Keshav Bhandari

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https://keshavbhandari.github.io

Summary

I am a PhD student at the Centre for Digital Music (C4DM) at Queen Mary University of London. My research revolves around neuro-symbolic approaches for generating music with a focus on controllability and musical structure.

Education

Queen Mary University of London, EECS London, UK
Ph.D. in Artificial Intelligence 2023 - 2027 *(expected)*
- Advisor: Prof. Simon Colton
- Research area: Neuro Symbolic Automated Music Composition

Northwestern University, McCormick School of Engineering Evanston, USA
Master of Science in Artificial Intelligence 2021 - 2022

Purdue University, Krannert School of Management Indiana, USA
Bachelor of Science in Business Management & Marketing 2012 - 2016
- Dean's List, 2013

Publications

1. **Bhandari, K.**, Chang, S., Lu, T., Enus, F. R., Herremans, D., & Colton, S. ImprovNet - Generating Controllable Musical Improvisations with Iterative Corruption Refinement. *International Joint Conference on Neural Networks (IJCNN)*, 2025.

2. **Bhandari, K.**, Wiggins, G. A., & Colton, S. Yin-Yang: Developing Motifs With Long-Term Structure And Controllability. *International Conference on Artificial Intelligence in Music, Sound, Art and Design (EvoMUSART)*, 2025. **(Best Paper Award)**

3. **Bhandari, K.**, Roy, A., Wang, K., Puri, G., Colton, S., & Herremans, D. Text2midi: Generating Symbolic Music from Captions. *Proceedings of the AAAI Conference on Artificial Intelligence (AAAI)*, 2025.

4. Colton, S., Bradshaw, L., Banar, B., & **Bhandari, K.** Automatic Generation of Expressive Piano Miniatures. *International Conference on Computational Creativity (ICCC)*, 2024.

5. **Bhandari, K.**, & Colton, S. Motifs, Phrases, and Beyond: The Modelling of Structure in Symbolic Music Generation. *In International Conference on Artificial Intelligence in Music, Sound, Art and Design (EvoMUSART)*, 2024.

6. O'Reilly, P., Bugler, A., **Bhandari, K.**, Morrison, M., & Pardo, B. VoiceBlock: Privacy through Real-Time Adversarial Attacks with Audio-to-Audio Models. *Advances in Neural Information Processing Systems (NeurIPS)*, 2022.

PROFESSIONAL EXPERIENCE

Boston Consulting Group | Los Angeles, CA, USA — Jan 2023 - Sep 2023
- **Data Scientist**
  - Vodafone Italy: Developed AI-based tools using Llama and Stable Diffusion to enhance digital marketing efficiency.
  - Staples: Designed a pattern matching algorithm to improve control group selection for precise reporting and strategic insights.
  - Walgreens: Built model drift scripts to rectify deviations in price optimization algorithm in a MLOps framework.

Epsilon | Bangalore, Karnataka, India — Sep 2017 - Feb 2021
- **Senior Data Scientist**
  - Built deep learning based personalized recommendation engines using Transformers, boosting client hit rates by up to 5%.
  - Deployed end-to-end ML & DL solutions as a product on cloud platforms, achieving lift rates between 3X to 9X.
  - Developed Gredel, an interactive R-Shiny package for automating predictive modeling and improving ML interpretability.

AWARDS AND HONORS

- **EvoSTAR 2025 Best Paper Award / Outstanding Student Award** — 2025
- PhD Studentship - UK Research and Innovation (UKRI) — 2023
- 2nd place in Epsilon India Recommendation Engine Hackathon (26 Teams) — 2020
- Top 6% Kaggle Categorical Feature Encoding Challenge (1,342 Teams) — 2019
- Champion Innovator Spot Award, Epsilon — 2019
- Top 3% Kaggle TalkingData Ad-Tracking Fraud Detection Challenge (3,946 Teams) — 2018

GRANTS AWARDED

"Using deep learning to build a robust automated recognition system for rare and endangered birds in India"
AI for Earth Microsoft Azure Research Credits Grant. $5,000. — Oct 2021

- PI: Keshav Bhandari
- Role: I substantially wrote and edited this grant, and it was based on my work.

INVITED TALKS & PRESENTATIONS

- **Invited Talk:** *ImprovNet - Generating Controllable Musical Improvisations with Iterative Corruption Refinement.* Northwestern University, McCormick School of Engineering. Feb. 13th, 2025.
- **Guest Lecture:** *Limitations of Sequential Models and An Introduction To Transformers.* Queen Mary University of London, Google Deepmind Research Ready Programme Orientation. June 26th, 2025.
- **Guest Lecture:** *Self-Supervised Corruption-Refinement Models for Low Resource Generative Music.* Queen Mary University of London, Class: Computational Creativity. April 2nd, 2025.
- **Guest Lecture:** *How To Be An Expert At Literature Reviews.* Queen Mary University of London, Google Deepmind Research Ready Programme Orientation. June 28th, 2024.
- **Research Presentation:** *Towards Melodic Development with Discrete Diffusion Models for Symbolic Music.* Queen Mary University of London, Digital Music Research Network One-Day Workshop (DMRN+18). December 2023.
- **Research Presentation:** *Augmentations to improve rare bird call classification for a highly imbalanced multi-label soundscape environment.* Digital University Kerala, 11th International Conference on Ecological Informatics (ICEI 2020+1). November 2021.

TEACHING	• **Senior Demonstrator**, Data Science and AI master's cohort Sep 2024 - April 2025
	• **Teaching Fellow**, Supervising 6 UG and 12 PG students on their final year projects Oct 2024 - July 2025
	• **Demonstrator**, Computational Creativity Jan 2025 - May 2025
	• **Demonstrator**, Statistics for Artificial Intelligence and Data Science Sep 2024 - Dec 2024
	• **PhD Mentor**, Google DeepMind Research Ready Programme Jun 2024 - Jul 2024
ACADEMIC & COMMUNITY SERVICE	**Workshop Chair	Lead Organizer**, 1st International Workshop on Emerging AI Technologies for Music (EAIM-26), AAAI-26 2026
	Session Chair, Special Track: Human-AI Interaction in Creative Arts and Sciences, IJCNN 2025
	Reviewer, The Association for the Advancement of Artificial Intelligence (AAAI) 2025
	Reviewer, International Joint Conference on Neural Networks (IJCNN) 2025
	Member, Data Kind, Bangalore Chapter Aug 2018-Oct 2019
	President, Purdue Marketing Association, Purdue University Jan 2015-Dec 2015