Giulio Zhou

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Education

University of California, Berkeley (Berkeley, CA) 08/2012 – 12/2016
Bachelor of Arts, Computer Science **Cumulative GPA:** 3.891

Relevant Coursework: Machine Learning, Artificial Intelligence, Computer Vision, Operating Systems, Image Processing, Probability and Random Processes, Data Structures, Computer Networking, Database Systems.

Research Experience

Algorithms, Machines and People Lab 05/2016 – *present*

- Worked under Joseph Gonzalez on Clipper, a system for online, low-latency machine learning model serving.
- Implemented the REST interface and a C++ RPC server to support Vowpal Wabbit, a scalable library for linear model predictions.
- Benchmarked Clipper RPC system on AlexNet, Network-in-Network and Inception Tensorflow models, demonstrating throughput and latency parity with Google's Tensorflow Serving system.
- Explored the use of classification and hypothesis testing techniques for real-time covariate shift detection and adaptation (through online reweighted model retraining).
- Publication: Daniel Crankshaw, Xin Wang, **Giulio Zhou**, Joseph E. Gonzalez. *Clipper: A Low-Latency Online Prediction Serving System.* NSDI, 2017. To Appear.

Berkeley AI Research Lab 03/2015 – *present*

- Worked under Stuart Russell on sampling algorithms for Bayesian LOGic (BLOG), an open-universe probabilistic modeling language.
- Implemented a Gaussian Mixture Model (with temporal and spatial constraints) for background subtraction in video sequences. Written in 20 lines of BLOG code, the algorithm achieves comparable performance to OpenCV's state-of-the-art background subtraction libraries. Submitted to DARPA as part of DARPA's Probabilistic Programming for Advancing Machine Learning (PPAML) initiative.

Industry Experience

Google, inc. 05/2015 – 08/2015
Software Engineering Intern

- Worked on the Display Ad Automation Team to improve the quality of Native Ads.
- Designed and built a backend pipeline for high-quality automated text-to-image matching for internationalized display ads.
- Developed quality visualization tools and deployed non-English Native Ads, doubling overall ad coverage.

Teaching Experience

CS 189/289A, Introduction to Machine Learning (Fall 2016)
CS 61BL, Data Structures and Programming Methodology (Summer 2016)
CS 61B, Data Structures and Algorithms (Spring 2016)

Projects

Automatic Panorama Generator

- Given source images, runs adaptive feature point detection and RANSAC outlier elimination, then learns a homography transformation matrix via least squares.

Convolutional Neural Networks for Image Compression Artifact Removal

- Trained a deep convolutional neural network to remove JPEG compression artifacts.
- Optimized training using Xavier weight initialization, dropout and fine tuning in the final layer.

Technical Skills

Programming Languages: Python, Java, C, C++, MATLAB, SQL, Rust, HTML/CSS/JS, LaTeX
Software/Frameworks: Caffe, Tensorflow, Django, Apache Spark, Hadoop MapReduce, scikit-learn, scikit-image