

Vikas Tokala

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Personal Profile

Marie Curie Early-stage researcher and PhD fellow at Imperial College London working on Binaural Speech Enhancement using statistical signal processing and machine learning methods. I am highly passionate about the R&D of Immersive audio techniques, multichannel spatial audio, and Electroacoustic signal processing.

Education

Imperial College London

London, UK

Marie Curie Ph.D. Fellow

June 2021 - June 2024

- Early stage researcher grant recipient part of Marie Skłodowska-Curie Actions H2020 project 'SOUNDS'
- Binaural Enhancement of Speech Intelligibility in Hearing Impaired Scenarios.
- Multichannel binaural speech enhancement preserving the spatial information.
- Novel methods for Binaural speech enhancement using machine learning and statistical signal processing.
- Research secondments at Oticon A/S, Denmark and Carl von Ossietzky University, Oldenburg, Germany.

Le Mans Université

Le Mans, France

Master of Science in Electroacoustics

Aug 2018 - Aug 2020

- 'Excellence Scholarship' Award for 2 years of the master's program.
- 'Best Project Award' for Bistable system sound effect at University's annual project expo.
- Transducer modeling design and analysis, Electroacoustic signal processing and digital audio filtering, Room Acoustics, 3D sound, Holography, Beamforming, Spatial Audio Techniques, Transducer simulations and modeling using COMSOL, Klippel system (DA2 and KA3) and other Electroacoustic measurement techniques

Visvesvaraya Technological University

Bangalore, India

Bachelor of Engineering - Electronics and Communication Engineering

Sept 2012- June 2016

- 'Best Outgoing Student - 2016' from the college for contributions to research and sports.
- Graduated First class with Distinction honors

Work Experience

Meta

Redmond, USA

Research Scientist Intern

Sep 2024 - Feb 2025

- Fault detection of loudspeaker systems in wearable devices.
- Loudspeaker system identification and linearization.
- Detection of port contamination of loudspeakers.
- Detection of water ingress in loudspeaker systems in wearable devices.

Samsung Research America

Greater Los Angeles, USA

Acoustics Research and DSP Intern

Feb 2020 - Aug 2020

- Automatic Response correction of Loudspeaker systems.
- Design and testing of new DSP algorithms
- Non-linear Transducer modeling.
- Machine Learning/AI for multichannel spatial audio systems.
- Binaural measurements of earphones using KEMAR.
- Klippel measurements of transducers.

University Projects

Impact of the audience for sound reinforcement

Le Mans, France

L-Acoustics and Le Mans Université

Sep 2019 - Dec 2019

- Modelling the impact of the audience for sound reinforcement in the sub-low frequency range of 20 - 250 Hz.

Bistable System Sound Effect

Le Mans Université

Le Mans, France

Jan 2019 – Jun 2019

- This project aims to model the characteristics of a bistable system and create a sound effect capable of emulating the sound generated by a bistable membrane, by taking advantage of the cubic nonlinearities that characterize this system.

Skills

Programming	Python, Matlab
Computational Software	COMSOL, Max MSP, Akabak, Klippel system, ABEC, PAFLs, Arta
Design Software	Solidworks, Juce, LTSpice, Audition, Audacity.

Publications

Multichannel Binaural Speech Enhancement Using Deep Complex Convolutional Transformer Networks

Vikas Tokala, Emilie d'Olne, Mike Brookes, Simon Doclo, Jensen, Jesper, Naylor, Patrick A.

Submitted to IEEE Transactions (2025). 2025

Binaural Localization of Speech in Noise

Vikas Tokala, Eric Grinstein, Mike Brookes, Simon Doclo, Jesper Jensen, Patrick A Naylor

Submitted to Eusipco, 2025

Binaural Speech Enhancement Using Deep Complex Convolutional Transformer Networks

Vikas Tokala, Eric Grinstein, Mike Brookes, Simon Doclo, Jesper Jensen, Patrick A. Naylor

IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), 2024

Binaural Speech Enhancement Using Complex Convolutional Recurrent Networks

Vikas Tokala, Eric Grinstein, Mike Brookes, Simon Doclo, Jesper Jensen, Patrick A. Naylor

57th Asilomar Conference on Signals, Systems, and Computers, 2023

Binaural Speech Enhancement Using STOI-optimal Masks

Vikas Tokala, Mike Brookes, Patrick A. Naylor

International Workshop on Acoustic Signal Enhancement (IWAENC), 2022, Germany

Bistable Digital Audio Effect

Alexander Ramirez, Vikas Tokala, Antonin Novak, Frederic Ablitzer, Manuel Melon

Proceedings of the 23rd International Conference on Digital Audio Effects (DAFx2020), 2021, Vienna, Austria

Research Interests

3D sound and Spatial Immersive Audio

Design and modeling of Loudspeaker systems

Multichannel audio signal processing

Electroacoustic and audio signal analysis and processing.