Nikash Walia

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Education

Master of Science in Computer Science — Aug 2022-May 2023
University of Illinois at Urbana-Champaign (GPA-4.0/4.0) — Advisor: Svetlana Lazebnik
Planned: Advanced Computational Topics in Robotics, AV System Engineering, Learning-Based Robotics

Bachelor of Science in Computer Science — Aug 2019-May 2022
University of Illinois at Urbana-Champaign (GPA-4.0/4.0) — Advisor: Svetlana Lazebnik
Completed: Deep Learning, AI for Robot Control, Machine Learning, Computational Photography, Computer Vision, Efficient and Predictive Computer Vision, Research Independent Study

Skills

Languages: Python, C, C++, CUDA, Bash/Shell, Java
ML: PyTorch, TensorFlow, Keras, SciKit-Learn, OpenCV, DGL, StellarGraph, Habitat, cuDF, Numba
Other: Linux, Git, Docker, Make, AWS, GCP, Flask, Latex, Neo4J, MySQL

Experience

Data Science Intern — **Intuit Inc.** | May-Aug 2022
- Contributing to document parsing research using OCR, NLP, and transformers.

Product Development Intern — **VMware, Inc.** | May-Aug 2021
- Developed graph algorithms based on state-of-the-art models for security rule assignment for virtual machines.
- Engineered recommendation pipelines for downstream security group collapse to reduce network complication.
- Produced models with 95%+ validation accuracy. Patent application Docket No. H872.01.

Innovation Lab Intern — **Caterpillar Inc.- Cat Digital** | Aug 2020-Jan 2021
- Identified poor dependencies and redesigned code base for Weibull failure analysis.
- Developed data aggregation and analysis pipeline using Cyclone and MySQL for clients' business goals.

Data Science Intern — **Walmart Labs** | Jun-Aug 2020
- Built a pipeline from scratch using TensorFlow to obtain network attention regions for images.
- Generated Faster-RCNN embeddings on previously-unseen objects to develop and productionize image-based search tools. Produced manually-tested top-5 accuracy of 80%. Patent pending.

Projects

Caterpillar Data Science Challenge, HackIllinois 2020 (Winner) — Mar 2020
- Used time series sensor data from HDF files to find anomalies and robustly predict future faults via random forests.
- Built a pipeline for efficiently processing data and performing unsupervised anomaly detection using DeepAnT.

Research

Undergraduate Researcher, CV/RL — **Svetlana Lazebnik** | July 2021-Present
- Exploring alternative strategies to exploration for reinforcement learning agents across multiple tasks.
- Combining auxiliary tasks in the embodied-AI space for improved environment understanding and social learning.

Undergraduate Researcher, AI/HPC — **Wen-mei Hwu, IBM C3SR** | Aug 2020-Present
- Building custom extensions for state-of-the-art deep learning models with PyTorch and BERT.
- Integrating CUDA kernels to produce speedups for sparse-matrix multiplications.

Data Science Research Intern — **NASA Ames Research Center** | Jun-Aug 2019
- Collaborated with subject-matter experts in astrophysics for exoplanet detection and validation using TensorFlow.
- Developed augmented datasets and modified state-of-the-art AstroNet for Kepler Space Telescope data.
- Improved accuracy by 3-4%. Published in American Astronomical Journals. https://arxiv.org/abs/2111.10009

Honors and Certifications

NVIDIA Deep Learning Institute: Fundamentals of Accelerated Computing with CUDA Python.
ISUR Scholar: grant for funding independent undergraduate research.
UIUC Dean's List: awarded for academic excellence.