

# SAMRAT KUMAR ADHIKARI

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Lalitpur, Bagmati, Nepal

## PROJECTS

### • SignScribe: ASL Classification

2023

Tools: [TensorFlow, OpenCV, MediaPipe]

[G]

- Developed a real-time sign language classification model for recognizing American Sign Language (ASL) hand signs
- Implemented background subtraction techniques using OpenCV to enhance model accuracy, achieving robust classification performance
- Created an interactive web interface with Streamlit for user-friendly model interaction, ensuring accessibility and ease of use
- Applied MediaPipe for hand tracking and feature extraction, optimizing the system's ability to accurately interpret hand signs

### • FeatherFind: Bird Call Classification

2024

Tools: [Librosa, TensorFlow]

[G]

- Developed a model to classify bird species based on audio recordings, with a focus on real-world application for accurate bird identification
- Leveraged Librosa for sophisticated audio processing and feature extraction to enhance classification accuracy
- Implemented data augmentation techniques to enrich the training dataset, ensuring model robustness

### • Q-tips: Question & Answer Generator

2024

Tools: [Transformer, NLTK, BERT]

[G]

- Developed a machine learning model for generating questions and answers from text, aiming to improve automated content generation and information retrieval
- Utilized transformer architectures, such as BERT and GPT, for advanced natural language understanding and response generation to enhance the relevance and accuracy of generated content
- Implemented data augmentation and fine-tuning techniques on large-scale text datasets to optimize model performance and ensure high-quality question-answer outputs

### • War Of Wits: A Game Theory Simulation

2024

Tools: [React, p5.js, Chart.js]

[G]

- Simulated Axelrod's Tournament to analyze and visualize strategies solving the Prisoner's Dilemma problem
- Designed an interface with p5.js to demonstrate game theory concepts and outcomes
- Used Chart.js to represent data trends and performance metrics of different strategies

### • Forge Of Valinor: An Infinite Craft Clone

2024

Tools: [React, Express.js, Llama3, MongoDB]

[G]

- Developed an AI-driven crafting game leveraging the Llama3 model for dynamic element generation
- Integrated a robust backend using Express.js and MongoDB to handle user data and game states efficiently
- Created a seamless React-based front-end for engaging gameplay and intuitive user experience

## PUBLICATIONS

C=CONFERENCE

- [C.1] Samrat Kumar Adhikari, et al. (2024). **American Sign Language Classification using CNNs: A Comparative Study**. In *International Journal on Engineering Technology (InJET)*, pp. 283-295. Kantipur Engineering College. April 2024, Kathmandu. DOI: 10.3126/injet.v1i2.66704

SKILLS

- **Programming Languages:** Python, JavaScript, C++, C
- **Web Technologies:** HTML, CSS, JavaScript, React, Node.js, Express.js, Flask
- **Database Systems:** MySQL, MongoDB, PostgreSQL, SQLite
- **Data Science & Machine Learning:** TensorFlow, Scikit-learn, Pandas, NumPy, Matplotlib, Seaborn, Plotly
- **Cloud Technologies:** AWS Cloud, Microsoft Azure
- **DevOps & Version Control:** Git
- **Specialized Area:** Natural Language Processing, Computer Vision, Audio Processing, Artificial Life
- **Mathematical & Statistical Tools:** PowerBI, MATLAB
- **Other Tools & Technologies:** Linux, Bash, VS Code, Jupyter Notebook
- **Research Skills:** Literature Review, Statistical Modeling, Academic Writing

AWARDS

- **IOE Hult Prize Finalist** 2024  
Hult Prize Foundation
  - Selected as a finalist in the Hult Prize IOE
  - Recognized for proposing a sustainable solution to plastic waste management
- **Winner at Rapid Coding** 2024  
Aarohan 2.0
  - Secured first place in a fast-paced competitive programming contest
  - Acknowledged for outstanding performance in algorithmic challenges.

LEADERSHIP EXPERIENCE

- **Organizer at KEC LITE** 2024  
Kantipur Engineering College
  - Coordinated event logistics and managed a team of volunteers
  - Led the introduction of interactive workshops, enhancing attendee engagement
- **Organizer at AWS GenAI Bootcamp** 2024  
AWS Cloud Club, Nepal
  - Oversaw event planning and speaker coordination
  - Implemented hands-on sessions, improving participant learning outcomes

VOLUNTEER EXPERIENCE

- **Volunteer at KEC Tech Talk** 2023  
Kantipur Engineering College
  - Supported event planning and facilitated speaker engagement
- **Event Handler at AI Photo Generation Competition** 2024  
Kantipur Engineering College
  - Designed and deployed a web app to monitor live post engagement.

CERTIFICATIONS

- **Microsoft:** [Fundamentals of Generative AI](#) Jan 2024
- **AWS:** [Machine Learning Camper](#) May 2024
- **Postman:** [Postman API Fundamentals Student Expert](#) Sep 2024

EDUCATION

- **Kantipur Engineering College** 2021 - Present  
Bachelor of Computer Engineering  
Dhapakhel, Lalitpur
- **Motherland Secondary School** 2020  
Higher Secondary Level Education  
Pokhara, Kaski
  - GPA: 3.64/4.00
- **Global Collegiate School** 2017  
Secondary Level Education  
Pokhara, Kaski
  - GPA: 3.80/4.00

## ADDITIONAL INFORMATION

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**Languages:** Nepali, English, Hindi

**Interests:** Sports, Music, History, Philosophy, Technology

## REFERENCES

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1. **Er. Pralhad Chapagain**

Division Assistant, Research, Training and Consultancy Division (RTCD)

Kantipur Engineering College

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*Relationship: Research Supervisor*

2. **Er. Rabin Ghimire**

ML engineer

Fusemachines

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*Relationship: Mentor*

3. **Er. Upendra Prasad Neupane**

Cloud Club Captain

AWS Cloud Club, Nepal

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*Relationship: Mentor*