Sushil Thapa

New Mexico, USA
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Experience

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

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

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

- Teach Deep Learning topics like Neuralnets, CNN, RNN, VAE, GAN, RL, Model Deployment, etc. in fuse.ai Education initiative.
- Conduct on-site practical coding sessions on Machine Learning and Deep Learning algorithms (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.

- Directly responsible for executing an idea to a full-fledged scalable in-house product.
- Design, build and launch efficient and reliable models, pipelines for solving Enterprise-level Machine Learning problems for various clients.
- Lead Fusemachines AI Education curriculum and content development teams, Co-responsible for ideating, executing and refining the Deep Learning, Computer Vision, NLP and Reinforcement Learning courses.
- Co-responsible in hiring and scaling team from 6 people to 60+ ML Engineers, managed and provided in-house training, workshops, mentorship and paper reading sessions on Deep Learning.

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.

Education

New Mexico Institute of Mining and Technology • New Mexico • USA Jan 2021 – Present
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*

Projects

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

- Apply multiple object detection algorithms on client's custom dataset and perform their accuracy-latency trade-off analysis.
- Applied Edge-computing while deploying best performing models on GPU IOT devices like Jetson Nano.

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

- Worked directly under Dr. Steven Rennie whose team won the Microsoft COCO Challenge the previous year.
- Research and experiment on building state-of-the-art image captioning models based on SCST paper,CVPR 2016 and its evolution.

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 Submission

- 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.
- To install and try: pip install rectif-ai

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

- 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.

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

- Research and development of custom audio fingerprinting and template matching algorithm.
- Deploy best performing models in production for 20+ companies

Publication

- An Effective Baseline for Robustness to Distributional Shift. Preprint: (https://arxiv.org/abs/2105.07107)

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, GCP

Certifications (with links)

- edX: AI MicroMasters Program (1+ Year, Certified after Proctored Exam, credit eligible in Columbia University)
  - Artificial Intelligence
  - Machine Learning
- Coursera: Machine Learning, Andrew Ng (11 weeks)
- Coursera: Neural Networks for Machine Learning, Geoffrey Hinton, University of Toronto (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

Fellowships

- Merit-based Engineering Scholarship 2013, Ministry of General Affairs, Nepal
- AI Fellowship 2017, Fusemachines Inc.
- Fatima Al-Fihri Predoctoral Fellowship 2021

Community Services

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), Techfest 2015, IIT Bombay
  - Finalist, Step-up Competition, Kshitij 2014, IIT Kharagpur, India

Mentor – Volunteer

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