Sulabh Shrestha

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Programming Languages

Python
Matlab
SQL

Libraries

PyTorch
TensorFLow
OpenCV
Numpy
Scikit-learn

Techniques

Semantic Segmentation
Object Detection
Deep Learning
Contrastive Learning
Self-supervised Learning
3D-2D Projection
Correspondences
Region Proposals
Tracking
Keypoints
Image Processing

Graduate Courses

Computer Vision
Autonomous Robotics
Deep Learning
Advance AI
Advance ML
Artificial Intelligence
Machine Learning
Deep Geometry Processing

Leadership

- Mentor and Co-founder at AiDevNepal
- Organized nationwide workshop on AI
- Organized nationwide exhibition on Software and Hardware projects

Languages

English
Nepali
Hindi

Education

George Mason University   Aug 2018 — Present
PhD in Computer Science
- Advised by: Dr. Jana Košecka
- Computer Vision, Self-Supervised Learning and Robotics

George Mason University   2018 — 2022
MS in Computer Science   GPA: 3.78

Pulchowk Campus, Institute of Engineering, Tribhuvan University   2012 — 2016
Bachelor of Engineering (B.E.) in Electronics and Communication Engineering   First Division

Experience

George Mason University   Aug 2018 — Present
Graduate Research Assistant
- Devised a new method of self-supervised learning for perception model of embodied agents by utilizing temporal and spatial consistency to reduce required annotated data
- Devised a new algorithm to match class agnostic segmentation regions between projecting views reducing quadratic running time to linear

Graduate Teaching Assistant
- Awarded Outstanding GTA Award for being an excellent help to the instructor
- Created auto-grader to reduce grading time for a long-running course by 90
- Subjects: Deep Learning, Database, Python, Advanced AI, Autonomous Robotics, SQL

Fusemachines Nepal Pvt. Ltd.   May 2017 — Jul 2018
Software Engineer
- Implemented matching of 3D bone models with patient's X-rays to deliver prosthetic bones promptly while decreasing manual matching and inspection cost
- Clearly articulated the steps involved in the solution pipeline directly to the clients
- Supervised By: Steven J. Rennie

Software Engineer Associate
- Worked on construction and perception for a custom fixed wing drone
- Performed feasibility analysis for self-driving cars in Nepal through the self-driving car nano-degree course from Udacity

Publications

Self-supervised Pre-training for Semantic Segmentation in an Indoor Scene
Sulabh Shrestha, Yimeng Li, Jana Košecka
Under Review at ICRA 2023

Projects

Self-supervised Object Detection   Pytorch, Python
Object detection using self-supervised techniques on Active Vision dataset.

Open Set problem for Object Detection   Tensorflow, OpenCV, Python
Analysis of the performance of Object detectors on Novel classes

Guided Contrastive Learning   OpenCV, Python
Robust similarity learning between images guided by a trained Teacher Model

Distracted Driver Detection using attention maps   OpenCV, Python
Using attention maps to detect regions demonstrating distracted regions without labels