

Chitralekha Gupta, Senior Research Fellow



CONTACT INFORMATION

COM2-01-07, School of Computing,
National University of Singapore

[Google Scholar](#) , [Website](#), [Github](#)
Citations: 615, H-Index: 14
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RESEARCH INTERESTS

My key research interest is in human-centered AI modeling for real-world applications. My interests lie at the intersection of generative models, HCI, and audio, particularly in assistive technologies, and controllability of generative models.

WORK EXPERIENCE

Senior Research Fellow Mar 2023 - Present
Augmented Human Lab, School of Computing, NUS

Research Fellow

Augmented Human Lab, School of Computing, NUS (PI: *Suranga Nanayakkara*) 2022-2023

Dept. of Communications and New Media, NUS (PI: *Lonce Wyse*) 2021-2022

Human Language Technology lab, Elec. and Computer Engg., NUS (PI: *Haizhou Li*) 2019-2021

Co-Founder of [MuSigPro Pte. Ltd.](#)

Aug 2019 – Present

A music technology start-up that commercializes two AI-based music technologies developed during my PhD and post-doc - a singing quality assessment algorithm, and an audio-to-lyrics time aligner.

Research Engineer at Airbus Defense and Space, Bangalore March 2013 - July 2014

Software Developer at Dell R&D, Bangalore Aug 2011 - Feb 2013

EDUCATION

Ph.D. at Dept. of Computer Science, 2015 - 2019
National University of Singapore (NUS)

Thesis: [Comprehensive evaluation of singing quality](#); *Advisors:* [Haizhou Li](#) and [Ye Wang](#)

Master of Technology at Dept. of Electrical Engg. 2008 - 2011

Indian Institute of Technology Bombay (IIT-Bombay)

Thesis: [Objective assessment of ornaments in Indian singing](#); *Advisor:* [Preeti Rao](#)

Bachelor of Engineering in Electronics Engg. 2004 - 2008

M.S. University, Baroda, India

SELECTED PROJECTS

Through my experience as a research fellow and a senior research fellow, I have worked on a diverse range of interdisciplinary HCI projects related to **audio, video, language** and **AI**. Selected projects that involve generative models are below:

- **Human-Centered Applications of Generative Models:**

I have worked with people with visual impairments to build an assistive tool that creates awareness of distant scenes through scene sonification using generative models. Moreover, I have explored methods to use LLMs for personalized text summarization. I have also worked on video-based motion sickness detection in VR games.

*Published in ACM IMWUT, IEEE VR (**Best Paper Award**), IJHCI* 2023 - Present

- **Controllability of Generative Models:** I have worked on exploring supervised and unsupervised methods of inducing control over certain attributes of synthesized audio by manipulating the latent space of GANs as well as text-based control over the attention layers of diffusion models.

Published in IEEE ICASSP, ISMIR, ACM IUI, ACM UIST, IEEE/ACM TASLP 2021 - Present

SELECTED PUBLICATIONS

- **Chitralekha Gupta**, Shreyas Sridhar, Denys Mattheis, Christophe Jouffrais, and Suranga Nanayakkara, *SonicVista: Towards Creating Awareness of Distant Scenes through Sonification*, ACM IMWUT/ UbiComp, 2024.

- Purnima Kamath, **Chitralekha Gupta**, and Suranga Nanayakkara, *Semantic Control for Text-to-Audio Morphing through Fader-like Interactions*, IEEE ICASSP 2025 (accepted).

- Purnima Kamath, **Chitralekha Gupta**, Lonce Wyse, and Suranga Nanayakkara, *Example-Based Framework for Perceptually Guided Audio Texture Generation*, IEEE/ACM TASLP, 2024.

