications, Systems and Engineering technologies (CHASE), 2017.
Paper Link:<https://ieeexplore.ieee.org/abstract/document/8010629>
A. Salekin , H. Wang, K. Williams, J. Stankovic
- (C) **First-Author**
AsthmaGuide: An Asthma Monitoring and Advice Ecosystem
IEEE Wireless Health 2016. **(Nominated for best paper)**
Paper Link:https://www.cs.virginia.edu/~stankovic/psfiles/AsthmaGuide_final_v1.pdf
Co-first authors (**A. Salekin** , H. Ra), H. Yoon, J. Kim, S. Nirjon, D. Stone, S. Kim, J. Lee, S. Son and J. Stankovic
- (C) **First-Author**
Detection of Chronic Kidney Disease and Selecting Important Predictive Attributes
IEEE International Conference on Healthcare Informatics (ICHI), 2016.
Paper Link:<https://ieeexplore.ieee.org/abstract/document/7776352>
A. Salekin , J. Stankovic
- (C) **MOBI-COG: A Mobile Application for Instant Screening of Dementia Using the Mini-Cog Test**
Wireless Health 2014.
Paper Link:<https://www.cs.virginia.edu/~stankovic/psfiles/Mobi-cogWH.pdf>
S. Nirjon, I. Emi, A. Mondol, **A. Salekin** , and J. Stankovic

(C) **First-Author**

Extracting and Ranking Web Communities

International Conference on Web Intelligence, Mining and Semantics (WIMS), 2013.

Paper Link:<https://dl.acm.org/doi/10.1145/2479787.2479809>

A. Salekin , J. Tabassum, M. Hasan

(C) **A Novel Approach for Constructing Emulator for Microsoft Kinect XBOX 360 Sensor in the .NET Platform**

International Conference on Intelligent Systems, Modelling and Simulation (ISMS), 2013.

Paper Link:<https://ieeexplore.ieee.org/document/6498225>

MD. Rahman, S. Rahman, R. Hasan, R. Noel, A. Salekin , H. Ferdous

(C) **A Novel Clustering-Based Ensemble Classification Model for Block Learning**

International Conference on Pattern Recognition Applications and Methods (ICPRAM), 2013.

Paper Link:<https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=2e1bbdd93ed1dd1b6a3a45cb6d55ab0a8f8c4043>

MD. Rahman, MD. Rahman, A. Salekin , S.H. Chowdhury, S.A. Anik

(C) **A Novel Approach for Generating Clustered Based Ensemble of Classifiers**

International Journal of Machine Learning and Computing, Vol. 3, Issue. 1, Page 137, 2013.

Paper Link:<http://www.ijmlc.org/index.php?m=content&c=index&a=show&catid=35&id=286>

MD. Rahman, MD. Rahman, A. Salekin , A.S. Andalib

(C) **First-Author**

Composite Pattern Matching in Time Series

International Conference on Computer and Information Technology (ICCIT), 2012.

Paper Link:<https://ieeexplore.ieee.org/abstract/document/6509784>

A. Salekin , M. Islam, MD. Rahman

(C) **First-Author**

Pattern matching in time series using combination of neural network and rule based approach

International Conference on Electrical and Computer Engineering (ICECE), 2012.

Paper Link:<https://ieeexplore.ieee.org/document/6471591>

A. Salekin , MD. Rahman

(C) **Novel approaches for detecting fabric fault using artificial neural network with k-fold validation**

International Conference on Computer and Information Technology (ICCIT), 2012.

Paper Link:<https://asalekin.github.io/doc/06509767.pdf>

A.S. Andalib, A. Salekin , M.R. Islam, M. Abdulla-Al-Shami

PATENT

System And Method For Audio Event Detection In Surveillance Systems

A. Salekin , S. Ghaffar zadegan, Z. Feng (2019)

U.S. Patent Application No. 16/976,462.

Link: <https://patents.google.com/patent/US20210005067A1/en>

MENTORING EXPERIENCE

Currently supervising **four** Doctoral Students. Three PhD students graduated in the Summer and Spring of 2024 and the summer of 2025.

Supervised **eight** Master's Students in research (at least two semesters).

