Nimish Magre

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Experience

Graduate Student Researcher
AI Skunkworks at Northeastern University
Jun 2021 - Aug 2022 (1 year 3 months)
• Generated and published my own synthetic dataset for Typography (font/typeface) identification. 565,292 MNIST-style grayscale images representing 1,812 unique glyphs in varied styles of 1,355 Google-fonts.
• Received a Bronze medal for the dataset on Kaggle.
• Received a 2-year data hosting sponsorship by AWS to make the dataset available on their platform
• Published an introductory paper on Arxiv. The paper, important links and code are available on my github (https://github.com/magrenimish/Typography-MNIST-Arxiv).

Research Intern
Massachusetts General Hospital
Jan 2022 - Jun 2022 (6 months)
• Implemented a self-supervised denoising network to denoise MRI scans using Bernoulli sampled instances of the scans
• Implemented a CNN based model to reconstruct raw MRI scans based on the Blip Up-Down Acquisition (BUDA) reconstruction technique
• Estimated gfactor map from the reconstructed MRI scans to further denoise through offline locally low rank denoising

Time Frequency Weighted Overlapping Group Shrinkage for Speech Denoising
Northeastern University
Aug 2021 - Dec 2021 (5 months)
• Made use of the l1-norm cost term to sparsify speech samples iteratively
• Introduced a mixed-norm non-separable penalty term to promote group sparsity and remove residual noise
• Utilized a time-frequency weight matrix to further make algorithm more effective even with impulsive noise

Siamese network for object-tracking
Northeastern University
Jan 2021 - Apr 2021 (4 months)
• Conducted literature review of the current state-of-the-art Siamese networks for single object-tracking and segmentation
• Presented a detailed review with demo samples of the Siamese Box Adaptive Network (SiamBAN) for single object tracking
• Modified the template patch used during track using correlation between initial, t-1 and search frames to detect occlusion and improve tracking performance when multiple instances are present

• Successfully tested the performance of the modified architecture on sample VOT-2018 videos

Honours Thesis
The Australian National University
Jul 2018 - May 2019 (11 months)
• Configured pose and Total Centre Point (TCP) for Universal Robot UR5 manipulator with 6 degrees of freedom
• Simulated experimental setup with the Universal Robot UR5 manipulator and a stereo camera using the ROS platform along with the Gazebo7 simulator to obtain training dataset of 150,000 samples
• Trained and tested a Neural Network to learn a Control Lyapunov function to servo control the manipulator

Education

Northeastern University
Master of Science, Electrical and Computer Engineering
2020 - 2022
Major: Computer Vision & Machine Learning
CGPA: 3.9/4.0

The Australian National University
Bachelor Of Engineering (Honors), Mechatronic Systems
2015 - 2019
CGPA: 5.75/7.0

Skills

c++ • matlab • Deep Learning • Convolutional Neural Networks (CNN) • PyTorch • TensorFlow • Keras • linux • LaTeX • OpenCV

Honors & Awards

Amazon Web Services Data hosting sponsorship - Amazon Web Services (AWS)
Dec 2021
For the Typography-MNIST dataset, Amazon Web Services awarded us a 2-year Open Data Hosting sponsorship

TMNIST-Digit dataset Bronze medal - Kaggle
Sep 2021
The MNIST-style typography images dataset that I published on Kaggle has earned me a bronze medal on Kaggle within a week of publishing (Aug-26, 2021) and is on its way to earn a silver medal

Australian National University College of Engineering and Computer Science International Partnership Scholarship - The Australian National University
Jun 2017

Monetary award given to international transfer students with exceptional academic record