Jeevan Thapa

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Research Interests

Continual Learning, Test-Time Adaptation, Continual Federated Learning,
Application of Deep Learning Models to Real World Problems

Publications

Jeevan Thapa, Rui Li (2024). Bayesian Adaptation of Network Depth and Width for Continual Learning. In Forty-first International Conference on Machine Learning (**ICML 2024**).

Education

Ph.D. in Computing and Information Sciences **Aug 2022 - Aug 2027 (Expected)**
Rochester Institute of Technology (RIT), (CGPA: 3.97/4) Rochester, U.S.A.
Relevant Courses: Statistical Machine Learning, Deep Learning, Non-Convex Optimization for Modern Machine Learning

Bachelor's Degree in Computer Engineering **Nov 2015 - Sep 2019**
Pulchowk Campus, Institute of Engineering, Tribhuvan University Lalitpur, Nepal
Relevant Courses: Data Mining, Artificial Intelligence, Big Data Analytics, Probability and Statistics

Experience

Graduate Research Assistant **Aug 2022 - Present**
Rochester Institute of Technology (RIT) Rochester, U.S.A.

- Developed a Bayesian continual learning framework to adapt network structure in dynamically evolving environments. Part of the work was published in ICML2024 and ongoing research on continual structure adaptation in the graph domain.

Machine Learning Engineer **Sep 2019 - Jun 2022**
Fusemachines Kathmandu, Nepal

- Worked on the design of machine learning pipeline and implementation of deep learning models for four industry projects.
- Developed course materials for Fusemachines microdegree, covering Computer Vision, transformer-based Natural Language Processing, and Time Series Analysis.

Instructor for "Mathematics for AI" **Jan 2021 - Jun 2021**
fuse|ai, Herald College Kathmandu, Nepal

- Instructed undergraduate course covering fundamental topics for machine learning, including Linear Algebra, Calculus, Probability and Statistics, and Information Theory.

AI Intern **Jan 2019 - Jun 2019**
Leapfrog Technology Kathmandu, Nepal

- Developed a novel license plate localization using convolutional neural networks, targeted at Nepali vehicles.
- Built a face recognition system with face detection, point-based face alignment, face embedding model, and nearest-neighbor classifier.

Projects

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

- Led the team in setting up the data annotation process and designing a machine learning pipeline to identify probable trafficking activities from videos, images, and captions in online advertisements.
- Developed multi-modal (image + text) trafficking recognition networks, contrastive loss-based image search, face-based identification, and transformer-based social handle extraction for ad matching.

Waste Type Detection **Fusemachines**

- Developed a lightweight single-shot object detector combining with MobileNet and focal loss to classify waste types and disposal intent, and deployed in Jetson Nano.

Analysis of Radio Panelists Data **Fusemachines**

- Worked on analysis of the impact of song quality, commercial length, and time of day on panelists, employing custom metrics and statistical tests to assess song quality.

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

- Performed a feasibility study on utilizing AutoEncoder-based semi-supervised learning for network anomaly detection, leveraging session data extracted from pcap files.

Nepali License Plate Recognition (Undergraduate Project) **Tribhuvan University**

- Developed a license plate recognition system, tailored for Nepali license plates, with three key stages: vehicle detection, license plate localization, and Nepali character recognition.
- Created a license plate localization dataset by annotating Nepali vehicle images, along with building a Nepali character recognition dataset using Devanagari fonts.

Skills

Programming Languages	Python (advanced), C, C++
Deep Learning	PyTorch (advanced), TensorFlow, Keras
Machine Learning	scikit-learn, NumPy, Pandas, Matplotlib, Seaborn, MLflow
Miscellaneous	LaTeX, Git, Linux
Languages	English, Nepali, Hindi, Magar

Awards & Honors

Scholarship/Assistantship for Ph.D.

- Received a merit-based scholarship at RIT to pursue a Ph.D. in Computing and Information Sciences.

Full Scholarship for Undergraduate Studies

- Awarded by Nepal Government for achieving the 11th rank in Tribhuvan University's entrance examination (4% acceptance rate).

Fusemachines AI Fellowship

- Shortlisted and enrolled in the MicroMasters program for machine learning by Fusemachines.

fuse|ai Scholarship

- Selected to join the fuse|ai course, gaining hands-on experience in machine learning and data science.