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# Sahaj Raj Malla

Data Scientist/ Researcher

sahajrajmalla.com  
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Forget passion; science and technology are my religion.

Greetings, I'm a 22-year old data scientist/researcher about to build production-ready machine learning products and is obsessed with software, maths, and quantum computing, and I want to devote my life to this field by researching, developing, and publishing my own software, algorithms, and theories so that I can look back on my life and say, "Yes, I did it my way."

## SKILLS

<b>Mathematics</b>	Linear Algebra, Complex Number, Calculus, Statistics, Probability
<b>Quantum Computing</b>	Qiskit, PennyLane
<b>Frontend</b>	HTML, CSS, Tailwindcss, Typescript, Next.js
<b>Backend</b>	Python, C++, GreatAPI, Django, FastAPI, RESTful APIs, GraphQL, pytest, pybind11
<b>Database</b>	PostgreSQL, MS-SQL, Redis, SQLAlchemy
<b>Data Science</b>	Numpy, Pandas, Seaborn, Sci-kit Learn, Tensorflow, Pytorch, Airflow, Streamlit, BeautifulSoup4, Selenium, Scrapy, Doccano, Spacy, HuggingFace
<b>DevOps</b>	Docker, Traefik
<b>Cloud Computing</b>	Amazon Web Services(AWS), Azure, Localstack, CPanel
<b>Management tools</b>	Git and Github, pre-commit, Github Actions, Slack, Agile Methodology, Notion, JIRA

- Others**
- Maintaining clean, structured, and performant code using best practices.
  - Writing meaningful Git commits, pull requests, comments, and documentation.
  - Effective collaboration and communication skills.
  - Asynchronous operations, optimizing programs to reduce Big O notation.
  - Log maintenance and strong problem-solving abilities.
  - Proficient debugging, research, and problem-solving through online resources.

## TECHNICAL EXPERIENCE

<b>Founder</b>	<b>Nov 2023 – Present</b>
<i>HamroNiwas – Tech-based Rental Services</i>	<i>Kathmandu, Nepal</i>

*HamroNiwas is a community platform for Kathmandu University students, offering accommodation solutions and a marketplace for furniture and essentials.*

- Established and developed the platform to connect KU students seeking accommodation.
- Created an online marketplace for furniture and home essentials.
- Managed community engagement, SEO, marketing, and finance.
- Facilitated a user-friendly interface for easy navigation and transactions.

<b>Data Scientist</b>	<b>Sep 2021 – Jan 2023</b>
<i>Naamche Technology – Full time – 1 year 4 months</i>	<i>Kathmandu, Nepal</i>

*A product lab that specializes in AI-powered web and mobile software solutions is based in Wilmington, Delaware, USA*

- Scraped short-term rental and real estate websites using a distributed web crawler and prepared pipelines to consolidate Lake House Architecture.
- Prepare visualization reports and statistical dashboards for stakeholders on the various characteristics of real estate properties in Florida, Texas, and California for potential investment opportunities.
- Develop machine learning and deep learning algorithms to predict the various outcomes of features of real estate for potential investment.

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## Data Engineer

Mar 2021 — Sep 2021

Devfinity Nepal – Full time – 8 months

Kathmandu, Nepal

IT Services and IT Consulting based on Salt Lake City, Utah, USA

- Developed a web application using Django, Celery, Django REST Framework, and Angular and deploy it to Azure Docker container instances which scrapes 1M observations per day.
- Worked with Azure Data Factory to store the files scraped from blob storage to MS-SQL and clean it using SQL scripts for commercial purposes.

## Founder

April 2020 — Mar 2021

vyesna.com – Self employed – 1 year

Kathmandu, Nepal

Nepal's network of employers and freelancers

- Designed and developed the whole web application.
- Maintain SEO, marketing, and finance.
- Scraped jobs-related datasets and developed a recommender system.

## VOLUNTEER WORKS

### Website Manager

May 2023 — May 2024

Kathmandu University Robotics Club – Executive Member – 1 year

Dhulikhel, Nepal

KURC is an inter-department club of enthusiastic students which is working in the field of Robotics including all its subsidiaries (Electronics, Mechanical, Computer, Geomatics and others). KURC seeks to increase student interest and involvement in science, technology, engineering and mathematics through learning by doing dictum.

