Advances in Multi-modal Hearing Assistive Technologies (AMHAT)

General Chairs

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IMPORTANT DATES:

Paper Submission Deadline:
24 February 2023

Paper Acceptance Notification:
14 April 2023

Camera Ready and Registration for Accepted Papers:
28 April 2023

SUBMISSION:

Papers must be formatted according to the instructions in the ICASSP 2023 Paper Submission Guidelines. Also, please take care to read the Conference Policies from the IEEE Signal Processing Society!

Link: https://cogmhear.org/amhat2023/

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HEAR THE WORLD

SCOPE

Hearing loss affects 1.5 billion people globally and is associated with poorer health and social outcomes. Recent technological advances have enabled low-latency, high data-rate wireless solutions for in-ear hearing assistive devices, which have primarily reformed the current innovation direction of the hearing industry. Nevertheless, even sophisticated commercial hearing aids and cochlear-implant devices are based on audio-only processing, and remain ineffective in restoring speech intelligibility in overwhelmingly noisy environments. Human performance in such situations is known to be dependent upon input from both the aural and visual senses that are then combined by sophisticated multi-level integration strategies in the brain. Due to advances in miniaturized sensors and embedded low-power technology, we now have the potential to monitor not only sound but also many parameters such as visuals to improve speech intelligibility. Creating future transformative multimodal hearing assistive technologies that draw on cognitive principles of normal (visually-assisted) hearing, raises a range of formidable technical, privacy and usability challenges which need to be holistically overcome. The AMHAT Workshop aims to provide an interdisciplinary forum for the wider speech signal processing, artificial intelligence, wireless sensing and communications and hearing technology communities to discuss the latest advances in this emerging field, and stimulate innovative research directions, including future challenges and opportunities.

TOPICS OF INTEREST

The Workshop invites authors to submit papers presenting novel research related to all aspects of multi-modal hearing assistive technologies, including, but not limited to the following:

- Novel explainable and privacy-preserving machine learning and statistical model based approaches to multi-modal speech-in-noise processing

- Real-time, low-latency and energy-efficient audio-visual speech enhancement and separation methods

- Internet of things (IoT), 5G/6G and wireless sensing enabled approaches to multi-modal hearing assistive technologies

- Auditory-inspired models of multi-modal speech perception and enhancement

- Cloud/Edge and System-on-Chip implementations of multi-modal hearing assistive technologies

- Multi-modal speech enhancement and separation in real-world and AR/VR environments

- Innovative binaural and multi-microphone, including MEMS antenna integration and multi-modal beamforming approaches

- New multi-modal speech intelligibility models for normal and hearing-impaired listeners

- Automated speech quality and intelligibility assessment techniques for multi-modal hearing assistive technologies

- Demonstrators of multi-modal speech processing and assistive technology use cases (e.g. multi-modal listening and communication devices to support people with hearing and speech impairments)

- Accessibility and human-centric factors in the design and evaluation of multi-modal hearing assistive technology, including public perceptions, ethics, standards, societal, economic and political impacts

- Contextual (e.g. user preference and cognitive load-aware) multi-modal hearing assistive technologies

- Innovative applications of multi-modal hearing assistive technologies (e.g. diagnostics, therapeutics, human-robot interaction, sign-language recognition for aided communication)