NICHOLAS SEIDL

Machine Learning Engineer

I have experience working on various **computer vision, natural language processing,** and **machine learning** projects. I'm currently at Apple in Intelligent System Experience - System Intelligence Machine Learning working on Generative AI. I built a **real-time object detector (YOLO)** for Wayfair in Summer 2019. In Spring 2019, I worked on **robustness analysis** (RA) of Apple's Neural Face Detector. In Spring + Summer 2018, I built two **web services** at Apple: one for **content analysis and retrieval** and one for **hosted image comparisons and history**.

Contact

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Languages

Python, Java, Javascript, C, C++

Software

GenAI, LLMs, VQA, RLHF, CLIP, PyTorch, Tensorflow, Keras, Pandas, NumPy, CoreML, TensorRT, TFLite, Flask, React, Postgres, AWS, EC2, S3, Docker, Airflow, Kubernetes

Courses

Algorithms and Data Structures
Artificial Intelligence
Linear Algebra
Distributed Systems
ML and Data Mining
Object Oriented Design
Computer Systems
Programming Languages
Probability and Statistics

Interests

Formula 1, Chess, Pool, Photography, Basketball, Hiking

Experience

Apple Inc.
Cupertino, CA

ISE SIML - Machine Learning Engineer
February 2020 - Present

- Data science, mining, and pipelining for multi-modal (<image/video>+text) models (like CLIP, GPT, Diffusion, GSAM, BLIP, etc.) using novel curation techniques (transformers, clustering, foundation models, zeroshot classfiers)
  - Curate the "best assets" subset from a larger dataset (Semantic DeDupe)
- Rapid creation of image classifiers using Zero-Shot CLIP techniques
- Designed and implemented robust and scalable data pipeline for validation, ingestion, and publication of data for ML (100TB+, 100M+ assets, monthly)
- NLP pipelining for evolving corpora: 500B+ words; 50+ languages
- Programmatically provide insights for arbitrary data
  - Clustering, bias and outlier detection, distribution tests
- Robustness analysis and data pipelining for Visual Lookup (WWDC '21)

Wayfair LLC
Boston, MA

Data Science - Computer Vision Engineer
June 2019 - Aug. 2019

- Implemented YOLO(v3) neural network for live on-device object detection
- Optimized with quantization, CUDA, cuDNN, TensorRT, and Tensor Cores
- Achieved 80x speedup in inference time and up to 4x smaller model sizes

Apple Inc.
Cupertino, CA

C&P CVML - Machine Learning Engineer
Jan. 2019 - June 2019

- Analyzed failures of face detector to target aggressors and guide development
- Designed and automated RA pipeline: inference → detection evaluation → RA
- Managed data collection, selection, and annotation (guidelines, spec, and quality)

Apple Inc.
Cupertino, CA

IMG QE - Full Stack Software Engineer
Jan. 2018 - Aug. 2018

- Content Collection: audio/image/video/stream analysis and retrieval (Tornado)
  - Integrated blob (Amazon S3) and metadata (Postgres) stores to serve content
  - Extracted attributes from audio, image, video, and stream content (Swift)
- Image Comparisons: image comparison web service with history (Flask)
  - Rewrote backend so different comparison algorithms can easily be added

Education

Northeastern University
Boston, MA

Bachelor of Science in Computer Science
Sep. 2015 - Dec. 2019

Khoury College of Computer Sciences
GPA: 3.6 / 4.0