Andrew Z. **Luo**

Machine Learning · Systems · Software Engineering

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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*

Experience

Machine Learning Engineer *Seattle, WA*

XNOR.ai, Machine Learning Team *Aug. 2019 - now*

- Improved top-1 accuracy and mAP@0.5IOU of face identification and object detection models respectively by 1-3 points
- Add support for conversion of temporal models, new activation functions to XNOR engine
- Improved training codebase, including upgrading PyTorch versions, adding new dataset types
- 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
- Sped up training on some datasets by 8x by adding support for preprocessing datasets

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 statistics on demographics of viewed ads
- Built data ingestion and ETL pipelines to create training data sets with specific properties
- Languages: *Java, Python*. Technologies: *Hive, Presto, Dataswarm*

Undergraduate Research Assistant *Seattle, WA*

Ubiquitous Computing Laboratory, University of Washington CSE *Feb. 2016 - Jan. 2018*

- Created ML models for error detection in spirometry, inferring lung health from audio, exposed REST api to use models
- Created site in Django for collecting and labeling data, met with doctors monthly to coordinate efforts
- Languages: *Python*. Technologies: *Scikit-learn, Pandas, Tensorflow, Django*

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

Publications

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