Saurjya Sarkar

PhD in Artificial Intelligence and Music

Global Talent Visa Holder (endorsed by Royal Academy of Engineering, UK)
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Linkedin | Google Scholar | GitHub

PROFESSIONAL SUMMARY

Research Scientist specializing in AI applications for Music and Audio Processing with prior experience in commercial audio product development with international and US patents. Proven track record of driving innovative interdisciplinary research, and high-resource deep learning deployment.

SKILLS

PyTorch | High-performance Computing | Deep Learning | Data Science | Music Producer | Guitarist

EDUCATION

Ph.D., Artificial Intelligence and Music ***October 2019 – December 2023***
Queen Mary University of London, London, United Kingdom
- Thesis: Time-domain music source separation for choirs and chamber ensembles
- Supervisors: Prof. Mark Sandler and Dr. Emmanouil Benetos

M.Sc. (Hons.), Physics (GPA: 8.0/10.0) ***July 2012 – June 2017***
Birla Institute of Technology and Science, Pilani, India
- Thesis: Study of surroundings of high and intermediate-mass YSOs in 30 Doradus Region
- Specialization: Astrophysics

B.E. (Hons.), Electrical and Electronics Engineering (GPA: 8.0/10.0) ***July 2012 – June 2017***
Birla Institute of Technology and Science, Pilani, India
- Thesis: Cross-adaptive audio effects for interactive live music performance.
- Specialization: Audio Signal Processing

EXPERIENCE

Post-doctoral Research Assistant ***April 2024 – March 2025***
Queen Mary University of London, London, United Kingdom
- Project: StudioSync - AI productivity tools for record labels
- Skills: Source Separation, Lyrics Transcription, Sample Detection, Instrument Recognition
- Industry Partners: Stage UK, Session.studio

Post-doctoral Research Assistant ***December 2023 – March 2024***
Queen Mary University of London, London, United Kingdom
- Project: Vocal Harmony Separation from multi-instrument recordings
- Skills: Music Source Separation, Vocal Harmony Separation, Azure/Kubernetes
- Industry Partner: AudioStrip

Engineer, Audio Technologies ***July 2017 – September 2019***
Qualcomm Inc., Hyderabad, india
- Projects: Led True Wireless+, LowLatency, ProAudio and Dolby Atmos feature set validation for Qualcomm's flagship SoC platforms Snapdragon 855 and 865.
- Research: Implemented machine learning based event detection algorithm to identify audio system failures for pre-commercialisation stress testing for all Snapdragon audio products.
- Patents: Secured a US patent for real-time 3D sound-field reproduction algorithm using on device sensors for Augmented Reality.

Research Assistant ***August 2016 – December 2016***
Queen Mary University of London, London, United Kingdom
- Project: Cross-adaptive audio effects for live music
- Skills: Digital Audio Effects, Live Performance Analysis, Csounds, VST development.

Research Assistant ***May 2015 – July 2015***
National Central University, Zhongli, Taiwan
- Project: Data analysis to establish period-luminosity relationship for extragalactic Cepheids.
- Skills: AstroPy, Data Analysis, Numerical Methods

PATENTS

- **Title:** Adjusting Audio Characteristics for Augmented Reality
  - **Inventor:** Saurjya Sarkar
  - **US Patent No:** 11032662
  - **Grant Date**: 8th June 2021
- **Title:** Voice Characteristic Machine Learning Modelling
  - **Inventors:** Saurjya Sarkar, Nidhin B. V.
  - **International Application No:** PCT/US2021/026476
  - **Publication Date**: 28th October 2021

