Manish **Dhakal**

COMPUTER ENGINEER · MACHINE LEARNING RESEARCHER

Pulchowk, Lalitpur, Nepal

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Education

Pulchowk Campus – Institute of Engineering, Tribhuvan University   *Lalitpur, Nepal*

BACHELOR IN COMPUTER ENGINEERINGT   *Nov. 2017 - Apr. 2022*

- Received full scholarship funded by Nepal Government.
- Gained knowledge about significant CS courses like Artificial Intelligence, Image Processing, Data Structure & Algorithm, Computer Programming, DBMS, Software Engineering, Theory of Computation, Computer Network & Security, Embedded System, Simulation & Modeling, Discrete Mathematics, and Operating System.

Skills

Programming	Python, Javascript, GoLang, C/C++
Machine Learning	Vision Language Model, NLP, Speech Recognition, Computer Vision, CNN, GAN, PyTorch, TensorFlow
Writing	Technical Blogs, Research Paper, LaTeX
Languages	Nepali, English

Experience

NepAl Applied Mathematics and Informatics Institute for Research (NAAMII)   *Lalitpur, Nepal*

RESEARCH ASSISTANT   *April 2022 - Present*

- Learning to draw insights from new AI researches.
- Working on medical imaging to develop quicker intermediate tools utilizing AI.

Sireto Technology Pvt. Ltd.   *Lalitpur, Nepal*

BLOCKCHAIN INTERN   *August. 2021 - Dec. 2021*

- Wrote smart contracts in Haskell using Plutus framework for Cardano ecosystem.
- Gave daily update of progress to the supervisor.
- Updated myself with the new trends in the software industry and learn new tools and techniques that assist in the completion of the project.

Projects

Speech Recognition for Nepali Language

RESEARCHER & ML ENGINEER   *Oct. 2020 - Apr. 2022*

- Designed and trained multiple sequence models for conversion of Nepali spoken audios to text transcriptions.
- Performed dataset cleaning by removing noisy data and stripping away the silent gaps from both ends of audio files.
- Programmed the machine learning model by using TensorFlow framework.
- Aggregated different ML algorithms like CNN, ResNet, RNNs, and CTC loss to obtain the optimal model.
- Learned to study and draw conclusions from machine learning based research papers and journals.

Kantipur Diagnostic Center (Health check-up system)

WEB DEVELOPER & ALGORITHMS DESIGNER   *Dec. 2021 - Feb. 2022*

- Developed the interactive front-end for the health check-up system of foreign employees.
- Realized the fingerprint verification with minutae extraction from fingerprint images.

Nepali Auto Complete & LM

ML ENGINEER   *Aug. 2020 - Oct. 2020*

- Conducted mini research on Nepali Language Model (LM) for the text generation.
- Devised the next word predictor model by using the PyTorch framework.

Super Resolution with GAN

PROGRAMMER & ML MODEL DESINGER   *May. 2020*

- Obtained thousands of random images from Kaggle and wrote an automated script to reduce the resolution of those images which were used for training and testing of the machine learning model.
- Implemented the code of SRGAN paper to increase the resolution of the images 4x4.
- Reproduced research paper's claimed results by drawing insights and conclusions.
- Accomplished transfer learning of VGG19 model pre-trained with imagenet to extract features from the images.
- Comprehended the generator and discriminator parts used in the generative adversarial network (GAN).

Extracurricular Activity

DataRush (AI and Data Science Competition, Locus 2021)

Co-ordinator *Oct. 2021 - Feb. 2022*

- Maintained communication and co-ordination between sponsors, participants, mentors, and other organizers.
- Guided participants about the competition throughout the event.
- Made the budget planning, composed the sponsorship proposal, prepared the event's rule book, planned event structure, and ensure the smooth operations of event.
- Tested and validated the machine learning models and their solutions submitted by the participants.

Software Fellowship, Locus 2021

Mentor & Volunteer *Jun. 2021 - Jul. 2021*

- Tutored about the software development life cycle.
- Assisted the participants about inspecting the software documentation and library/framework installation.
- Taught about the API development and their usage for web development.

Writing

Automatic Speech Recognition for the Nepali Language using CNN, Bidirectional LSTM and ResNet

IEEE

Lead Author *Oct. 2021 - PRESENT*

- Worked as the lead author of the research paper that has been recently accepted for fifth IEEE ICICT conference, 2022.
- Designed an optimal sequence model for the OpenSLR dataset.

Honors & Awards

2021	**Winner**, LogPoint CTF, Cybersecurity Competition	*Kathmandu, Nepal*
2020	**Finalist**, Spirathon 2020, TechXperience Nepal	*Kathmandu, Nepal*
2017	**Rank 11**, Institute of Engineering BE Entrance Exam	*Lalitpur, Nepal*

Certifications

Coursera (DeepLearning.AI)

AI for Medicine *Jun. 2020*

- Learned to diagnose diseases from x-rays and 3D MRI brain images.
- Learned to predict patient survival rates more accurately using tree-based models and estimate treatment effects on patients using data from randomized trials.

Coursera (DeepLearning.AI)

Natural Language Processing *Nov. 2020*

- Learned about NLP with vector spaces, probablistic models, sequence model & attention models.

Udacity (AWS)

AWS Machine Learning Fundamentals *Aug. 2020*

- Hands-on with machine learning using AWS AI Devices (i.e. AWS DeepLens, AWS DeepRacer, and AWS DeepComposer).

Coursera (University of Alberta)

Reinforcement Learning *Aug. 2020*

- Learned about the sequential decision making, Temporal- Difference learning, Monte Carlo, Sarsa, Q-learning, Policy Gradients, Dyna, and more.

Coursera (DeepLearning.AI)

Deep Learning Specialiation *May. 2020*

- Neural Networks, machine learning projects hyperparameters tuning, optimization, CNN, and sequence models.