Jeevan Thapa

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Education

Ph.D. in Computing and Information Science **Aug 2022 — Present**

Rochester Institute of Technology Rochester, U.S.A.

- **Advisor**: Dr. Rui Li, Lab of Use-inspired Computational Intelligence (LUCI)
- Statistical Machine Learning with applications in Computational Biology

Bachelor's Degree in Computer Engineering **Nov 2015 — Sep 2019**

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

- Merit-based 4-years scholarship
- **Courses**: Artificial Intelligence, Data Mining, Big Data, Mathematics (Calculus, Linear Algebra, Probability and Statistics, Numerical Methods)

Research Interests

Machine Learning: Statistical Machine Learning, Self-Supervised Learning, Generative Modeling

Computer Vision: Object Segmentation, Re-identification, Tracking, Action Recognition

Experience

Graduate Research Assistant **Aug 2022 — Present**

Rochester Institute of Technology Rochester, U.S.A.

- Researching in the field of Probabilistic Machine Learning at Lab of Use-inspired Computational Intelligence

Machine Learning Engineer **Sep 2019 — Jun 2022**

Fusemachines Kathmandu, Nepal

- **Industry Projects** - led and collaborated in designing the machine learning architecture and implementing deep learning models for four projects
- **fuse|ai Course Creation** - collaborated in the design and creation of course materials (reading material, quiz, assignment, project) for Computer Vision, Natural Language Processing (BERT), and Time Series Analysis
- involved in taking interviews and trainings for new hires, and advisor for computer vision projects

Mathematics Instructor **Jan 2021 — Jun 2021**

fuse|ai, Herald College Kathmandu, Nepal

- taught an undergraduate course named "Mathematics for AI", covering Linear Algebra, Calculus, Probability and Statistics and Information Theory

AI Intern **Jan 2019 — Jun 2019**

Leapfrog Technology Kathmandu, Nepal

- experimented with multiple standard CNN architecture for license plate localization with different loss functions
- trained to build face recognition system including face detection, point-based face-alignment, face-embedding with Siamese network, and KNN classifier

Projects

Human Trafficking Recognition from Escort Ads and Inter-Ad Matching **Fusemachines**

- **(Team Lead)** designed the machine learning architecture and set up data annotation pipeline
- implemented similar image search with custom contrastive loss, trained models for image-based and text-based trafficking recognition, NER-based social handle extraction

Analysis of Radio Panelists Data **Fusemachines**

- **(Team Lead)** conducted analysis on the effect of song quality, commercial length and part of the day in the panelists with custom metrics, and statistical tests to identify quality of songs
- prepared data pipeline to curate and add additional features in the existing data

Action Recognition Project **Fusemachines**

- built custom object detection architecture by fusing SSD, mobilenet architecture and focal loss, and fused across frames to identify the type of waste and the intent of the person to throw in the dustbin

Session-based Network Intrusion Detection System **Fusemachines**

- feasibility test on the use of AutoEncoder-based semi-supervised learning for network anomaly detection using session data from pcap files

Nepali License Plate Recognition **IOE, Tribhuvan University**

- designed and implemented license plate recognition system targeted for Nepali license plates, involving three phases - vehicle detection, license plate localization, and a Nepali character-based OCR
- created a license plate localization dataset for Nepali license plates by manually annotating 8000 vehicle images and a Nepali character classification dataset by extracting alphabets and numbers from Devanagiri fonts

Technical Skills

Programming Language	Python
Deep Learning	PyTorch, TensorFlow, tensorboard
Machine Learning	scikit-Learn, NumPy, pandas, matplotlib, seaborn, MLflow
Image Processing	OpenCV, scikit-image, augmentor
Natural Language Processing	NLTK, spaCy, huggingface - transformers
Miscellaneous	LaTeX, aws, git, Linux

Awards & Honors

Scholarship/Assistantship for Ph.D.

- received merit based scholarship at RIT to pursue Ph.D. in computing and information sciences

Full Scholarship for Undergraduate Studies

- awarded by Nepal Government after securing 11th rank in entrance examination by Tribhuvan University (4% acceptance rate)

Double Promotion at Fusemachines

- received a double promotion from ML Engineer Associate to ML Engineer Level II

Fusemachines AI Fellowship

- shortlisted from an examination and an interview and got enrolled into the micro-masters program

fuse|ai Scholarship

- selected to study the fuse—ai course which provided extensive exposure to ML and data science libraries

Management Roles

Mentor, LOCUS AI Fellowship **Jan 2019**

- trained a group of 30 students on basic machine learning concepts like data representation, supervised learning algorithms along with project demos

Secretary, Society of Kaski Engineering Students **Jan 2018 - Jun 2018**

- led teams to conduct Mathematics and Physics contests among the freshers and several extra-curricular competitions