SELECTED PUBLICATIONS

- Saurjya Sarkar, et.al. (**Best Student Paper**), *Leveraging synthetic data for improving chamber ensemble separation*, IEEE WASPAA, New Paltz, New York, USA, 2023
- Saurjya Sarkar, Emmanouil Benetos, Mark Sandler, *EnsembleSet: A new high-quality synthesised dataset for chamber ensemble separation*, ISMIR, Bengaluru, India, 2022
- Saurjya Sarkar, Emmanouil Benetos, Mark Sandler, *Vocal Harmony Separation using Time-doimain Neural Networks*, INTERSPEECH, Brno, Czechia, 2021
- Saurjya Sarkar, Oyvind Brandtsegg, Joshua Reiss, *Investigation of a drum controlled cross-adaptive audio effect for live performance*, Proceedings of the 20th International Conference on Digital Audio Effects (DAFx-17), Edinburgh, UK, 2017
- Chow-Choong Ngeow, Saurjya Sarkar, et al., *Updated 24 μm Period-Luminosity Relation Derived from Galactic Cepheids*, The Astrophysical Journal, 813, 1, 2015

AWARDS

- Global Talent Visa (exceptional promise), Royal Academy of Engineering, UK ***June 2024***
- **Best Student Paper Award** – IEEE Workshop on Applications of Signal Processing to Audio and Acoustics (WASPAA) ***October 2023***
- QualStar – Outstanding contribution to Snapdragon 865, Qualcomm Inc. ***September 2019***
- 1st Prize – Country-wide Indian fusion-rock band competition "Tarang" ***October 2014***
- 1st Prize – Inter-university rock band competition "Rocktaves Unplugged" ***October 2013***

TEACHING EXPERIENCE

Senior Demonstrator, ECS7006P Music Informatics ***January 2021 – April 2023***
Queen Mary University of London, London, United Kingdom
- Assisting laboratory sessions and coursework marking.
- Supervising student projects on Beat Tracking and Audio Fingerprinting.

Guest Lecturer, ECS7007P Research Methods & Responsible Innovation ***2020 – 2023***
Queen Mary University of London, London, United Kingdom
- Developed and delivered the Software Carpentry Workshop.
- Onboarding students on to high-performance GPU clusters

SCHOLARSHIPS & INTERNAL GRANTS

Creative Catalyst: AI in the Music Industry, Innovate UK (UKRI) ***April 2024 – March 2025***

- Named researcher as postdoc on grant awarded £380,000+

Research England Regional Investment Fund ***December 2023 – March 2024***

- Postdoc working on music source separation in collaboration with AudioStrip LTD, UK

WASPAA 2023 Student Travel Grant ***October 2023***

- Grant given for attending IEEE WASPAA 2023, New Palts, NY, USA

QMUL Central Research Fund ***October 2023***

- Grant given for research visit to AudioLabs - IIS Fraunhofer, Erlangen, Germany

UKRI CDT in Artificial Intelligence and Music ***October 2019 – September 2023***

- QMUL Research Studentship

QMUL Central Research Fund ***September 2017***

- Travel Grant to attend International Conference on Digital Audio Effects, Edinburgh, UK.

Ministry of Science and Technology (Taiwan) ***May 2015 – July 2015***

- Grant given for research visit to Institute of Astronomy, National Central University, Taiwan

PEER-REVIEWING

Reviewer in international conferences: DAFx, ISMIR, ICASSP, INTERSPEECH.

PROFESSIONAL MEMBERSHIPS

- Student Member, IEEE & IEEE Signal Processing Society ***2020 – Present***
- Diversity & Inclusion Committee Member, AES ***2021 – 2022***

OTHER CONFERENCE PRESENTATIONS

Music Demixing Workshop, ISMIR 2022 (Talk)
Virtual ***November 2021***
Monotimbral Ensemble Separation

DMRN+ 16: Digital Music Research Network Workshop (Talk)
London, UK ***December 2020***
Choral Music Separation

DMRN+ 15: Digital Music Research Network Workshop (Poster)
London, UK ***December 2019***
Music Source Separation in the Wild!

INDUSTRY/PUBLIC ENGAGEMENT TALKS

Sony Interactive Entertainment, London, UK ***August 2023***
Artificial Intelligence and Music

L'Acoustics, London, UK ***May 2023***
Time-domain Music Source Separation

TRAX, London, UK ***April 2023***
Building the future of Music: AI

Spitfire Audio, London, UK ***April 2022***
BBC Symphony Orchestra Ensemble Dataset

QMUL EECS Research Week, London, UK ***November 2020***
Singing Voice Separation