- Elliot Wen, **Chitralekha Gupta**, Prasanth Sasikumar, Mark Billinghurst, James Wilmott, Emily Skow, Arindam Dey, and Suranga Nanayakkara, *VR.net: A Real-world Dataset for Virtual Reality Motion Sickness Research*, *IEEE VR*, 2024 (**Best Paper Award**).
- Shamane Siriwardhana*, **Chitralekha Gupta***, Tharindu Kaluarachchi, Vipul Dissanayake, Suveen Ellawela, & Suranga Nanayakkara, *Can AI Models Summarize Your Diary Entries? Investigating Utility of Abstractive Summarization for Autobiographical Text*, *IJHCI*, 2023.
- **Chitralekha Gupta**, Purnima Kamath, Yize Wei, Zhuoyao Li, Suranga Nanayakkara, and Lonce Wyse, *Towards Controllable Audio Texture Morphing*, *ICASSP*, 2023.
- **Chitralekha Gupta**, Haizhou Li, and Masataka Goto, *Deep Learning Approaches in Topics of Singing Information Processing (Overview Paper)*, *IEEE/ACM TASLP*, 2022.
- **Chitralekha Gupta**, Yize Wei, Purnima Kamath, Zhuoyao Li, and Lonce Wyse, *Parameter Sensitivity of Deep-Feature based Evaluation Metrics for Audio Textures*, *ISMIR*, 2022.
- **Chitralekha Gupta**, Emre Yilmaz, and Haizhou Li, *Automatic Lyrics Alignment and Transcription in Polyphonic Music: Does Background Music Help?*, *ICASSP*, 2020.
- **Chitralekha Gupta**, Haizhou Li, and Ye Wang, *Automatic Leaderboard: Evaluation of Singing Quality without a Standard Reference*, *IEEE/ACM TASLP*, 2019.
- **Chitralekha Gupta**, Emre Yilmaz, and Haizhou Li, *Acoustic Modeling for Automatic Lyrics-to-Audio Alignment*, *In Proceedings of Interspeech*, Graz, 2019.
- **Chitralekha Gupta**, Haizhou Li, and Ye Wang, *Perceptual Evaluation of Singing Quality* *APSIPA ASC*, 2017 (**Best Student Paper Award**).

SELECTED
ACHIEVEMENTS
AND AWARDS

- **Best Paper Awards:** Received Best Student Paper Award in APSIPA ASC 2017 and Best Paper Award in IEEE VR 2024.
- **DCASE Challenge 2023:** Our generative model system for the Foley Sound Synthesis Task at this international challenge ranked 3rd amongst 26 submitted systems.
- **MIREX 2020 and 2019:** Our “Automatic Lyrics-to-Audio Alignment and Lyrics Transcription” system ranked 1st in the International Music Information Retrieval Evaluation eXchange platform for two consecutive years 2019 and 2020. ([Press Release](#))
- **NUS Graduate Research Innovation Program (GRIP) Award**, July 2019, a start-up grant for MuSigPro Pte. Ltd.

PATENT

- **Chitralekha Gupta**, Haizhou Li, and Ye Wang, “System and Method for Assessing Quality of A Singing Voice”; **US Patent 11,972,774**, Year: 2024.
- **Chitralekha Gupta**, Ashwin Ram, Shreyas Sridhar, Christophe Jouffrais, and Suranga Nanayakkara, “Designing AI-generated sounds for scene understanding”; **SG Patent Application No. 10202403564W**, Year 2024 (Patent-Pending).

RESEARCH
SUPERVISION

- Co-supervised 2 PhD Students, and 3 Masters students at NUS, 2020-2024.
- PhD Thesis Examiner, Sorbonne University, Paris in 2023.

INVITED TALKS

- Invited talk at Meta ARIA Summit, Redmond, Washington, USA. 2024
- Invited talk at IIT Bombay. 2021

INDUSTRY
COLLABORATIONS

- Meta Platforms Inc. (META) 2022 - Present
- AIST, Japan (Dr. Masataka Goto) 2021 - 2022

PROFICIENT IN

Diffusion Models, Transformer Models, GANs

TOOLS

Python, Pytorch, ESPNet, Kaldi ASR, Git, Docker, Singularity, Slurm, PBS.