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Heri Zhao

GitHub: https://github.com/zhaoheri

Education

Stanford University | GPA: 4.14/4.3 — Stanford, CA
Advanced Software System Certificate — Jan 2016 - present

University of Michigan/Shanghai Jiao Tong University | GPA: 3.6/4.0 — Ann Arbor, MI
Bachelor of Science in Computer Science — May 2015

Experience

Yahoo! Inc. — Sunnyvale, CA
Software Dev Engineer, Video Platform Team — Sep 2015 - present

- **Large Scale Real-time Video Highlight Detection System on Caffe** - based on computer vision, CNN and Kubernetes to auto-detect game highlights for esports.
- **Highly Scalable Content-adaptive Video Transcoding Solution on AWS** - algorithm patented with *Chunk Based Adaptive VBR Encoding*; with up to 70% video bitrate saving and 90% improvement on processing time.
- **Elastic Live Streaming Infrastructure on AWS by NVIDIA Pascal GPU** - serving user generated content broadcasting, Yahoo studio and eCommerce with tens of thousands concurrent live events, leading-industry low latency, and immediate ramp-up time.
- **4K HEVC Live Streaming with Extreme Low Latency by NVIDIA Volta GPU** - experienced with NVIDIA state-of-art GPUs, e.g. P4, V100.
- **Distributed Live Event Management System with High Availability** - powering all of Yahoo hosted live events including Yahoo Finance, Yahoo Taiwan, NHL game, and internal events.

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
Summer Intern, Video Platform API Team — Jun 2014 - Aug 2014

- Built a video streaming API testing tool to replay large number of HTTP requests
- Fixed bugs that were reported by the testing tool, 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
- Led, initiated discussions to a class of 200+ student by slides every week (13 weeks)

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

Projects

PAC-MAN AI Competition — Stanford, CA
Course Project, 1st prize — Nov 2016

- Ranked at 1st out of 600+ Stanford students in the class, presented and shared innovative ideas to the class

- Brainstormed features, optimized reward functions, tuned relative scores to handle various scenarios
- Features includes patterns of remaining Pac-Dots (gathered is preferable to fragmented); distance to the foods, the closest scared ghost and the closest capsule; number of foods and capsules left

Chinese Character Handwriting Generation in TensorFlow Stanford, CA
Course Project, Team lead Dec 2016

- Utilized TensorFlow 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
- Trained the model that was converged on a limited training set with a simple loss function
- Took lead on the project proposal, literature review and final report

Compiler Optimization for JoeQ Stanford, 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 (e.g. 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)

Discipline Prediction from Class Review Ann Arbor, MI
Course Project Apr 2015

- Utilized a python crawler to crawl huge amount of training and testing data from *Rate My Professor* website
- Applied Support Vector Machine, Decision Tree, Naive Bayes, KNN, and other machine learning methods to predict disciplines of class from reviews

Technical Skills

- Machine learning: TensorFlow, Caffe
- Video processing: FFmpeg/FFprobe, H264, HEVC, HLS
- Cloud computing: AWS, Google Cloud, Kubernetes
- 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
- Languages: Verbally expert in English, mother-tongue in Mandarin