Andrew Z. **Luo**

Machine Learning · Systems · Software Engineering

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Experience

Machine Learning Engineer — *Seattle, WA*

Apple, AI/ML Machine Intelligence Neural Design — *Jan. 2020 - now*

- Using quantization, sparsity, and hardware-specific knowledge to train models for Apple's hundreds of millions of devices.
- Developing in-house solutions for training vision models and deploying/benchmarking on FPGA and ASIC environments
- Working with cross-functional teams to define and create new experiences for Siri, HomePod, and future products
- Languages: *Python*. Technologies: *PyTorch, Tensorflow, CoreML, Apple Neural Engine*

Machine Learning Engineer — *Seattle, WA*

XNOR.ai, Machine Learning Team — *Aug. 2019 - Jan 2020*

- *Acquired by Apple Jan. 2020*
- Extending execution engine to support new models, improving training codebase, cleaning technical debt
- Improved top-1 accuracy (megaface2) and mAP@0.5IOU (mscoco) of face-id and object detection models by ~3 points
- Languages: *Python, C, C++*. Technologies: *PyTorch, Bazel*

XNOR.ai, Part-Time — *Sep. 2018 - Jan. 2019*

- Created face identification demo showcasing XNOR's technologies to key executives at major tech companies

Engineering Intern — *San Francisco, CA*

Sift Science, Core Data — *Jun. 2018 - Sep. 2018*

- Rewrote HBase snapshot system, saving over $1.5 million in S3 costs per year and increasing speeds by 50x
- Added conversion of HBase snapshots to Parquet files and integrated data with Google Bigquery
- Languages: *Python, Java*. Technologies: *HBase, GCP, AWS, Apache Airflow*

Software Engineering Intern — *Seattle, WA*

Facebook, Ads Core — *Jun. 2017 - Sep. 2017*

- Implemented back-end statistical models to predict demographics of ad reach for customers with multi-million yearly spend

Undergraduate Teaching Assistant — *Seattle, WA*

CSE312 (probability for CS) and CSE446 (introduction to ML), University of Washington CSE — *Sep. 2018 - Jun. 2019*

- Gave weekly lectures to 20-30 students, hold weekly office hours, graded homework, created answer keys and new material

Other Projects

The FPGA Image Convolution Photobooth

- Created algorithm to run kernel convolutions on streamed images, implemented in FPGA on Altera Cyclone V
- Integrated with camera and VGA, creating a variety of filters like Sobel edge detector, Gaussian blur, and image sharpening

Honors

2018	**Honorable Mention**, Goldwater Scholarship
2017	**Scholarship**, Emerging Leaders in Engineering
2017	**Scholarship**, Undergraduate Conference Award
2015	**Scholarship**, Mary Gates Research Scholarship

Skills

Languages	Python, Java, C, C++
Frameworks	Sklearn, PyTorch, Django
Technologies	HBase, Linux, Airflow
Tools	git, bash, Bazel, LaTeX

Education

University of Washington — *Seattle, WA*

Double Major in Computer Engineering and Bioengineering — *Sep. 2015 - Jun. 2019*

- **Coursework**: Machine Learning, Probability and Statistics, Real Analysis, Operating Systems, Compilers, Embedded Systems
- **GPA**: 3.95, *Summa Cum Laude*

Publications and Patents

Automatic Characterization of User Errors in Spirometry. **Andrew Luo**, Eric Whitmire, James Stout, Drew Martenson, Shwetak Patel. *IEEE EMBC 2017 (Oral Presentation + Paper)*

Compressed Neural Network Models. US Patent App. 16/788261. James Gabriel et al. and **Andrew Luo**. Filed 13 August 2020.