Curriculum Vitae

Sushan Adhikari

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Portfolio: https://sushan-adhikari.github.io/Portfolio-1/
Linkedin: https://www.linkedin.com/in/sushan-adhikari/
GitHub: https://github.com/Sushan-Adhikari
Other Socials: https://www.facebook.com/sushan.ad/, https://medium.com/@sushan.adhikari2060

Professional Summary

Computer Engineering student at Kathmandu University, currently on exchange at IIT Palakkad, driven to translate AI concepts into practical Computer Vision solutions. As lead developer of Dr.Fish, an AI-powered algae bloom prediction system, I honed skills in image processing, object detection, and IoT integration. Eager to contribute to INSAIT's pioneering computer vision research and its real-world applications.

Education

- **Indian Institute of Technology Palakkad**
  7th Semester in BTech. in Computer Science Engineering
  (Exchange Student: Jan, 2025 - May, 2025)

- **Kathmandu University, School of Engineering**
  Bachelor of Computer Engineering
  (Expected Graduation: February, 2026)
  - GPAs in various semesters:
    - 1st Semester: 3.97
    - 2nd Semester: 3.83
    - 3rd Semester: 3.88
    - 4th Semester: 3.95
    - 5th Semester: 3.88
  - Key Subjects: C, C++, Data Structures, Calculus, Linear Algebra, Computer Networks, Database Management System, Operating System, Algorithms and complexity, and Machine Learning.

- **Viswa Adarsha Higher Secondary School**
  +2 Science
  (Completion Year: 2021)
  - GPAs:
    - Class 11: 3.81
    - Class 12: 3.64

- **Kanchanjungha Secondary English School**
  Class 10
  (completion year: 2019)
  - GPA:
    - ❖ Class 10: 3.80

Academic Achievements

- Exchange student in **Indian Institute of Technology Palakkad** for 1 Semester.
- Recipient of **Mahatma Gandhi Scholarship** in High School for 2 years.

Technical Skills

- **Programming Languages:** Python, C++, JavaScript, C, Solidity
- **Machine Learning Frameworks:** PyTorch, TensorFlow, Scikit-learn
- **Computer Vision:** OpenCV, YOLOv8
- **Web Development:** Django, React, HTML, CSS
- **Data Analysis & Visualization:** Pandas, NumPy, Matplotlib, Seaborn
- **Databases:** PostGresql
- **Cloud Platforms:** Docker
- **Other Tools:** Git, Linux, FastAPI, Apache Airflow

Projects

- **Dr.Fish: AI and IOT-based Algae Bloom Prediction Platform**
  Role: COO, Co-founder, presenter, Researcher, and ML Model developer
  - ❖ Developed an AI solution for detecting algae blooms and predicting fish diseases.
  - ❖ Implemented image analysis algorithms and IoT integration.
  - ❖ Presented at Hult Prize Summit in Bangkok, Thailand.

- **A Novel Approach to Predicting Hereditary Disease Risk Using HMMs, DNA Sequences, and ML**
  Role: Lead Researcher
  - ❖ Utilized Hidden Markov Models in Machine Learning for DNA Analysis to predict hereditary disease risks.
  - ❖ Applied feature extraction techniques(GC Content, CpG islands, Methylation) for disease classification.

- **Automating Insurance Fraud Detection Process in Nepal**
  Role: Researcher, ML Model developer

- ❖ Utilized Data Analysis and ML Models to detect fraudulent activities in insurance claims.
- ❖ Applied data cleaning and preprocessing techniques along with ensemble learning for training the model.

- **AgniNetra: AI and IOT-based Forest Fire Detection and Alarm System**
  Role: Team Lead, Model developer, and presenter
  - ❖ Developed an efficient computer vision model for detecting smoke and fire using YOLOV8.
  - ❖ Implemented Alarm system, alert message with Real-Time data and coordinates of the location.

- **Cosmira**: **Interactive Solar System Orrery App**
  Role: Model developer and deployment
  - ❖ Built a 2D interactive orrery web app at NASA Space Apps Challenge using JavaScript, HTML, CSS, Astro, and Python.
  - ❖ Designed to engage students in learning space science.

- **MastiskaTrack: A LangChain-Based Mental Health Assessment Tool**
  Role: Presenter, Documentation, ML Model Developer
  - ❖ Utilized GPT API with LangChain for mental health evaluation and assessments.

- **YourInternetCompanion: Social Media Platform for Hobby-Based User Recommendations**
  Role: Full-Stack Developer (frontend, backend, model integration)
  - ❖ Developed using Django (backend), React (frontend), and Python (recommendation model).

- **CrowdChain: A Blockchain Based Crowdfunding App**
  Role: Full-Stack Developer(frontend, backend, deployment)
  - ❖ Implemented Solidity for transaction processing and React for user interface.

- **A C++ based Vaccine Registration System**
  Role: Full-Stack Developer (terminal-based frontend, logic implementation)
  - ❖ Created a terminal-based system with features like login, registration, doctor booking, using file handling in C++.