### Lead Quantum Computing Researcher

Mar 2021 — Mar 2023

OneQuantum – Apprenticeship – Volunteer – 2 years

Munich, Germany

A community for all those interested and active in quantum tech from around the world to come together and grow.

- Learn, teach, and share resources with and from the members of the community about Quantum Computing.
- Collaboration to study research papers and literature reviews, and perform research studies about quantum computing.
- Develop full-stack real-world web applications by leveraging Quantum Computing.

### Data Scientist / Software Developer

Mar 2021 — Mar 2022

Robotics Association of Nepal – Part time – Volunteer – 1 year

Kathmandu, Nepal

Nepal's governmental non-profit organization is breaching the gap between humans and machines.

- Learn, teach, and share resources with and from the members of the community about technology.
- Develop a full-stack web application for various social work and non-profit projects.

## PROJECTS

**HamroNiwas** (Founder of HamroNiwas)

Jan 2023 – Present

Tech-based Rental services.

**GreatAPI** (Personal Project – Open-sourced Python Web Framework)

Jun 2022 – Present

GreatAPI framework, Full-stack FastAPI framework.

**vyesna.com** (Founder of vyesna.com)

Apr 2020 – Mar 2021

Nepal's network of Employers and Freelancers.

**Solving Human Trafficking on a Quantum Computer** (Associated with OneQuantum)

Nov 2021 – Apr 2022

The Quantum Approximate Optimization Algorithm and the Max-Cut problem are used to find the best node configurations.

**DistilBERT - Nepali News Classification** (Associated with IT MEET 2022)

13 Aug 2022 – 14 Aug 2022

DistilBERT model with Sequence Classification on 9 newsgroup datasets for the Nepali language with 95.475% accuracy. The model has also been uploaded to Hugging Face as [sahajrajmalla/patrakar](#) and is available to use for free.

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**Mission Oxygen Web Portal** (Associated with Robotics Association of Nepal and Mission Oxygen Team) May 2021 – Jun 2022

Facilitating vaccines, ventilators, oxygen cylinders, and hospital details in the COVID-19 pandemic.

**chayorooms.com** (Personal project) Jan 2020 – Mar 2020

Short-term room rental services in Nepal.

**memespot** (Personal project) Jan 2019 – Feb 2019

Web app that lets you share memes.

**CO2 Calculator API** (Personal project) Aug 2022 – Sep 2022

The API enables people to create events, join events, and measure the carbon footprint produced by each participant to get insights about online and onsite carbon emissions.

## PUBLICATIONS

**Evaluating XGBoost Algorithm for Nepali Stock Price Prediction**, IEEE Oct 13, 2023

Developed stock prediction model for Nepali market via XGBoost, and presented the research paper at International Conference on Technologies for Computer, Electrical, Electronics & Communication 2023 (ICT-CEEL 2023).

**Getting Started with GreatAPI: A Comprehensive Tutorial**, AWSTip Aug 3, 2023

A thorough tutorial guiding through the setup and utilization of GreatAPI (Authored by myself), a Python framework, for simplifying the creation of web applications and APIs, and demonstrating its application in fostering rapid, collaborative development.

**The Eternal Dance of Wisdom, War, and Serenity**, Medium Oct 18, 2023

An exploration of a modern AI-generated image of Lord Krishna, illustrating the harmonious coalescence of ancient wisdom from Bhagavad Gita and contemporary AI technology, which evokes a reflection on timeless teachings amidst life's adversities.

**Bird's eye view of Airflow**, Medium May 13, 2022

Understand the pill of Airflow with a glass of water of analogy.

**Procedure for Scientific Paper Publication**, Medium May 13, 2022

Procedure to one of the many journeys to publishing your research papers in journals.

