Education and Research

University of Washington | GPA: 3.72 | Computer Science/Applied Mathematics Double Degree Aug. 2015–Jun. 2019 (est.)

* Python, C/C++, Java, JavaScript, PHP, HTML/CSS/XML/JSON/SQL
* Graduate GPU Programming (CSE599), Graduate Computer Vision Research Seminar (CSE590)
* Machine Learning (CSE446), Artificial Intelligence (CSE473), Robotics (CSE490), ML in Graphics Animation (CSE464), Algorithms (CSE421)
* Vision and NLP Research Reading Group with Prof. Ali Farhadi: <https://github.com/joseph-zhong/Papers> | Spring 2017–Present

GRAIL Graphics and Vision Laboratory | Machine Learning Researcher Aug. 2017–Present

* Synthesizing realistic interactive video from speech audio: <https://grail.cs.washington.edu/projects/AudioToObama/>
* Applying Recurrent Neural Networks with Computer Vision and Graphics Animation
* **Advised directly by Prof. Ira Kemelmacher-Shlizerman**

Lakeside School | GPA: 3.87 | SAT: 2230 | 1st Quintile Aug. 2013–Aug. 2015

* Robotics Club Founder, fundraised over $2,500 in one month to jumpstart the club

Online coursework

* Stanford CS224: Natural Language Processing with Deep Learning with Prof. Chris Manning and Prof. Richard Socher | Summer 2017
* Stanford CS231: Convolutional Neural Networks for Visual Recognition with Prof. Fei-Fei Li, Andrej Karpathy, and Justin Johnson | Summer 2016
* MIT 6.006: Introduction to Algorithms with Prof. Erik Demaine and Prof. Srinivas Devadas | Summer 2015

Work and Leadership

Xevo Inc. (acquired Surround.IO) Software Intern and Machine Learning Research Seattle, WA | Jan. 2017–Present

* Neural Network research on **following eye gaze across scenes using Deconvolutional, Spatial Transformation and Saliency Networks**
* Small/Fast/Mobile CNN architecture research and fine-tuning: SqueezeNet, MobileNet, ShuffleNet
* Object Detection and Segmentation: SSD, YoloNet, FCN, Deconv, DeepLab, Faster/Mask RCNN
* Triplet-Loss Embedding for face verification and clustering: FaceNet Embedding
* **Founder of Xevo’s AI Reading Group**: <https://surround-io.github.io/ai-reading-group>

Surround.IO Software Intern and Machine Learning Research Seattle, WA | Jun. 2016–Dec. 2016

* Video Pipelining, Computer Vision: GStreamer, OpenCV, TensorFlow/TensorBoard, Caffe (Python)
* Training and fine-tuning classical and deep learning methods for object detection: Haars/LBP Cascades, AlexNet, VGG, Inception, ResNet
* Developed and Presented **a “distracted driver” detector developed in one week**
* **Xevo Inc. acquired Surround.IO in Dec. 2016 after my summer internship, during my part-time winter internship**

CSE473 Artificial Intelligence | Upper Division Teaching Assistant Aug. 2017–Present

* Heuristic and Adversarial Search, MDP, Reinforcement Learning, Hidden Markov Models, Bayesian Networks, Particle Filtering

Harborview Medical/UW Medicine Developer Research Assistant Seattle, WA | Sept. 2016–Jun. 2017

* Facilitated stroke research with MD David Tirschwell, Dr. Richard Anderson, and Glenn Schubert for 25+ stroke research institutions

StudentRND CodeDay Regional Manager Minneapolis, MN | Aug. 2014–Oct. 2016

* Organized triennial hackathon for low-income and underrepresented students: [http://codeday.org](http://codeday.org/)
* **Quintupled past registrations and attracted 40% participation from underrepresented groups and women**
* Established the hackathon scene in Minnesota, helped found local hackathon HackTheHeat: <http://hacktheheat.net>

HackingEDU Android Developer Seattle, WA | Sept. 2015–Jan. 2016

* Developed the Official Android App for 2500+ attendees to the largest education focused national hackathon: <http://hackingedu.co>
* Published a featured technical blog and tech talk on helpful APIs: [http://blog.josephzhong.me](http://blog.josephzhong.me/)

Projects and Accolades

Fred Hutch Cancer Research Center: Automated Malignant Tumor Detection Seattle, WA | Nov. 2017–Present

* Applying classical, low-cost computer vision techniques such as color-space filtering and blob detection: open source, to be released

TreeHacks 2017: Political News Spectrum Classifier Stanford, CA | Feb. 2017

* Created a Chrome extension that **classified the political bias of news articles and suggested related articles of complementary bias**
* Trained a random forest classifier using extracted features from IBM Watson document sentiment analysis
* IBM Watson/Alchemy, MSFT Cognitive API, Flask, Scikit–Learn: <https://github.com/joseph-zhong/Spectrum>

DubHacks 2016: Qualtrics Best Data Visualization Award Seattle, WA | Oct. 2016

* Created a real-time student–confusion detector with MSFT HoloLens/Unity/Cognitive API/Azure, Flask, Scikit–Learn, and Firebase
* Trained a **decision tree to discern between “confused” and “engaged”** by extracting emotional metrics on Google Images (Python, JavaScript)

DubHacks 2015: **4th Place Finalist** Seattle, WA | Oct. 2015

* Retrofit a bike to mine Bitcoin based on number of calories burned: Arduino, Android, MSFT Band, Node.js/MongoDB and MSFT Azure

DubHacks 2014: **2nd Place Finalist** and Best Microsoft Hack Award Winner Seattle, WA | Oct. 2014

WashUHack: **1st Place Winner** St. Louis, MO | Sept. 2015

PennApps XIII: Postmates API Award Philadelphia, PA | Jan. 2016

UW Computer Security Competition: **2nd Place Finalist** Seattle, WA | Oct. 2015

UW ICPC Qualifier: **6th Place Finalist** Seattle, WA | Oct. 2016

PennApps XIV: Google Honorable Mention Philadelphia, PA | Sept. 2016

AngelHack Seattle: Twitter API Award Seattle, WA | Jun. 2015