RAMKRISHNA ACHARYA

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Experiences

Working Student May 2023 – Present
Primetals Technologies Germany GmbH *Erlangen, Germany*

- As a working student specializing in Machine Learning, I am currently building, and evaluating Computer Vision models to monitor the metal production process.
- I built an evaluation dashboard with the features to visualize an event's occurrence, label those events, and use them for retraining. This allowed us to visualize the evaluation of 100s of hours of videos in just a few minutes and showcase our model's strength.
- I built synthetic image data generators for vision model trainers to build event detection models that allowed us to build models faster.
- Technologies Using: Python, JavaScript, PyTorch, MLFlow, OpenCV, MMEngine, PostgreSQL, and Git

Freelancer Jan 2022 – Oct 2022
Upwork.com *Remote*

- As a top-rated freelancer, I helped clients turn their data applications to life.
- I built a dynamic alert-based strategy back-testing platform and trading bots for options and stocks.
- Technologies Used: Python, FastAPI, Streamlit, MySQL, Asyncio, Websockets, and Git

Associate Data Scientist Aug 2021 – Aug 2022
Extensodata Pvt. Ltd. *Kathmandu, Nepal*

- I built a backbone for BI to automate, data pipelining, analysis, and reporting of fin-tech data for business stakeholders to make timely customer decisions.
- I built an Intelligence System to visualize the performance of loans and prospects for stakeholders to take timely decisions.
- Technologies Used: Python, MySQL, Pentaho, Apache Airflow, Apache Superset, and Git

Junior Machine Learning Engineer Jan 2021 – May 2021
Ensemble-Matrix *Kathmandu, Nepal*

- Designed an algorithm to create a synthetic hand signature to train a model to detect forged signatures.
- Technologies Used: Python, Google Colab, OpenCV, Keras, Docker, and Git

Unity3D Intern Nov 2020 – Mar 2021
diyo.ai *Kathmandu, Nepal*

- Designed and built a user flow for an application to improve clients' jewelry business using Augmented Reality.
- Technologies Used: Unity3D, and Git

AI Developer Intern Aug 2019 – Jan 2020
MPercept Technology *Kathmandu, Nepal*

- Developed, and maintained conversational agents for platforms like e-commerce, travel agency, and academic consultancy.
- Technologies Used: Python, Rasa, OpenCV, Google Colab, AWS EC2, and Git

Skills

Programming Languages: Python, C-sharp, JavaScript
Database: MySQL, PostgreSQL, Firestore
Frameworks: PyTorch, FastAPI, Websockets, OpenCV
Data Engineering: Apache Airflow, Pentaho, MQTT
Data Visualization: Apache Superset, Plotly
MlOps/CICD: GitHub Actions, MlFlow, DVC
Developer Tools: Unity3D, Docker, Git
Cloud: Heroku, AWS, Linode
Human Languages: Nepali, English, Hindi, German
Blogging: q-viper.github.io
YouTube Content Creation: DataQoil

Education

FAU Erlangen-Nuremberg Germany
M.Sc. Data Science *2022 – Present*

- Current Grade: 2.3
- Courses: Deep Learning, Mathematics of Learning, Dynamical Systems Theory, etc.

Tribhuvan University Nepal
B.Sc. Computer Science and Information Technology *2015 – 2019*

- First Division, 72.07/100
- Courses: Probability and Statistics, Artificial Intelligence, Neural Networks, Advanced Java Programming etc.

Research and Projects

Computer Vision Experiments | *Python, PyTorch, OpenCV*

- Along with a colleague, I am building a reproducible computer vision experiments package.
- Finding answers to how why, and what works in building computer vision experiments.

SmokeSim | *Python, PyGame, OpenCV, JavaScript*

- I built a reproducible smoke-simulating package that allows us to generate smoke over time and can be used as an image augmentation as well as segmentation.
- Using this package, I built a gesture-based smoke generation.

Orange Segmentation With SAM | *Python, PyTorch, OpenCV*

- As an academic project, I evaluated SAM (Segment Anything Model) 1 and 2 for unseen orange datasets that I co-authored.
- Compared pre-trained SAM model with newly trained U-Net, and fine-tuned SAM on HPC.
- **Project report.**

Gradient Based Methods on Large Least Squared Problems | *Python, PyTorch, Multiprocessing*

- As a seminar project, I experimented with different gradient-based methods and their performance on the Large Least Squared Problems.
- I used PyTorch for parameter update and multiprocessing to run experiments simultaneously and wrote a custom visualization package on top of Matplotlib.
- **Seminar report.**

7 Days of Computer Vision Projects | *Python, Mediapipe, OpenCV*

- Completed 7 projects, including real-time background changing, gesture writing, games using gestures, and a gesture-based calculator.
- Wrote blogs on **my GitHub page**.

Corn Leaf Infection Detection | *Python, Google Colab, OpenCV*

- Collected 4000 corn leaf images from the corn fields and made annotated data public on **Kaggle**.
- Writing a blog at my GitHub page.

NEPSE Data Visualization | *Python, Pandas, BeautifulSoup, Streamlit*

- Wrote Python codes to scrape data from NEPSE (Nepal Stock Exchange) website and visualize it in real time.
- Wrote a blog at **my GitHub page**.

Contour Based Visually Writing System | *Python, Flask, OpenCV*

- Wrote Python codes to perform air drawing and added visual user interface.
- Wrote a blog at **my GitHub page**.

Devanagari Handwritten Word/Char Detection | *Python, Keras, Google Colab, OpenCV*

- Used CNN model as a classifier and NumPy to segment characters within a word.
- Wrote a blog at **my GitHub page**.