

HARSHAL DESAI

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PROFILE

A highly motivated Software Engineer with over 3 years of experience and a B.Tech in Computer Science and Engineering, currently pursuing an MSc in Computer Science at University College Dublin. I am seeking full-time opportunities starting in May 2025, where I can apply my skills to design and develop efficient, robust systems.

Education

University College Dublin

MSc in Computer Science

Dublin, Ireland

September 2024 – August 2025

National Institute of Technology Jamshedpur

B.Tech (Hons.) in Computer Science & Engineering

Jamshedpur, India

August 2017 – May 2021

TECHNICAL SKILLS

Programming Languages: Java, Scala, Python, SQL

Tools/Frameworks: Spring Boot, Kafka, Git, Docker, Kubernetes, GCP, Jenkins, Numpy, Pandas, Sci-kit, Matplotlib, Seaborn, Fastai, PyTorch, Keras

Databases: PostgreSQL, Druid, Cassandra

Others: Shell Scripting, Web Scraping using BeautifulSoup & Selenium, Groovy

INDUSTRY EXPERIENCE

Software Engineer

June 2021 - July 2024

Lowe's India

Bengaluru, India

- Developed scalable **microservices** using **Java** and **SpringBoot**, supporting about 6k TPS (transactions per second).
- Designed and implemented **REST APIs** for efficient service communication.
- Gained experience working with **Kafka** for real-time event-driven processing.
- Managed **CI/CD pipelines**, including creating **Docker images** for consistent application deployment, and led testing efforts with **Unit, Integration, and End-to-End Tests**.
- Monitored and optimized performance metrics, focusing on **P99 and P95 response times**.
- Performed **production monitoring** using **Grafana** and **Kibana**, ensuring system reliability.
- **Subject Matter Expert** for Parcel Fulfillment applications, providing technical leadership.
- **Promoted** from Associate Software Engineer to Software Engineer within one year of joining as a fresher, in recognition of outstanding performance.
- **Mentored** and onboarded new team members, supporting their growth.

Rethink UX

November 2020

Data Science Intern

- Automated various data collection tasks for the marketing team using web scraping tools in Python.
- Worked closely with the team to analyze the data and provide insights on how it can be utilised to improve the business.

KEY PROJECTS

Patience Game | Java, Object Oriented Programming

October 2024

- Developed a console-based implementation of the classic card game Patience in **Java**, allowing players to interact through text commands.
- Designed and implemented core game mechanics, including card movements, lane rules, and foundation management, ensuring a challenging gameplay experience.
- Created a comprehensive command system for user interactions, enabling players to draw cards, move them between piles, and quit the game.

Skippy the Kangaroo Grid Simulation | Scala, Object Oriented Programming

September 2024

- Implemented a simulation of a kangaroo navigating a grid using die rolls to determine random directions in **Scala**, demonstrating the **Markov Chain process**.
- Simulation shows Skippy eventually reaches home even after making multiple random hops around the grid.
- Printed out statistics on die rolls and Skippy's movements to analyze the simulation results.

Multimodal Image Retrieval System | Python, Fastai, sentence-transformers, nmslib

March 2021

- Developed a text to image and image to image search system using the Flickr8k dataset.
- Used pretrained RoBERTa sentence encoder to create 1024-dimensional embeddings for the captions.
- Developed a CNN based architecture to create a common embedding space of text and images

Sketch Image Clustering based on Semantic Similarity | *Python, Fastai, spacy, sklearn*

June 2020

- Worked on Tu Berlin Sketch dataset consisting of 20,000 sketch images belonging to 250 categories
- Fine-tuned ResNet34 as base architecture to achieve an accuracy of 78.90% on test dataset of 4000 sketch images outperforming the human accuracy of 73.10%.
- Clustered images based on semantic similarities by first converting predictions to 300 dimensional vectors using spacy's english corpus and then using pairwise cosine similarity of the vectors.

Mineral Recognizer | *Python, PyTorch, Fastai, AWS*

May 2020

- Developed a Mineral Recognition model as a part of TechnoUtsav 3.0 (Technology Hackathon by Deloitte).
- Fine tuned ResNet50 as base architecture for transfer learning and achieved accuracy of 97.90% on the validation set.
- Developed a Python script to deploy a serverless REST API on AWS Cloud.

RESEARCH EXPERIENCE

Multimodal Digital Media Analysis Lab, IIIT Delhi

April 2021 – Present

Research Assistant

Guide: [Dr. Rajiv Ratn Shah](#)

- Created a Multimodal Web-Scrapped dataset with over 2M videos (Paper published at MM Asia '21 - [ref](#)).
- Proposed efficient Webly Label training strategies comprising of SSL and Multi-Label losses.
- Demonstrated pretraining with proposed dataset provides corruption and noise robustness on downstream tasks.

UE & HCI Lab, Department of Design, IIT Guwahati

June 2020 – August 2020

Research Intern

Guide: [Dr. Debayan Dhar](#)

- Worked as a summer research intern at the Usability Engineering and Human Computer Interaction Lab.
- Developed an automated system for Evaluation of uniqueness of Design-based creative answers.

SOFT SKILLS

Effective Communication: Collaborated with Product Managers to deliver projects on time and align expectations.

Leadership: Led the Data Titans team, the first Machine Learning and Analytics group at Lowe's India.

Problem-Solving: Known for swiftly resolving production issues to enhance system reliability.

Team Collaboration: Experienced in working within cross-functional teams to achieve goals.

Time Management: Skilled in prioritizing tasks to meet deadlines across multiple projects.

Adaptability: Quick to learn new technologies and adjust to evolving environments.

EXTRACURRICULARS

Grand Challenge at ACM MM Asia 2021

July 2021

Volunteer – Multi-modal Video Understanding in Noisy Environments

- * Developed a dedicated website for the grand challenge: <https://midas-research.github.io/noisy-mmvu/>

Programming Club of NIT, Jamshedpur

August 2019 - May 2021

Core Team Member | Machine Learning Specialist

- * Actively contributed to the Machine Learning community within the Programming Club.
- * Organized multiple Machine Learning contests and workshops.
- * Promoted open-source initiatives by mentoring various projects.
- * Successfully led the organization of the tech fest for the Computer Science department in 2021.

ACHIEVEMENTS

- 9th among 3820 teams in Lowe's Campus Hackathon 2020.
- 3rd place in Data Science Challenge organized by Rethink UX on Dockship.
- 9th place in Independence Day ML Hackathon organized by Analytics Vidhya.
- In top 1 % on the leaderboard of Food Delivery Time Prediction using ML Competition by IMS Proschool held on MachineHack
- 99.36 percentile (AIR 7638) in JEE Mains 2017 amongst 1.2 million candidates.
- 94.43 percentile in JEE Advanced 2017 amongst 200 thousand candidates.
- Performed as a Young Tabla Artist on the ALL INDIA RADIO, Pune. (2009 – 2013)
- Part of [Taal Ninaad](#) - an event recorded in GUINNESS BOOK OF WORLD RECORDS (01/2012)

PUBLICATIONS

- [1] SHARMA, M., PATRA, R. A., **Desai, Harshal**, VYAS, S., RAWAT, Y., AND SHAH, R. R. Noisyactions2m: A multimedia dataset for video understanding from noisy labels. In *ACM Multimedia Asia* (New York, NY, USA, 2021), MMAAsia '21, Association for Computing Machinery.