Serge Noritsyn

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Education

BASc in Engineering Science (Machine Intelligence) + PEY Co-Op **2021 – 2026**
University of Toronto

Relevant Courses: Decision Support Systems | Machine Learning | Software Engineering | Biomedical Engineering | Medical Imaging | Artificial Intelligence/Reinforcement Learning | Control Theory

Professional Experience

Software Engineering Associate | Ministry of Transportation of Ontario | Sep 2024 – Aug 2025

- Led full-stack development of a React/FastAPI application to visualize and analyze laboratory performance, informing decision making of quality control engineers.
- Integrated a Python/SQL backend with MS Access to analyze up to 200,000 data points.
- Developed a statistical framework for evaluating repeatability of laboratory results, automating iterative outlier detection and ratings generation.

Research Experience

GAN for Medical Classification Dataset Imbalance Jan. 2024 – Apr. 2024

- Investigated using DCGAN in TensorFlow for generation of synthetic chest X-rays to address class imbalance in the PneumoniaMNIST dataset.
- Trained CNN classifiers with varying dataset configurations to assess model robustness.
- Achieved classifier accuracy over 90% through GAN-based augmentation, validating the potential of using synthetic data for addressing imbalances in healthcare data.
- Collaborated on an IEEE style report, highlighting limitations from bias transfer and diminishing returns at higher proportions of synthetic data.

Research Intern | Toronto Rehabilitation Institute | May 2023 – Sep 2023

- Developed Pose2Gait, a deep learning pipeline in PyTorch for extracting gait features from monocular video of individuals with dementia.
- Conducted data preprocessing and ablation studies on training pipelines, resulting in test accuracy increases of up to 90%.
- Analyzed 4,000+ videos using Matplotlib and OpenCV to identify systematic labeling errors and enhance model performance.
- Co-authored a publication detailing model design and results; presented findings at an AI health conference to support ongoing research in clinical mobility assessment.

Skills

Python (PyTorch, TensorFlow), React JS, FastAPI, MATLAB (Matplotlib)

Git, Node.js, Vim, MATLAB Simulink, SolidWorks, Microsoft Office