Supervised **sixteen** undergrad students (**five** were funded) in research.

Undergraduate student advisor for **27** undergraduate students.

Hosted and supervised **three** high-school students in the summers of 2022 and 2023.

I partnered with the STEP program at Syracuse University to host underrepresented high-school students each summer.

NEWS COVERAGE ON MY RESEARCH

- My lab's work on **protecting users' emotional privacy from smart speakers** like Alexa was featured as a story.
News Link:<https://ecs.syracuse.edu/about/news/smart-speakers-smarter-protection>
- My current research, funded by **NSF SCH**, aims to develop a reliable automated intervention for supporting individuals undergoing treatment for **opioid use disorder**, which has been highlighted in multiple news stories.
First News Link:<https://www.syracuse.edu/stories/falk-addiction-studies-opioid-treatment/>
Second News
Link:<https://www.govtech.com/education/higher-ed/syracuse-university-testing-smartwatches-to-ease-opioid-addiction>
- Our **NIH NIDCD grant**, which aims at developing fair and ethical AI algorithms to understand **children's speech disfluency** and provide automated interventions, was featured as a story.
News Link:https://news.syr.edu/blog/2023/05/24/researchers-artificial-intelligence-based-speech-sound-therapy-software-wins-2-5m-nih-grant/?fbclid=IwAR1t5AX39Trbm0tQUysj6QD_vM5JVGXZp1n0IxAYDnOksc2_zi5dQHTAvEA
- My lab's research on early detection of **Alzheimer's Disease in the Preclinical Stage**, 8 to 10 years before clinical data indicates the patient is healthy, earned the prestigious '**IAAI Deployed Application**' award and garnered media coverage.
News Link:<https://news.syr.edu/blog/2021/04/29/electrical-engineering-computer-science-researchers-win-artificial-intelligence-award/>
- My **undergraduate student mentees** developed a **Covid-19 symptom tracking** app which received news coverage.
News Link:<https://news.syr.edu/blog/2020/04/28/ecs-students-team-up-with-public-health-and-anthropology-faculty-to-develop-covid-19-symptom-tracking-app/?fbclid=IwAR0Jetvm68IUqCu8zXT1mjP-WzXSKmwAAXbPwuDYnAz3sDM039iWvzWzWw>

TEACHING EXPERIENCE

Instructor Course: Graduate Level Signals and Systems in Medical Applications
Fall 2025.

Instructor Course: Graduate Level Design and Analysis of Algorithms (CIS 675)
Fall 2023 (73 Students): Student Feedback 4.11/5.
Fall 2022 (164 Students): Student Feedback 4.11/5.
Fall 2021 (75 Students): Student Feedback: 4.25/5.
Fall 2020 (32 Students): Student Feedback: 4.14/5.
Fall 2019 (128 Students): Student Feedback: 3.89/5.

Instructor Course: Undergrad Level Design and Analysis of Algorithms (CIS 477)
Spring 2023 (45 Students): Student Feedback: 4.28/5.
Spring 2022 (30 Students): Student Feedback: 4.68/5.

Instructor Course: Graduate Level Ubiquitous Computing (CIS 700)
Spring 2023 (15 Students): Student Feedback: 4.5/5.
Spring 2022 (11 Students): Student Feedback: 4.65/5.
Spring 2021 (12 Students): Student Feedback: 4.5/5.

Instructor Course: Graduate Level Machine Learning for IoT Applications (CIS 700)
Spring 2020 (10 Students): Student Feedback: 4.24/5.

Instructor Course: ML Nanocourse series, 2020.
Lectures on Machine Learning for Health.
SUNY Upstate Medical University

Invited lecturer: Two lectures on Machine Learning for IoT and CPS
Course: The Internet of Trillions of Things (Graduate level), UVA, Fall 2018

Invited lecturer: A lecture on Smart Connected Health
Course: Wireless Sensor Networks (Undergraduate level), UVA, Fall 2014

Graduate Teaching Assistant Course: Algorithm
UVA, Fall, 2013 and Spring, 2014
Hold office hours and graded homework and exams for over 300 students

SELECTED TALKS

Invited Talk: 'Multimodal UWB Sensing for Farm Animals'
NSF CPS PI meeting in Nashville, TN, March 2025.

