

Shraddha Sharma

DATA SCIENTIST · SINGAPORE

6 Petir Road, Singapore, 678267

☎ (+65) 86558813 | ✉ shraddha004@e.ntu.edu.sg | 🏠 shraddha-sharma.netlify.app/ | 📱 shraddha-hna

Personal Profile

A proud *Recurser* from New York, a *Signal Processing* specialist from Singapore, and a recent *Haskell* convert, I am working these days on designing a graph-oriented filesystem in Haskell with an open-source organization. While this filesystem will bring a fresh change to our hierarchical filesystems, I am just thrilled because this filesystem is attempting to solve a hard problem in Computer Science and that too using a fairly hard language — *Haskell*. This brings me to my obsession with tackling hard problems — I am zealous about *Randomized Algorithms*, love to design *Approximation Algorithms*, love solving *Probability* problems, and have recently been co-designing a course on Probability that starts first from the Philosophical discourse on *Frequentism* vs *Bayesianism*. You may find a draft of this course on probman.org.

Education

Recurse Center

Recurser

Brooklyn, NY

Sep 2025 - Jan 2026

- Attended a 12-week programming retreat in a cohort of 30 programmers from around the world.
- Built a singing note classification system using signal processing, Bayesian inference, and Hidden Markov Models using PyMC and PyTensor.
- Collaborated with fellow Recusers to develop a human motion-driven music generation system integrating real-time motion detection and algorithmic audio synthesis.

Nanyang Technological University

M.Eng. (Research) in Robotics and Artificial Intelligence

Singapore

Jan 2018 - Jan 2020

- **Thesis:** *Design and Development of an Indian Classical Vocal Training Tool* [🔗](#)
- **Courses:** System Analysis, Optimization, Graduate Linear Algebra, Machine Learning, Deep Learning, Analysis of Algorithms

The LNM Institute of Information Technology

B.Tech. in Electronics and Communication Engineering

Jaipur, India

Aug 2012 - June 2016

- Capstone Project: *Wireless Transmission of Solar Power*
- **Key Courses:** Graph Theory, Network Analysis, Probability Theory and Stochastic Processes

Work Experience

LIST Spec, Open Source Organisation

Python and Haskell Developer

Remote (Singapore)

Dec 2023 - Present

- Developing a novel graph-oriented filesystem with a FUSE-based userspace implementation for Linux systems.
- Initial development of the project in Python, and now being ported to Haskell.
- Project selected for research demo in the Document Engineering 2026 Conference, Switzerland.

Biofourmis Pvt. Ltd.

Data Scientist - Signal Processing

Singapore

Apr 2021 - Nov 2023

- Proposed and developed a signal processing and machine learning framework to detect Sleep Apnea from Electrocardiogram signal.
- Enhanced arrhythmia detection models for detecting pauses and atrial fibrillation by developing a novel statistical pattern detection approach, and contributed to the deployment of the models.
- Gained expertise in examining clinical guidelines, journals, databases (e.g. MIT-BIH Arrhythmia database and PhysioNet), and review papers.
- Developed proficiency in designing model specifications, analysing digital therapeutics (DTx) data, and interpreting ECG patterns.

Entrepreneur First

Founder in Residence(CTO)

Singapore

Feb 2021 - Mar 2021

- Selected for a 2-month Entrepreneurship program by Entrepreneur First.
- Developed a market product for the singing tool I developed during my Master's for bridging the gap between music instructors and students.
- Designed a Figma based mock prototype and python based Graphical User Interface (GUI) for customer validation.

SMRT Lab@NTU

Research Engineer

Singapore

Jan 2020 - Jan 2021

- Developed a pattern recognition algorithm using statistical methods (e.g. Gaussian Mixture models and K-nearest neighbors) to extract relevant features from SMRT train signal.
- Later, used these features in developing a machine learning model to classify different train signals and detect the outliers.
- Supervised an undergraduate student project for the design of a signal processing based filter for noise suppression in SMRT train signals.

Dauwels' Lab@NTU

Project Officer

Singapore

Apr 2019 - Oct 2019

- Worked on two team projects of human behavior analysis.
- **MOSCATO** - a game that captures facial features and helps in identifying the insider threat in a company. Extracted emotional features from the video data recorded in this game by applying an algorithm from "Affectiva".
- **CRADLE** - analysing the collaborative learning in a group setting. Developed a hypothesis to find collaboration among a group of students by statistically analysing (using methods like Pearson Correlation Coefficient) the emotional features extracted from the video data.

Hacklab Innovations Pvt. Ltd.

Embedded Engineer

Bengaluru, India

Jul 2017 - Nov 2017

- Worked on individual projects of embedded systems including indoor localization and asset tagging system.
- Calibrated water level sensor and plotted real-time graph to display water level.
- Interfaced different sensors with MSP430-EXP529LP and implemented UART, SPI and I2C communication.

Publications and Talks

1. [Research Demo] Sharma, S., Jiang, M., & **Sharma, S.** (2026, August). "A Knowledge Management Specification with reference implementation as a Filesystem", ACM DocEng, The 26th ACM Symposium on Document Engineering, Switzerland, 2026
2. [Conference Paper] **Sharma, S.**, & Er, M. J. (2019, February). "Design and Development of an Indian Classical Vocal Training Tool", IEEE, 2nd International Conference on Intelligent Autonomous Systems, Singapore, 2019 [🔗](#)
3. [Poster Presentation] **Sharma, S.** (2018, September). "Indian Classical Vocal Training Tool", Women in Music Information Retrieval (WiMIR) Workshop, Paris, France.

Competitions and Awards

ICoIAS Conference

Nanyang Technological University

Singapore

28 Feb - 1st Mar 2019

- Paper titled "*Design and Development of an Indian Classical Vocal Training Tool*" published and received **best presentation award** in 2nd International Conference on Intelligent Autonomous Systems (ICoIAS), 2019.

Singapore-India Hackathon

Nanyang Technological University

Singapore

12-14 Nov 2018

- Developed tool for Wayfinding with features like Wi-Fi strength, QR code, Visual aid (Camera) and audio signature identifier for indoor tracking.
- Project fetched position in **top 10 teams** of Singapore-India Hackathon.

Autonomous Robotic Competition

IIT Kharagpur

Kharagpur, India

Feb 2013

- As a team of 4 students, won **first prize** in Autonomous Line Follower Robotic competition.
- Later, a PID-based implementation was done for Robo race in IIT Kharagpur (Kshitij 2013).

Skills

Programming **PYTHON**(NumPy, Pandas, SciPy, PyTensor, PyTorch, PyMC), Bash, C, Haskell

Tools **LINUX**, **Git**, Bash (Shell), Vim, Emacs

Software **VISUAL STUDIO**, Labview

Hardware Raspberry Pi, Arduino

Applied AI Skills Fine-tuning LLMs, LLM Inference, Retrieval Augmented Generation(RAG), LangGraph, Agentic Coding (Claude CLI, Antigravity)

Skills in BOLD CAPS are ones with expert-level knowledge, with demonstrated usage in a real-world industrial or academic project.