

# Shreyan Chowdhury, Ph.D.

Audio Machine Learning Researcher & Engineer

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[shreyanc.github.io](#)

[in shreyan-chowdhury](#)

[shreyanc](#)

Audio ML researcher & engineer with a strong background in digital signal processing (**DSP**) and music information retrieval (**MIR**). Over 8 years of experience in both academic and industrial environments.

## TECHNICAL TOOLKIT

### Programming:

Python C/C++ MATLAB/Octave

### Frameworks/Software:

PyTorch Scikit-learn Jupyter

Madmom Librosa Essentia

Weights & Biases Git VSCode

IAR Embedded Workbench

### Hardware:

Raspberry Pi Arduino

STM Discovery Board

## CERTIFICATIONS

- ML in Production [🔗](#) 2022
- Hyperparameter Tuning, Regularization, Optimization [🔗](#) 2017
- Digital Sound Design [🔗](#) 2013

## SERVICE

### Open-source contributor

- Unify.ai 2024

### Peer-reviewer:

- ICNMC conference 2023
- ISMIR conference 2020-22

### Mentor:

- WiMIR (Women in MIR) 2022-23
- Institute summer internship 2022

### Teaching Assistant:

- Seminar in Artificial Intelligence 2023
- Electrical Engineering Lab 2014-15

## I SPEAK ...

English	fluent	German	B1-level
French	intermediate	Italian	beginner
Hindi	native	Bengali	native

## I ENJOY ...

- Playing the guitar [🎸](#)
- Music production [🎧](#)
- Street photography [📷](#)
- Playing chess [♟️](#)
- Electronic circuit design and embedded systems DIY projects

## WORK EXPERIENCE

### Johannes Kepler University | Linz, Austria

#### Postdoctoral Researcher

Jan 2023 – Dec 2023

- Developed an expressivity-aware **music search and retrieval** system.
- Proposed a **diffusion-based steerable piano performance generation** model.

#### Scientific Staff

May 2018 – Dec 2022

- Proposed novel techniques for **explainable** music emotion recognition using **mid-level feature learning** and **domain adaptation**.
- Published 9 peer-reviewed papers, with 5 as the first author.
- Delivered 2 invited talks in international research institutes.

### Bogren Digital | Remote

#### Machine Learning Consultant

May 2023 – Nov 2023

- Proposed novel architectures for **modelling vintage audio effects hardware**.
- Improved existing models (**RNN** and **LSTM**) by optimising performance in boundary conditions (silence, pure noise input, etc.).

### Honeywell Technology Solutions | Bengaluru, India

#### Senior Engineer

Jul 2015 – May 2018

- Led project to develop an **audio-based condition monitoring system**, resulting in a **patent and 3 awards** within the company.
- Developed and deployed **audio anomaly detection** models for **edge devices**.
- Implemented **fuzzy control algorithm** for Honeywell home **embedded devices**.

## EDUCATION

### Johannes Kepler University | Linz, Austria

#### Doctor of Philosophy, Computer Science

May 2018 – Dec 2022

- [📄](#) Thesis: Modelling Emotional Expression in Music Using Interpretable and Transferable Perceptual Features

### Indian Institute of Technology | Kanpur, India

#### Bachelor & Master of Technology, Electrical Engineering

Jul 2010 – Jul 2015

- [📄](#) Thesis: Musical Tempo Estimation From Audio Using Sub-band Synchrony

## PATENT

- Monitoring Industrial Equipment Using Audio [🔗](#) 2019

## SELECTED PUBLICATIONS Full list on [Google Scholar](#)

- DExter: Learning and Controlling Performance Expression through Diffusion Models | IJCAI '24, under review 2024
- Decoding and Visualising Intended Emotion in an Expressive Piano Performance | ISMIR '22, late-breaking demo [📄](#) [📺](#) 2022
- Towards Explaining Expressive Qualities in Piano Recordings: Transfer of Explanatory Features via Acoustic Domain Adaptation | ICASSP '21 [📄](#) 2021
- Two-level Explanations in Music Emotion Recognition | ICML '19, ML4MD workshop [📄](#) 2019

## SELECTED RECOGNITION

- **First rank** in MediaEval Music Mood/Theme Prediction Challenge 2019
- **Tech & Innovation Award** for project Aural Intelligence at Honeywell 2017
- **Outstanding Achiever Award** for project Aural Intelligence at Honeywell 2017
- **99.86 percentile** in Indian Institute of technology Joint Entrance Exam 2010