# JAYANT MANCHANDA

*Software Engineer · Full Stack · Machine Learning & Audio*

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## PROFILE

Full-stack engineer with 5 years of experience building scalable, production-grade systems, now focused on Audio AI/ML. Background in full stack web architectures and hands-on experience in machine learning, including model architecture design, training, fine-tuning & inference time techniques. Product and domain-driven with strong execution and stakeholder communication skills. Prior to software engineering, spent near a decade working in music performance, production, and education.

## WORK EXPERIENCE

**Freelance Product / Full-Stack & AI/ML Engineer** | **Self-Employed** *New Delhi / London / Remote* *Jan 2023 – Present*

- Led end-to-end design, development, deployment, and monitoring of the Viva Sounds festival platform & mobile app festival guide for 30K+ attendees.
- Developed a real-time sports gaming interface for Cricket8, enabling live data updates and interactive in-play user experiences.
- Designed and built Hubhopper's end-to-end podcast analytics and data ingestion pipeline using Elasticsearch and AWS Athena, enabling scalable performance tracking and user insights.
- Architected a scalable Dynamic Ad Insertion (DAI) system for Hubhopper, introducing new monetization streams for users.
- Contributed to a microservices-based API architecture supporting growth from 5M to 1B+ requests and scaling platform usage from 50K to 40M+ downloads and streams.
- Engineered client-specific HubSpot CRM integrations for Content Ninja using REST APIs and OAuth2, synchronizing CMS publishing events and application databases with HubSpot contacts and custom properties via webhook-driven middleware.

**Software Engineer** | **Orah** *Remote* *Oct 2022 – Dec 2023*

- Co-led sprint planning, performed peer code reviews, and supported junior developers, strengthening team delivery.
- Improved user flows and tested edge cases, increasing user retention and reducing production defects.
- Resolved live production issues using observability tools, minimizing downtime and business disruption.
- Contributed to research and development for user interaction analytics system for the platform.

**Full Stack Developer** | **Hubhopper** *New Delhi* *Oct 2020 – Oct 2022*

- Built and maintained secure REST APIs (Node.js, Express, MongoDB/Postgres) powering subscriptions, transactions, and analytics.
- Developed React-based frontend features, ensuring consistency and usability for creators and listeners.
- Co-developed a browser-based digital audio editor and Audiogram (React, Web Audio API).

## PROJECTS

**Diffusion-based Audio Timbre Transfer** | *MSc Research Project* *Queen Mary University of London*

github.com/manchandajayant/Diffusion-Style-Transfer

- Implemented a diffusion transformer based audio style transfer pipeline using Stable Audio Open to transfer timbral characteristics between monophonic instruments while preserving musical structure.
- Implemented attention reweighting between content and style latent paths to inject style features during the diffusion denoising process.
- Evaluated the approach against VAE-based baselines (RAVE and BRAVE) using timbre similarity (MMD) and content preservation metrics including pitch accuracy and loudness deviation.

**Elastic Observer** | *AWS EC2 Cost Dashboard* *Personal Project*
elasticobserver-dashboard-orcin.vercel.app

- Built a cost and utilisation dashboard with Next.js using live AWS data
- Implemented sortable instance tables, cost attribution breakdowns, anomaly indicators & KPI's with heuristics to help identify inefficiencies, improve readability and user understanding
- Developed a mock AWS cost data pipeline simulating AWS Cost Explorer outputs using generated real-time data.

**Singing Voice Separation using UNet** | *Audio ML Project* *Personal / Research*
github.com/manchandajayant/Vocal-extractor-unet

- Implemented a deep learning pipeline for singing voice separation using a U-Net convolutional architecture to isolate vocal tracks from mixed music audio.
- Trained the model on spectrogram representations of audio mixtures, learning time–frequency masks to separate vocals from instrumental components.
- Achieved effective separation of vocal tracks from mixed music recordings using a spectrogram-based U-Net model.

**Audio Fingerprinting System** | *Music Recognition (Shazam-style)* *Personal Project*
github.com/manchandajayant/Audio-recognition

- Designed a music recognition backend achieving >85% accuracy, robust to noisy inputs.
- Implemented a scalable constellation map fingerprinting algorithm and matching pipeline.

## EDUCATION

**MSc AI (Audio & Music Focus)— Distinction** *2025*
*Queen Mary university of London*

**Generative Music AI Workshop** *2024*
*Universitat Pompeu Fabra (UPF), Barcelona* Real-time music generation

**Master's in Design (Media & Sound) — Distinction** *2018*
*Glasgow School of Art*

**Certificate in Full-Stack Web Development — Project Pass** *2020*
*Codaisseur*

## SKILLS

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|---|---|
| **Languages** | JavaScript, TypeScript, Python, PHP |
| **Frameworks** | React, Angular, Node.js, Express, FastAPI |
| **AI / ML & Audio** | Torch, NumPy, Librosa, Spectrogram Analysis, Audio Signal Processing, Model Architectures, Training & Fine-tuning, Experiment Tracking (Weights & Biases) |
| **Databases & Caching** | PostgreSQL, MySQL, MongoDB, Redis, Elasticsearch |
| **Infrastructure** | AWS, Docker, CI/CD, GitHub Actions |
| **Engineering Practices** | Agile/Scrum, DevOps Ownership, CI/CD Pipelines, Code Review |
| **Soft Skills** | Product Thinking, Business Impact Awareness, Mentoring, Adaptability, Collaboration |