Invited Talk: 'Co-Teaching, a Novel Multimodal Training Method for Unimodal Inference'
Ubicomp 2024 conference in Melbourne, AUS, Oct 2024.

Invited Talk: 'Decoding Hostility from Conversational Speech'
ACII 2024 conference in Glasgow, UK, Sept 2024.

Invited Talk: 'Robust, Fair, and Reliable Computing for Healthcare'
The Global AI Summit at Riyadh, KSA, as an invited speaker, Sept 2024.

Invited Talk: 'Robust, Fair, and Reliable Human-Centric Computing for Healthcare'
Center for Technology and Behavioral Health at Dartmouth University, Jan 2024.

Invited Talk: 'Robust, Fair, and Reliable Human-Centric Sensing and Computing'
Khoury College of Computer Sciences, Northeastern University, Nov 2023.

Invited Talk: 'Robust, Fair, and Reliable Human-Centric Sensing and Computing'
ECE Departmental seminar at Clarkson University, 2023.

Invited Talk: 'Robust, Multimodal, Fair, and Reliable Health Sensing and Computing'
The 10th International Conference on Networking, Systems and Security (NSysS), 2023.

Invited Talk: 'Psychophysiological Sensing to Enhance Mindfulness-Based Interventions for Self-Regulation of Opioid Cravings.'
Crouse Hospital Addiction Treatment Services, 2023.

Invited Talk: 'Ubiquitous and human-centric computing in healthcare'
Research Colloquia series, College of Electrical Engineering and Computer Science, Syracuse University, 2022.

Invited Talk: 'Understanding Autism: The Power of EEG Harnessed by Prototypical Learning'
Medical Cyber Physical Systems and Internet of Medical Things Workshop, 2021.

Invited Talk: 'Ubiquitous and human-centric computing in healthcare'
Research Exposure in Socially Relevant Computing (RESORC), Organized by Syracuse University in partnership with Google, 2021.

Invited Lecture: 'Adaptive Machine Learning for Human-Centric IoT Applications'
IEEE Syracuse Section
Engineering in Medicine and Biology Society Chapter Event, 2020

Invited Talk: 'Machine Learning for Constrained Devices with Limited Training Data'
University of Rochester, 2019

Invited Talk: 'Adaptive Machine Learning for IoT'
Indiana University, Bloomington, 2019

Invited Talk: 'Adaptive Machine Learning for IoT'
Florida State University, 2019

Workshop Presentation: 'Machine Learning for Constrained Devices with Limited Training Data'
International Workshop on NEXT-GENERATION CYBER-PHYSICAL SYSTEMS, 2018

Invited talk 'Human Machine Interaction', **BR Lab, Nokia Bell Labs**, NJ, USA, 2018

Invited talk 'Machine Learning for IOT and CPS', **ENSA Lab, Nokia Bell Labs**, NJ, USA, 2018

Full Paper Presentation 'Distant Emotion Recognition', **Ubicomp**, 2017

Full Paper Presentation 'Detecting Agitated Vocal Events', **IEEE CHASE**, July 2017

Invited talk 'Novel Feature Modeling for Audio Analytics', **BOSCH Research and Technology Center**, CA, USA, 2017

Poster Presentation 'LifeMaps - An Automated Diary System Based on the Structure of Lives', **Sensys**, 2016

The Public Days showcase event 'AsthmaGuide : A Complete Asthma Monitoring System', 2016

Full Paper Presentation 'AsthmaGuide: A smartphone and cloud based asthma system', **IEEE Wireless Health** 2016

Full Paper Presentation 'Chronic kidney disease detection', IEEE ICHI, 2016

Poster and Demo Presentation 'Detecting Agitated Vocal Events', **SenSys** , 2015

Poster and Demo Presentation 'AsthmaGuide: An Ecosystem for Asthma Monitoring and Advice', **SenSys** , 2015

