

SUMMARY

A highly organized research engineer having very good engineering practice. Experienced in Computer Vision, Machine Learning, 3D Modelling, Data Engineering, Robotics and Automation with various programming tools and languages. Hardworking, motivated, and self-driven with strong research and self-learning capability.

AREA OF INTEREST

Computer Vision, Machine Learning, Generative AI, 3D Modeling, Data Engineering, Geographic Information System, Internet of Things, Sensor Networks, Web Development, Robotics and Automation

PROFESSIONAL EXPERIENCE

- **Angelswing Inc.** Seoul, South Korea
Research Engineer Dec 2021 - Present
 - Led a project utilizing Structure from Motion (SfM), Neural Radiance Fields (NeRF), and Gaussian splatting techniques to advance 3D mesh generation and indoor scene reconstruction, significantly improving model creation time and accuracy.
 - Led the complete development and deployment of an object detection product (Ground Control Points), achieving a notable 65% reduction in manual data processing for the CS team, by leveraging PyTorch for model training and utilizing AWS Lambda and API Gateway for system implementation.
 - Developed a drone station integration project utilizing MQTT protocols for seamless communication, enabling real-time drone image and video visualization with GIS and AR technologies, and integrating 2D maps and 3D meshes into the front end using three.js.
 - Designed an advanced inspection system utilizing the Segment Anything Model (SAM) for precise anomaly detection.
 - Developed an algorithm for real-time aerial image stitching, significantly enhancing efficiency and doubling processing speed through improved parallel processing techniques.
 - Guided a team of junior research engineers in exploring and developing advanced computer vision technologies.
 - Represented the company as a speaker and trainer, actively participating in industry events and conferences.
- **Team Shireto** Kathmandu, Nepal
Power Electronics Engineer (Part Time) Jan 2020 – Apr 2022
 - Played an integral role in the design and construction of a custom motor controller for hub motors, significantly contributing to the development of an electric vehicle (EV) prototype.

EDUCATION

- **Institute of Engineering, Tribhuvan University** Kathmandu, Nepal
Bachelor in Electronics and Communication Engineering Nov 2017 – Jun 2022
 - 77.05% - Ranked 3rd overall in the program
 - Received multiple prestigious awards for outstanding academic achievements and remarkable performance in competitive events.
 - Facilitated workshops covering AVR, Arduino, Linux Systems, circuit design using KiCad, and Artificial Intelligence as a Robotics and Automation Center member.

RESEARCH WORK

- **Nepali Voice Controlled Home Automation System**
International Journal of Advanced Engineering (IJAE); Issue (Vol.06, No. 01)
Paper Link: <http://dx.doi.org/10.13140/RG.2.2.28519.52644/1>
- **Deepfake Audio and Video Detection System**
Paper Link: https://drive.google.com/file/d/1LjFB-ZevaKZY733gcrjeX4i5zm_82zxj/view

KEY SKILLS

- **Computer Languages:** Python, C, C++, JavaScript
- **Cloud Stack:** AWS - S3, ECR, Lambda, API Gateway, SQS
 - GCP - Vertex AI, VM Instances, Cloud Functions, Cloud Storage, Kubernetes Engine
- **Database:** MySQL, PostgreSQL
- **MLOps Stack:** Docker, Kubernetes, Kubeflow, MLflow, Bash Script, Shell Script
- **Embedded Hardware:** Arduino, NodeMCU, Raspberry Pi, AVR Microcontrollers
- **Frameworks/Libraries:** TensorFlow, PyTorch, OpenCV, Scikit-Learn, SciPy, Matplotlib, jQuery, Bootstrap, three.js
- **IDE and Libraries:** Visual Studio Code, PyCharm, Code::Blocks, Arduino IDE, Eagle
- **Version Control System:** Git

PROJECTS



- **Personal Chatbot App**
React Native, Llama3.2, ngrok Oct 2024
- **Deepfake Audio and Video Detection System**
Undergraduate Major Project (Python, TensorFlow, Django) Apr 2021 – Apr 2022
- **Twitter Clone**
CS50 Web Programming with Python and JavaScript May 2021
- **Nepali Voice Controlled Home Automation System**
Undergraduate Minor Project (Python, TensorFlow, Django, NodeMCU, Flutter, MQTT) Sep 2020 – Feb 2021
- **Gmail Clone**
CS50 Web Programming with Python and JavaScript Feb 2021
- **Chatter Patter – Chatbot Website**
QuantumHack Hackathon Aug 2020
- **Make it through – Frogger Game**
Sophomore year project (C++) Nov 2018

PROFESSIONAL DEVELOPMENT/LEADERSHIP ROLES

- Trainer at **Building Object Detection Model**
Organizer: EEPEX-22, Kathmandu University Sep 2022
- Speaker at **Angelswing's Drone Mapping Technology**
Organizer: KU HackFest 2022, Kathmandu University Aug 2022
- Committee Member of **Robotics and Automation Center**
Institute of Engineering, Thapathali Campus Jan 2020 – Feb 2021
- Member of **Robotics and Automation Center**
Institute of Engineering, Thapathali Campus Feb 2018 – Apr 2022

AWARDS

- **Faculty Top** award in the sixth semester, Bachelor's Degree
Institute of Engineering, Thapathali Campus 2022
- **Faculty Top** award in the third semester, Bachelor's Degree
Institute of Engineering, Thapathali Campus 2020

PROFESSIONAL AFFILIATIONS

- **Nepal Engineering Council**
Member, Reg. No. 9228 Elex&Comm A