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# NICHOLAS SEIDL

## Computer Vision - Software Engineer

I have experience in industry working a variety of roles. This past summer, I built a **live object detector (YOLO)** for Wayfair. In the Spring, I worked on **failure analysis** of Apple's Neural Face Detector, amongst other **computer vision** and **machine learning** functions. In 2018, I built two **web services** at Apple: one for **content analysis and retrieval** and one for **hosted image comparisons and history**.

I'm currently looking for a full time position on a camera/imaging/photos team focused on **computer vision**.

## Contact

nicholasseidl@gmail.com  
(650)-739-6674



[nseidl.io](http://nseidl.io)



[/in/nicholaskseidl](https://in/nicholaskseidl)



[github.com/nseidl](https://github.com/nseidl)

## Languages

Python, Java, Javascript,  
C, C++, Swift

## Software

Tensorflow, TensorRT,  
Keras, TFLite, CoreML,  
EC2, Tornado, Flask,  
React, Typescript, Redux,  
Node, S3, Postgres,  
Elasticsearch, MySQL,  
REST, Docker

## 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

Board Member of Pool  
Club, Photography Club,  
Basketball, Hiking

## Experience

### Wayfair LLC

#### Computer Vision - Software Engineer

Boston, MA  
Summer 2019

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

### Apple Inc.

#### Camera & Photos CVML - Failure Analysis

Cupertino, CA  
Jan. 2019 - June 2019

- Analyzed and visualized failures of face detector to target specific aggressors and guide development
- Designed and automated failure analysis pipeline: inference → detection evaluation → failure analysis → visualization
- Curated datasets for different uses with custom model in the loop processes
- Managed data collection, selection, and annotation (guidelines, spec, and quality)

### Apple Inc.

#### IMG QE - Full Stack Software Engineer

Cupertino, CA  
Jan. 2018 - Aug. 2018

- Content Collection: audio/image/video/stream analysis and retrieval
  - Integrated blob (Amazon S3) and metadata (Postgres) stores to serve content
  - Leveraged Python and Tornado for asynchronous and non-blocking REST API
  - Extracted attributes from audio, image, video, and stream content (Swift)
- Image Comparisons: image comparison web service with history
  - Rewrote backend in Flask; expanded API for frontend and hosted comparisons
  - Modularized backend so different comparison algorithms can easily be added

### UnitedHealth Group - Optum Technology

#### TDP - Backend Software Engineer

Boston, MA  
Summer 2017

- Engineered pluggable Blockchain platform; adapted to bank transaction reconciliation and facilitation (big data)
- Designed, implemented, optimized backend and middle-tier pipeline (Python, Bash): MySQL → .csv → JSON → Elasticsearch → Blockchain → Hash Enforcer
- Leveraged Docker and Openshift for rapid deployment of system infrastructure
- Created Shark Tank presentations bi-weekly: demo, business case analysis

## Education

### Northeastern University

#### Bachelor of Science in Computer Science

Khoury College of Computer Sciences

Boston, MA  
Sep. 2015 - Dec. 2019  
GPA: 3.5 / 4.0

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