Sashank Baral

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SUMMARY

- **Technical Core Competencies:** Python, Javascript, Machine Learning, and Databases

- **Objective:** Seeking an opportunity to showcase my skills to solve real-world challenges.

EDUCATION

Kathmandu University — Dhulikhel, Nepal

BSc Computer Science — Latest GPA: 3.58/4.0 — *Oct 2020 – Present*

- **Relevant Courses:** Deep Learning, Artificial Intelligence, Software Engineering, Data Structures and Algorithms, Database Systems, Statistics & Probability, Linear Algebra

PROJECTS

Nepse Index Prediction System | *Python, LSTM, TensorFlow* — ⭘ Nepse | Apr 2024 – Jun 2024

- Implemented a data pipeline using Pandas to clean 8+ years of historical market data.
- Developed predictive models using Linear Regression and LSTM, achieving a 90% accuracy rate to mitigate financial risks and optimize investment decisions.

Music Genre Classification using CNN | *Python, TensorFlow, Librosa* — ⭘ Music Genre | Dec 2024 – Jan 2025

- Designed a CNN model achieving 90% accuracy on the GTZAN dataset using Mel-spectrogram features.
- Developed an audio pre-processing pipeline with 3-second interval chunking to reduce noise and enhance spectral feature extraction.
- Evaluated model performance with precision-recall curves and confusion matrices, informing future improvements.

ML vs DL - Spam Detection System | *Python, Scikit-Learn, TensorFlow* — ⭘ Spam | Dec 2023 – Jan 2024

- Compared 7 machine learning algorithms, achieving 98% accuracy with a Multi-layer Perceptron.
- Engineered 96+ features using the EMFET tool, including header analysis and OCR-based text extraction, to improve detection efficiency.

Fruit Detection Mobile Application Using CNN | *Flutter, Dart* — ⭘ Interactipedia | Apr 2022 – Jun 2022

- Developed a mobile application using *Flutter* for fruit detection and classification.
- Implemented a *convolution neural network (CNN)* model to predict the types of fruit from images.
- Integrated real-time image processing to enhance the user experience.

Weave – Create Connect Collaborate | *JavaScript, React, Node.js, PostgreSQL* — ⭘ Weave | Jan 2025

- Developed a collaborative platform for students and faculty, enhancing communication and project management.
- Integrated interactive calendar, proposal management, Kanban board, and file sharing systems to streamline workflows.
- Implemented dynamic heatmaps to visualize team productivity and engagement, supporting data-driven improvements.

Kounsel | *NextJs, Web Socket, MongoDB, HTML, CSS* — ⭘ Kounsel | Aug 2022 – Sep 2022

- Developed a platform connecting students with university therapists to streamline access to counseling.
- Implemented Google authentication and an encrypted chat system using Socket.io for secure communication.
- Integrated calendar scheduling to reduce appointment booking times.

ATM Simulation System | *Core Java, MySQL* — ⭘ atm | May 2025 – May 2025

- Developed a console based ui to simulate atm transactions and update the database
- Used JDBC for database connection and updating the database
- Multi-threaded ATM simulation (handling concurrent transactions)

Portfolio Diversification | *Python, Pandas, NumPy, NetworkX, Matplotlib* — ⭘ DiversiGraph | Feb 2024 – Apr 2024

- Built a portfolio risk-reduction tool using graph theory to optimize asset diversification.
- Constructed a correlation-based graph and minimum spanning tree (MST) to identify diversified asset subsets.
- Visualized asset relationships and risks using NetworkX and Matplotlib for clearer investment insights.

Technical Skills

Languages: Python, Java, Javascript, MySQL, C/C++

Frameworks: Node.js, TensorFlow, Scikit Learn, Keras, React.js

Tools: Git, GitHub, Visual Studio Code, Jupyter Notebook, Figma

Databases: MySQL

Data Science: Pandas, NumPy, Scikit-learn, Matplotlib

Soft Skills: Problem Solving, Analytical Thinking, Communication, Collaboration

Research

Exploring Gamification in Education | *Kathmandu University*   Completed - Publishing soon
- Designing novel gamification strategies using heatmaps, time-based rewards, and adaptive quizzes to boost student engagement.
- Developing an interactive learning analytics dashboard with habit-tracking heatmaps and time-investment visualizations.
- Conducting a longitudinal study with 150+ participants to measure changes in intrinsic motivation using validated psychometric scales.

Achievements and Certifications

- Hackerrank SQL (Intermediate) Certification
- Hackerrank SQL (Basic) Certification
- Finalist in Hack-A-Week Hackathon, organized by LOCUS, IOE Pulchowk
- 3rd Place, Manual Akhada Robotics Competition among 20+ college teams
- WIT-ZONE International MUN (2017) – Represented Syria in the Security Council