Work Experience

- Dr.Fish: Co-Founder and Chief Operating Officer (COO)
  2023 - Present
  - ❖ Led ML model development, team management, and presented AI solutions at international platforms.
  - ❖ Participated in the Hult Prize Summit in Bangkok, deploying a solution with 95% accuracy for algae bloom detection.

- **Freelance Data Analyst and ML Developer**
  2021 - Present
  - Built data extraction solutions for multilingual (Nepali/English) documents using PyPDF2 and pdfplumber.
  - Designed traceability systems linking processed data to original document sources.

Leadership & Extracurricular Activities

- **Hult Prize**
  Role: Presenter, Team Dr. Fish
  - ❖ Led the team to victory in the on-campus round at KU and represented Nepal at the Hult Prize Summit in Bangkok, Thailand.

- **Health Informatics Community**
  Role: Community Coordinator (2024 - 2025)
  - ❖ Revitalized the community at KU by organizing localization sprints (Bahmni, DHIS2) and hosting various informative programs.

- **KU Hackfest 2024**
  Role: Internal Relations and Operations Lead
  - ❖ Led the end-to-end operations and internal communications for Nepal's largest student-run hackathon, managing judge coordination, logistics, and stakeholder engagement to ensure smooth event execution.

- **Social Clubs & Volunteering**

  - **IT Meet 2022**
    Role: Volunteer
    - ❖ Assisted in organizing the Coding Challenge and supported event logistics for smooth execution.

  - **Kathmandu University Computer Club (KUCC)**
    Role: Board Member for 2022-2026
    - ❖ Involved in decision-making, strategic planning, and active participation in club activities.

  - **Leo Club of Kathmandu University**
    Role: Board Member from 2023 - present
    - ❖ Engaged in personal development, social awareness programs, plantation drives, and community service initiatives.

  - **Rotaract Club of Kathmandu University**
    Role: Board Member for 2022
    - ❖ Contributed to meetings, leadership development, and social awareness projects.

Certifications & Courses

- Astronomer Certification for DAG Authoring in Apache Airflow (Astronomer)
- Astronomer Certification for Apache Airflow Fundamentals (Astronomer)
- DataCamp Certified in AI Fundamentals (DataCamp)
- DataCamp Certified in Data Literacy (DataCamp)
- Enterprise Design Thinking Practitioner (IBM)
- Public Speaking Course (Eduta.org)
- Principles of Effective Communication (Udemy)

Competitions and Conferences

- **National Conference by Computational Mathematics Department at Kathmandu University**
  Role: Presenter, Documentation, ML Model Developer
  - ❖ Presented the idea "A Novel Approach to Predicting Hereditary Disease Risk Using HMMs, DNA Sequences, and ML."

- **Hult Prize Summit (Bangkok, Thailand)**
  Role: Presenter, ML Model Developer
  - ❖ Presented and developed ML model for team Dr. Fish.

- **Founder's Hub Conference**
  Role: Presenter
  - ❖ Runner-up at the conference

- **NASA Space Apps Challenge 2024**
  Role: ML Model Developer and Deployment
  - ❖ Winner of the People's Choice Award

- **AI Crusade 2023**
  Role: Presenter, Model Developer, Documentation
  - ❖ Health Track winner for "MastiskaTrack" at Nepal's first AI Hackathon.

- **ICT Awards 2024**
  Role: Presenter
  - ❖ Top 12 Finalist for ICT Awards 2024.

Ongoing Research (Not Published yet)

- **Translating Nepali Legal Documents to General English**
  Supervisors: Dr. Rajani Chulyadyo from DOCSE KU

- **Dr.Fish: An Approach for Algae Bloom and Fish Disease Detection and Classification Using AI and IoT Based on Water Quality Parameters**
  Supervisor: Prof. Dr. Gajendra Sharma from DOCSE at KU

- **Automated Insurance Fraud Detection**

Supervisors: Associate Prof. Dr. Rabindra Bista and Santosh Khanal from DOCSE at KU

- **A Novel Approach to Predicting Hereditary Disease Risk Using HMMs, DNA Sequences, and ML** Supervisor: Dr. Hitesh Bhattarai from BioTech Department at KU

- **Exploring the feasibility of RAG System to Preserving Endangered Language**
  Independent Research

Languages

- **English**: Proficient at Communication & Writing
- **Nepali**: Native
- **Hindi:** Conversational
- **German**: Beginner
- **Spanish**: Beginner

Additional Information

- **Hobbies & Interests**: Playing piano, hiking, reading, coding, problem-solving, exploring new technologies.

References and Recommendation

- **Prof. Dr. Gajendra Sharma (Professor at KU DOCSE)**
  (email: gajendra.sharma@ku.edu.np)

- **Dr. Rajani Chulyadyo (Assistant Professor at KU DOCSE)**
  (email: rajani@ku.edu.np)

- **Prof. Dr. Sudan Jha (Professor at KU DOCSE)**
  (email: sudan.jha@ku.edu.np)
