

SOUMYA SAI VANKA

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About Me

Applied AI researcher with 4+ years of experience building intelligent audio systems using deep learning and user-centred design. Strong background in ML experimentation, data pipelines, and product-facing research. Experienced in translating research into real-world creative prototypes.

Relevant Skills : Deep learning (Transformers, Graph neural networks, Generative modelling for audio, Contrastive learning, DDSP), Data visualisation and analysis, Dataset curation and synthetic data generation, Mixed-methods user studies (qualitative and quantitative), UX research and user-centred design

Relevant Tools: Machine Learning Frameworks: PyTorch, Keras, Scikit-Learn, PyTorch Lightning, W&B, Programming Languages: Python (high competence), C++ (basic), Development & Version Control: Docker, Git, Kubernetes, LaTeX, Qualitative Analysis Software: MAXQDA, NVIVO

RESEARCH EXPERIENCE

PhD Researcher, Queen Mary University of London (Sept 2021 – Present) [Full time]

- Designed, trained and evaluated deep learning models for controllable music mixing style transfer.
- Built large-scale synthetic audio datasets for training and benchmarking ML systems.
- Led user-centred ML research with professional mixing engineers to define product requirements and validate usability.
- Designed interaction workflows for ML-based multitrack mixing systems integrated into DAWs.
- Conducted large-scale UX studies and listening tests to evaluate model behaviour in real creative workflows.
- Collaborated with industry partners at Steinberg Media Technologies on future product-facing research.
- Mentors and collaborators: George Fazekas (QMUL), Jean-Baptiste Rolland (SMTG), Yvan Grabit (SMTG).

Intern, Sony Research, Tokyo, Japan (Jan–April 2025) [Full time]

- Designed ML representations for music mixing effect chains using graph neural networks and contrastive learning.
- Built data pipelines for large-scale multitrack scraping and synthetic mix generation.
- Conducted computation research on representation learning for audio post-production workflows.
- Collaborators: Marco Martinez (Supervisor), Sunghoo Lee (Seoul National University), Junghyun Koo, Weih-siang Liao, Yuki Mitsufuji.

Trainee Intern, Steinberg Media Technologies GmbH (Aug–Dec 2022; Nov 2023–Apr 2024) [Part time]

- Developed deep learning systems for context-aware music mixing using PyTorch on Kubernetes-based infrastructure.
- Implemented differentiable audio effects and VST plugins for real-time ML-based processing.
- Led dataset design for multitrack mixing research used across academic and industry projects.
- Collaborators: Jean-Baptiste Rolland, Lennart Hannink, Yvan Grabit.

SELECTED PUBLICATIONS

- Diff-MST: Differentiable Mixing Style Transfer, ISMIR 2024.
- Diff-MSTC: Controllable AI Mixing System for Cubase, ISMIR 2024 Demo, CHI 2025 Demo.
- Deep Learning for Automatic Mixing, ISMIR Tutorial Book, 2022.
- The Role of Communication and Reference Songs in the Mixing Process, Journal of the Audio Engineering Society, 2023.

Find more research papers here.

MENTORING

Teaching Fellow, Queen Mary University of London (2024–2026)

- Supervised 17 undergraduate final-year projects in machine learning and software development across two years.
- Guided students on research design, ML experimentation, and academic/technical communication.
- Themes included: ML-based audio systems, computer vision apps, game platforms, and accessibility tools.
- Supported taught modules as a teaching assistant: Professional and Research Practice (UG Module), Ethics, Regulation and Law in Advanced Digital Information Processing (PG Module), User Experience Design (UG/PG Module), Research Methods and Responsible Research (PG Module)

COMMUNITY SERVICE & PARTICIPATION

Reviewer: ISMIR 2025, IEEE Access, Journal of AES, NeurIPS EAIM Workshop 2026

Organiser: Special Sessions Chair, AES AIMLA 2025

Hackathon Participation:

- London Music Technology Hackathon 2025 - MixGenie: Integrated open-source AI mixing system into Audiotools
- Timbre Tools Hackathon 2024 - The Sound of One Hand CLAPping: Control a synth VST with text prompts

SELECTED TALKS & WORKSHOPS

AI for Multitrack Music Mixing Tutorial – ISMIR 2022, AES NYC 2023 (Lead), DAFx 2024 (Lead)

Diff-MSTC Demo – CHI 2025, Yokohama

User-Centric AI Mixing – Ethical and Responsible AI Music Making Workshop at UAL London 2024

Music Mixing Style Transfer – UPF Barcelona 2024

EDUCATION

Queen Mary University of London (Sept 2021–Present)

PhD in AI and Music (expected to graduate August 2026)

Relevant Modules: Deep Learning for Music, Machine Learning, Sound Recording and Production, Music Informatics

Fully funded by UKRI AIM-CDT and Steinberg Media Technologies GmbH

Pondicherry University (PU), India (2018–2020)

MSc Physics, First Class (8.89/10)

Relevant Modules: Non-Linear Dynamics, Electronics, Mathematical Physics

Funded by Merit Scholarship at PU and DST-Insire Scholarship (Dept. of Science and Technology, Govt. of India)

Sri Sathya Sai Institute of Higher Learning (SSSIHL), India (2015–2018)

BSc Physics (Hons), Gold Medalist, Distinction (8.6/10)

Relevant Modules: Electronics, Mathematical Physics, Set Theory

Fully Funded by SSSIHL and DST-Insire Scholarship (Dept. of Science and Technology, Govt. of India)

OTHER INTERESTS

- **Music Making:** Saxophone player (played in university brass band from 2015-18, Fusion band Rhythmic Energy from 2018-2021), Music Production (Logic Pro, Ableton) Song Writing
- **Analogue photography and darkroom:** Shooting 35mm film, B/W film development and printing, member Darkroom socials (London) and Lakeside Darkroom
- **Other interests:** Sourdough baking, Fibre arts, Art history, reading and travelling