

SUSHIL THAPA

www.thapasushil.com • www.linkedin.com/in/thapasushil/ • www.github.com/Sushil-Thapa

EXPERIENCE

Graduate Research Assistant

Jan 2021 – Present

New Mexico Tech+Los Alamos National Lab, New Mexico, USA

- Exploring large-scale extreme multi-label text classification based on Transformers
- Exploring multidimensional mode-connectivity and analysis of loss landscapes of deep neural networks for optimization and continual learning.
- Applying interpretable Machine Learning in Health and cancer genomics

Senior Machine Learning Engineer – Team Lead

Jan 2020 – Dec 2020

Machine Learning Engineer

Sep 2017 – Dec 2019

Fusemachines Nepal Pvt. Ltd., Kathmandu (Headquarter: New York, USA.)

- Design, build and launch efficient and reliable models, pipelines for solving Enterprise-level problems with ML.
- Co-responsible in hiring and scaling team from 6 people to 60+ ML Engineers, managed and provided in-house training, workshops, mentorship and organized paper reading sessions on Deep Learning.
- Lead Fusemachines AI Education curriculum and content development teams, Co-responsible for ideating, executing and refining 4 courses: Deep Learning, Computer Vision, NLP and Reinforcement Learning.

Deep Learning(/ML) Instructor – AI MicrodegreeTM Program < www.fuse.ai >

Sep 2019 – Jul 2020

Fuse AI School, Kathmandu, Nepal.

- Teach Deep Learning topics like Neuralnets, CNN, RNN, VAE, GAN, RL, etc. in fuse.ai Education initiative.
- Conduct on-site practical coding sessions on ML/DL algorithms (class of 25 students each)

Research&Development Engineer – Artificial Intelligence

Jan 2017 – Sep 2017

Spark Tech Pvt. Ltd., Kathmandu, Nepal.

- Research and development on ML solutions related to Image Processing, Audio Analysis, and Internet Of Things
- Investigate, prototype, and refine algorithms in computer vision and deep learning applications as directed.

EDUCATION

New Mexico Institute of Mining and Technology • New Mexico • USA

Jan 2021 – May 2022(EGD)

Master's of Science • Computer Science • Focus: Machine Learning

Tribhuvan University • Institute of Engineering • Kathmandu, Nepal

Attended 2012 – 2016

Bachelor of Engineering • Electronics & Communication Engineering • Focus: Robotics & AI

SKILLS

- Programming languages: Python(preferred), C/C++
- Tools: PyTorch, Keras, Jax(Flax/Haiku), TensorFlow2.0, Numpy, Pandas, Matplotlib, OpenCV, Scikit-learn
- Familiar with: LaTeX, Linux, Git, AWS, GCP, Agile

PUBLICATION

- An Effective Baseline for Robustness to Distributional Shift. Preprint: (<https://arxiv.org/abs/2105.07107>)
This is currently state-of-the-art (ranked#1 in paperswithcode) out-of-distribution detection leaderboard.

MACHINE LEARNING SUMMER SCHOOLS

- Eastern European Machine Learning Summer School(EEML), July 2021.
 - Our proposal awarded with Deepmind mentorship towards a research paper.
 - Proposal: Sample-efficient Reinforcement learning using Self-supervised learning and human priors
- Neuromatch Deep Learning Summer School(NMA-DL), August 2021.
- Machine Learning Summer School(MLSS Taipei), August 2021.
- Gaussian Process Summer School(GPSS), September 2021.

FELLOWSHIPS

- Stanford University Sebastian Thrun Lab Apprenticeship, July 2021 - Present.
- Fatima Al-Fihri Predoctoral Fellowship 2021
- AI Fellowship 2017, Fusemachines Inc.
- Merit-based Engineering Scholarship 2013, Ministry of General Affairs, Nepal

Google DSC Lead – Google Developers Jul 2021 – Present
New Mexico Tech, Socorro, NM.

- Established a Google recognized student club in the university, identify local partners to work with and lead project building activities.
- Expose students on Google Developer products and platforms through hands-on workshops and events.

Robotics Engineer – Robotics and Automation Center Nov 2014 – Feb 2016
Institute of Engineering, Kathmandu, Nepal.

- Build theme-based robots to compete in various national and international Robotics Competitions.
- Conducted institution-wide seminars and training sessions related to Robotics, Automation, and AI.
- *Awards:*
 - Country Winner, Represented Nepal in International Robotics Challenge(IRC) in Asia's Largest Science and Technology festival i.e. Techfest 2015, IIT Bombay, India.
 - Finalist, Step-up Competition in Asia's Largest Techno-Management Fest i.e. Kshitij 2014, IIT Kharagpur, India.

Mentorship

- Founder/Mentor, New Mexico Tech Artificial Intelligence Group, Jun 2021-Present.
- Mentor, Community Volunteer at DN: AI Developers Nepal, 2018 - 2021.
- Facilitator/Mentor, Fusemachines AI Fellowship 2018, 2019.

PROJECTS

Object Detection System – Video Intent Classification Dec 2019 - Apr 2020
Fusemachines Nepal

- Apply multiple object detection algorithms on custom annotated dataset and perform their accuracy-latency trade-off analysis.
- Applied Edge-computing to deploy appropriate models on GPU IOT devices like Jetson Nano.

Image Captioning Project – Microsoft COCO Challenge Oct 2017 - Apr 2018
Fusemachines Research

- Research and experiment on building state-of-the-art image captioning models based on SCST paper (Rennie et. al, CVPR-2016) and its evolution with its author for MSCOCO Caption Challenge.

Fuse Extract – Optical/Intelligent Character Recognition Dec 2018 - Aug 2019
Fusemachines Nepal Pvt. Ltd.

- Built data collection pipeline, image processing pipeline for Image Registration and ROI extraction.
- Developed and experimented with Convolutional and Recurrent DL models to extract information from images.

Rectif.ai – Posture Recognition System Aug 2019 - Oct 2019
Global Pytorch Hackathon 2019

- Applied MobileNet based Posenet model for detection of different body keypoints & notify if the detected pose seems appropriate or not by classifying the keypoint locations.
- Opensourced: pip install rectif-ai

Hawaiian-ASR – Automatic Speech Recognition Aug 2018 - Aug 2019
Dr. Lipyeow Lim, University of Hawaii at Mānoa

- Built an entire Hawaiian ASR dataset collection and pre-processing pipeline with forced-alignment.
- Development of State of the Art Hawaiian ASR model and applied translation algorithms for converting missionary to modern orthography.

ONLINE ML COURSES & CERTIFICATIONS (WITH LINKS)

- edX: AI MicroMasters Program (1+ Year, Certified with Proctored Exam, credit eligible in Columbia University)
 - 1. Artificial Intelligence, 2. Machine Learning
- Machine Learning by Andrew Ng (Coursera, 11 weeks)
- Neural Networks for Machine Learning by Geoffrey Hinton, UofT (Coursera, 16 Weeks)
- Natural Language Processing by University of Michigan (Coursera, 12 Weeks)
- Udacity: 1. Deep Reinforcement Learning Nanodegree, 2. Computer Vision Nanodegree