Sushil Thapa

Koteshwor, Kathmandu, Nepal
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Education

New Mexico Institute of Mining and Technology • New Mexico • USA — Jan 2021 – Present
Master's of Science • *Computer Science*

Tribhuvan University • Institute of Engineering • Kathmandu, Nepal — Attended 2012 – 2016
Bachelor of Engineering • *Electronics & Communication Engineering* • *Specialization: Robotics & AI*

Experience

Graduate Research Assistant — Jan 2021 – Present
New Mexico Tech, Los Alamos National Laboratory, New Mexico, USA

- Applying interpretable Machine Learning in Health ; Determination of classification of various cancer genomes
- Explore efficient ways to optimize NNs across different modalities of data.

Deep Learning Instructor – AI Microdegree^{TM} $Program < www.fuse.ai >$ — Sep 2019 – Jul 2020
Fuse AI School, Kathmandu, Nepal.

- Lead Instructor for on-site sessions(theory+practical) for Deep Learning Course (Topics include but limited to ANN, CNN, RNN, VAE, GAN, RL, Model Deployment)
- Assistant Instructor for on-site theory sessions by Professors for Machine Learning Course
- Conduct on-site practical coding sessions on Machine Learning and Deep Learning (class of 25 students each)

Senior Machine Learning Engineer – Team Lead — Jan 2020 – Dec 2020

Machine Learning Engineer — Sep 2017 – Dec 2019
Fusemachines Inc., New York, USA.

- Design, build and launch efficient and reliable models, pipelines for solving Enterprise-level Machine Learning problems.
- Contribute to training, workshops, and mentorship on ML&DL for various in-house training courses and paper reading sessions.

Research&Development Engineer – Artificial Intelligence — Jan 2017 – Sep 2017
Spark Tech Pvt. Ltd., Kathmandu, Nepal.

- Research and development on Machine Learning 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 by the mentor.

Projects

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

- Apply multiple object detection algorithms and perform their accuracy-latency trade-off analysis
- Edge-computing and running inferences on GPU enabled IOT devices like Jetson Nano.
- Built data pre-processing and novel augmentation pipelines to improve the accuracy and robustness

Rectif.ai – Posture Recognition System — Aug 2019 - Oct 2019
Personal Project

- Research and development attempt for Global Pytorch Hackathon 2019.
- Applied Convolutional Neural Network (MobileNet based Posenet model) for detection of different poses
- Use Neural Network(ANN) to classify if the detected pose is correct or incorrect.
- Open Source: pip install rectif-ai

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

- Development of a baseline model for Image Captioning Project implementing this paper
- Train and tune baseline models and research on building it's evolution.

Hawaiian-ASR – Automatic Speech Recognition — Aug 2018 - Aug 2019
Dr. Lipyeow Lim, UH

- Worked on audio and textual data collection and pre-processing pipeline
- Development of State of the Art ASR and translation algorithms for converting missionary to modern orthography.

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

- Built data collection pipeline for collecting and annotating multilingual printed&handwritten images with their corresponding texts.
- Built image processing pipeline for image registration and ROI extraction.
- Trained Convolutional feature based Sequence Deep learning model to extract texts from cropped ROIs.

RARE: – Real-time Audio Recognition Engine Apr 2017 - Sep 2017
Spark Tech Pvt. Ltd.

- Worked on research and development of custom audio fingerprinting and template matching algorithm.

Centralized Biometric Attendance System Jan 2017 - Apr 2017
Spark Innovation

- Developed Bio-metric Fingerprints Identification module using CNN and Minutiae Matching Algorithm.

Publications

- A Simple and Effective Baseline for Out-of-Distribution Detection using Abstention (ICLR 2021, Weak Reject)

Technical & Communication Skills

- Programming languages: Python, C/C++, PHP, Matlab
- Tools: PyTorch, Keras, TensorFlow2.0, Numpy, Pandas, Matplotlib, OpenCV, Scikit-Learn, NLTK
- Familiar with: LaTeX, Linux, Git, AWS, Google Cloud Platform.

Relevant Certificates

- edX: AI MicroMasters Program (1+ Year, Certified with Proctored Examination)
  - Artificial Intelligence
  - Machine Learning
- Coursera: Machine Learning, Andrew Ng (11 weeks)
- Coursera: Neural Networks for Machine Learning, Geoffrey Hinton (16 Weeks)
- Coursera: Natural Language Processing, University of Michigan (12 Weeks)
- Coursera: Algorithmic Toolbox, Stanford University
- Udacity: Deep Reinforcement Learning Nanodegree
- Udacity: Computer Vision Nanodegree

Fellowship

- Fusemachines AI Fellowship, Apr 2017.
- Merit-based Employee child Scholarship, Ministry of General Affairs, Nepal.

Community Services

Member – Robotics Club 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), Techfest 2015, IIT Bombay.
  - Finalist, Step-up Competition, Kshitij 2014, IIT Kharagpur.

Mentor – Volunteer

- Mentor, Community Volunteer at DN: AI Developers Nepal.
- Facilitator/Mentor for Fusemachines AI Fellowship 2018, 2019.

References

** AVAILABLE UPON REQUEST **