(425) 628-7248 Joseph Zhong josephz@cs.washington.edu

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 highly-realistic, real-time and interactive conversational video: Recurrent Neural Networks and classical computer vision techniques
- **Advised directly by Prof. Ira Kemelmacher-Shlizerman**

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

- Search, Markov Decision Processes, Reinforcement Learning, Hidden Markov Models, Bayesian Networks, Kalman and Particle Filtering
- Served under Prof. Dieter Fox

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
- Udacity CS344: Intro to Parallel Programming for CUDA C with David Luebke and Prof. John Owens | Spring 2017
- 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
- Seq2Seq Recurrent Networks and Encoder-Decoders: DeepSpeech and ByteNet Speech to Text Generation
- Triplet-Loss Embedding for face verification and clustering: FaceNet Embedding
- Deep Reinforcement Learning: Applying Deep Q-Learning to generate synthetic training data
- **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**

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
- **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

Projects and Accolades

Fred Hutch Cancer Research Center: Automated Maglignant Cancer Cell Detection — Seattle, WA | Nov. 2017–Present

- Applying classical, low-cost computer vision techniques such as blob detection to detect malignant cancer cells (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 context**
- 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

- Retrofitted a bike to generate bitcoin using AutoCAD, Arduino, Android, MSFT Band, Node.js/MongoDB and MSFT Azure based on calories burned

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

- Built SecondRoute, a background GPS app that detours driver through traffic for Android and Windows Phone (Java, C#, XML, XAML)

WashUHack: 1st Place Winner: Built an open-response SMS Poll app which aggregated results with sentiment analysis — St. Louis, MO | Sept. 2015

PennApps XIII: Built an OCR app to scan and track receipts and suggest recipes in priority of ingredient expiration date — 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 | June 2015