

Education

Stanford | GPA: 4.19

Advanced Software System Certificate

University of Michigan | GPA: 3.7

Bachelor of Science in Computer Science

Shanghai Jiao Tong University | GPA: 3.6

Bachelor of Electrical and Computer Engineering

Palo Alto, CA

Jan 2016 - present

Ann Arbor, MI

May 2015

Shanghai, China

Aug 2015

Experience

Yahoo! Inc.

Sunnyvale, CA

Software Dev Eng. Assoc, Video Platform Team

Sep 2015 - present

- Designing and building a distributed large scaled live video streaming platform with high availability by using MySQL, XQuartz, Jetty; this platform is used to broadcast most of Yahoo hosted live events including Yahoo Finance, Yahoo Taiwan, NHL game, and internal usage
- Implementing live archiving feature to allow users to watch archived streams right after a live streaming is end
- Designing and building an elastic chunked based video transcoding platform on AWS and S3 by using Celery, Django, RabbitMQ framework so as to provide high quality, low bitrate (save 40% compared with CBR) transcoding service to all Yahoo videos (thousands videos per day); a patent has been filed for this project
- Tuning 2-pass VBR (Variable bitrate) video transcoding parameters to save bitrate and increase video quality
- Designing and building an elastic live streaming infrastructure on AWS and Nginx, targeting on serving mobile broadcasting for Yahoo Taiwan; Optimizing the end-to-end delay from 15 seconds to 8 seconds (similar to Facebook and YouTube)

Shanghai Jiao Tong University

Shanghai, China

Teaching Assistant of Introduction to Cryptography

May 2015 - Aug 2015

- Held office hour per week; graded assignments and exams

Yahoo! Inc.

Sunnyvale, CA

Internal Technical I, Video Platform API Team

Jun 2014 - Aug 2014

- Built a video streaming API testing tool using HTTP requests in real log files to automatically simulate the HTTP calls from large number of users to the video streaming API
- Fixed bugs by comparing simulation result with expected result, decreased error rate in less 10%

Shanghai Jiao Tong University

Shanghai, China

Teaching Assistant of Introduction to Programming

May 2013 - Aug 2013

- Held office hour (3 hours per week), graded homework and exams
- Delivered recitation class to around 100 student in class by slides every week (13 weeks)

Projects

Chinese Character Handwriting Generation in TensorFlow

Palo Alto, CA

Course Project, Team lead

Dec 2016

- Utilized TensorFlow framework to achieve a Recurrent Neural Network (RNN) generative model to simulate human Chinese character handwriting

- Applied Long Short Term Memory (LSTM) cell, modified Gated Recurrent Unit (GRU) cell, such that the stroke prediction will condition on the character class information, instead of randomly predicting
- Initial model converged on a limited training set with a simple training loss function
- Took lead on project proposal, literature review and final report

Compiler Optimization for JoeQ

Palo Alto, CA

Course Project

Feb 2016

- Implemented a dataflow analysis framework on JoeQ system as well as Reaching Definitions and Faint Variable analysis
- Designed and implemented an optimization algorithm to remove redundant Null checks by applying Constant Propagation, Copy Propagation and Partial Redundancy Elimination
- Implemented the Loop-invariant Code Motion algorithm

Android App Volumaster

Ann Arbor, MI

Senior Design Course, Team lead

Jan 2015 - Apr 2015

- An Android app which will lower the phone ring automatically when a user is in meeting, cinema, etc
- Used Google Calendar API to automatically import potential events from users' calendar
- Could detect user locations (i.e. in cinema) by GPS or WI-FI connection, and adjust the phone ring volume accordingly
- Designed and implemented database schema, user login, multi-page flatten UI
- Published on Google Play (<https://play.google.com/store/apps/details?id=com.rey.material.volumaster&hl=en>)

Search Engine Design

Ann Arbor, MI

Course Project

Oct 2014

- Ranked results based on both TF-IDF and PageRank scores in Python
- Implemented indexing using MapReduce
- Implemented interface using Javascript and HTML, backend using Flask web development platform on Python
- Designed two special website features, user-driven sliders that controls parameters and deep page summarizing

Photo Album Blog Design

Ann Arbor, MI

Course Project

Sep 2014

- Designed a website with secure username/password login, identification checking, user info updating and session expiration, by MySQL and Python
- Constructed user private page enabling users to create, update, scan and delete albums
- Built a photo search engine that listed relevant photos according to user queries and ordered by TF-IDF scores

Honors

Scholarship at Shanghai Jiao Tong University

Aug 2013

Dean's List at University of Michigan

Dec 2013

University Honors at University of Michigan

2013 - 2014

Technical Skills

- Adept in computer programming: C/C++/Java/Python/JavaScript/MATLAB/Mathematica/LaTeX
- Object oriented programming, RESTful API design, Test-driven development, Distributed System Design
- MySQL/MongoDB, Github, Splunk, Guice, Celery, Django
- Video transcoding, FFmpeg/FFprobe, H264, HLS packaging, Elemental
- Languages: Verbally expert in English, mother-tongue in Mandarin