

# SUSHIL THAPA

New Mexico, USA

[www.thapasushil.com](http://www.thapasushil.com) • [www.linkedin.com/in/thapasushil/](https://www.linkedin.com/in/thapasushil/) • [www.github.com/Sushil-Thapa](https://www.github.com/Sushil-Thapa)

## EXPERIENCE

### Graduate Research Assistant

Jan 2021 – Present

New Mexico Tech, Los Alamos National Laboratory, New Mexico, USA

- Applying interpretable Machine Learning in Health (Bioinformatics).
- Determination of classification of various cancer-type genomes and applying such explanations for Stem Cell differentiation

### Deep Learning(/ML) Instructor – AI Microdegree<sup>TM</sup> Program < [www.fuse.ai](http://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

**Centralized Biometric Attendance System**

Jan 2017 - Apr 2017

*Spark Innovation*

- Developed Bio-metric Fingerprints Identification module using CNN and Minutiae Matching Algorithm
- Deploy best performing models in IoT devices for daily use in office.

---

**PUBLICATIONS**

---

- An Effective Baseline for Robustness to Distributional Shift [The Conference on Uncertainty in Artificial Intelligence (UAI) 2021 Submission]

---

**SKILLS**

---

- Programming languages: Python, C/C++, PHP, Matlab
- Tools: PyTorch, Keras, TensorFlow2.0, Numpy, Pandas, Matplotlib, OpenCV, Scikit-Learn, NLTK
- Familiar with: L<sup>A</sup>T<sub>E</sub>X, 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.
- Mentor - OpenMined, 2020-Present.
- Facilitator/Mentor for Fusemachines AI Fellowship 2018, 2019.