## EDUCATION

**B. Sc. in Computational Mathematics**, Kathmandu University Oct 2022 — Present

**AI fellowship 2023**, Fusemachines Nepal Jan 2023 — Jan 2024

**Womanium Quantum 2023**, Womanium and QWorld Jul 2023 — Aug 2023

**Data Science Fellowship with DataCamp**, Code for Nepal Dec 2021 — Present

**Annual Nepal AI School 2023**, NepAI Applied Mathematics and Informatics Institute for research May 2021 — June 2022

**Annual Nepal AI School 2024**, NepAI Applied Mathematics and Informatics Institute for research Dec 2024 — Jan 2025

**Introduction to Quantum Computing**, The Coding School and IBM Sep 2021 — Apr 2022

**School Leaving Certificate (SLC)**, Kanjirowa National School 2018 — 2020

**Secondary Education Examination (SEE)**, Vidhya Sagar English Secondary School 2005 — 2018

## ACTIVITIES

**Investing in Nepali Securities Market - NEPSE** Jan 2020 — Present

**Full stack developer at Mission Oxygen Team (MOT)** Jun 2021 — Jun 2022

**Conducted Training Workshop on self-authored GreatAPI framework** 11 Sept, 2023

## HONORS

**Winner - Seeds for the Future Nepal, 2023**, Huawei Technologies Co., Ltd. Sept 18, 2023

Led the lead and represent Nepal in Huawei's esteemed "Seeds for the Future" program. Immersed in a transformative journey, encompassing tech bootcamps, international collaboration, and exposure to Huawei's

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*global innovations in Shenzhen & Shanghai. Grasped insights into emerging technologies and cultivated relationships with talented peers from the Asia-Pacific region.*

**Winner - Computer Engineering Model Demonstration, KEC LITE 2081**, Kantipur Engineering College Dec 2024  
*Secured 1st position at KEC LITE 2081 with "RingSewa," showcasing innovation and impactful solutions.*

**Conference Presentation on Landmark-Based Addressing**, Kathmandu University Oct 2024  
*Presented "Landmark-Based Addressing for Enhanced Urban Navigation" at NCDC-2024, contributing to urban navigation discussions.*

**Panelist at National Youth Scientific Conference 2024**, National Youth Council Nepal Jun 2024  
*Shared insights at "Youths in Science and Engineering" on the future of science and technology in Nepal.*

**Talk on Career in AI/ML**, CSIT Association of Nepal - Pokhara Dec 2023  
*Guided attendees at "KICKSTARTING CAREER IN IT" on AI/ML career paths.*

**Winner - KU Hackfest 2023 - OSM Category**, Kathmandu University Computer Club Oct 2, 2023  
*Led "Green Pulse," a tool designed to bridge the gap between sustainable development and environmental protection in Nepal by providing clear, visual insights into the environmental impact of development projects, fostering a harmonious blend of growth and nature preservation.*

**Winner - Infinity Codewave**, Department of Mathematics, Kathmandu University Aug 29, 2023  
*Led a team in a 24-hour hackathon to develop a unique solution for a Metric-based House Address hashing problem. Created a web application that simplified the navigation and accessibility of 30K buildings by hashing them to landmarks and directions, showcasing the results through a compelling presentation to judges.*

**Winner - AI Competition - Text Challenge**, IT MEET 2022, Kathmandu University Aug 14, 2022  
*I was awarded this honor for developing the DistilBERT model with Sequence Classification on 9 newsgroup datasets for the Nepali language with 95.475% accuracy. It was trained using Transfer Learning on a pretrained model from HuggingFace called Suyogyart/nepali-16-newsgroups-classification. I was awarded Rs 12,000 for this competition, which was organized by F1soft and Kathmandu University. I was solo instead of a team of 5.*

**Winner - AI Competition - Data Visualization**, IT MEET 2022, Kathmandu University Aug 14, 2022  
*I was awarded this honor for performing exploratory data analysis and preparing a one-page poster on Nepal's commodities trades. I was awarded Rs 8,000 for this competition, which was organized by F1soft and Kathmandu University. I was solo instead of a team of 5.*

**Winner - Youth Innovation Challenge 2022**, Social Changemakers and Innovators (SOCHAI) Aug 18, 2022  
*I received this award for developing a mobile app focused on nutrition that used AI to easily log, recommend, and track daily consumption. This software calculates calories with barcodes, scanned nutrition labels using OCR if it is a packed food item, and image classification, and quantity measurement with images if it is a prepared food item. I contributed as an AI developer to this project, and Team NutriAI, which also included Diwas Lamichhane and Dharamnath Sah, took first place.*