Project Demonstration UVA Open House, 2014, 2015, 2016, 2017

LEADERSHIP ROLES

- I serve as an **Associate Editor (AE)** for the journal 'The Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (**IMWUT**)' and for the conference '**UbiComp**'. IMWUT/UbiComp follows a hybrid model in which papers accepted by IMWUT are presented at UbiComp each year. It is the 'csrankings' listed top publication venue for ubiquitous computing research.
- I am leading the design of the 'Fundamentals of AI for Medical Applications' course development for the School of Medicine and Advanced Medical Engineering at ASU.
- I served as an **Associate Editor (AE)** for the 'ACM Transactions on Computing for Healthcare' journal from 2021-2024.
- **Co-organized** the '10th International Workshop on Mental Health and Well-being: Sensing and Intervention,' at Ubicomp 2025.
- **Co-Led** the '9th International Workshop on Mental Health and Well-being: Sensing and Intervention,' at Ubicomp 2024. <https://dl.acm.org/doi/abs/10.1145/3675094.3677564>
- **Co-organized** the '8th International Workshop on Mental Health and Well-being: Sensing and Intervention,' at Ubicomp 2023. <https://dl.acm.org/doi/abs/10.1145/3594739.3605108>
- As the **Lead of the NSF SCH project**, I provide overall project oversight. Notably, I've partnered with 'Crouse Health Addiction Treatment Services at Syracuse' to collect real-world sensing data from patients with opioid substance use disorder, coordinate the efforts of other PIs, and mentor the students.
- To advance health computing research through effective multidisciplinary collaboration:
 - I hold a voluntary assistant professor appointment at SUNY Upstate Medical School.
 - Affiliations with the Aging Studies Institute at Syracuse University.
 - I developed a partnership with Syracuse University's Speech Clinic, securing multiple NIH NIDCD grants and impactful publications as research outcomes.
 - I developed research collaboration with the Department of Psychiatry at Massachusetts General Hospital.
- I developed a partnership with the Science and Technology Entry Program (**STEP**) at Syracuse University to design a summer research program for **high school students** to introduce IoT, computing, and interdisciplinary research.

REFeree/REVIEWER

Associate Editor Journal: 'The Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (**IMWUT**)' and for the conference '**UbiComp**'.

Associate Editor Journal: ACM Transactions on Computing for Healthcare. 2021-2024.

TPC member SenSys 2024, 2025.

PC member AAAI 2022, 2023, 2024, 2025, CVPR 2021, ACII 2023

Served as a **panelist and reviewer** at the Doctoral Colloquium, Ubicomp, 2023.

TCP member PerIoT 2020 and 2021

Reviewer:

IMWUT (UbiComp) 2017, 2018, 2019, 2020, 2022, 2023

ACM Transactions on Cyber-Physical Systems 2019

IFIP Performance 2018, ISSRE 2018, Heliyon 2018, and DSN 2019

NSF: SERVICE

Served on the Phase I: Big Data and Advanced Analytics (Virtual) SBIR review panel.

Served on NSF Multimodal Sensor Systems for Precision Health Enabled by Data Harnessing, Artificial Intelligence, and Learning (SenSE) panel.

Served on three NSF Smart and Connected Health (SCH) panel.

SYRACUSE UNIVERSITY: SERVICE

Served on the SU CUSE grant review panel (2020)

Developed one position for the second round of cluster hiring competition in Aging, Health, and Neuroscience.

Acting as an undergraduate student advisor for 27 undergraduate students.

Contributed as a part of CISE and ECE QE1 exam 2020, 2021, 2022, 2023 (Ph.D. Qualifying examination committee).

Contributed as part of eight Ph.D. proposals and four Ph.D. defense committees.

Served in EECS open-house events 2023; Served as a judge in CuseHacks 2023, ECS Research Day Exhibition 2022, 2023.

VOLUNTEERING EXPERIENCE

Student Volunteer : Wireless Health 2014, UVA Engineering Alumni Reunions 2014, Hosting Faculty Candidates (2015 & 2016), BUET CSE Festival (2008 & 2011), Bangladesh National Math Olympiad 2008

Co-founder and General Secretary : Association of Bangladeshi Students UVA, 2016-2017

Community Action : Mentored two underprivileged students in their studies, 2014-2017