

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, Computer Vision, Operating Systems, Linear Algebra, Probability Theory, Stochastic Processes, 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 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*. Under review at NSDI, 2017.

Berkeley AI Research Lab

03/2015 – *present*

- Worked under Stuart Russell on sampling algorithms for Bayesian LOGic (BLOG), an open-universe probabilistic modeling language.
- Solved a Gaussian Mixture Model (with temporal and spatial constraints) for background subtraction in video sequences using Metropolis-Hastings sampling. Written in 20 lines of BLOG code, the algorithm achieves comparable performance to OpenCV's state-of-the-art background subtraction libraries. Supported by 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 coverage

Teaching Experience

CS 189/289A, Introduction to Machine Learning (Fall 2016)

- Taught two weekly 1-hour discussions covering topics such as support vector machines, bias-variance tradeoff, gaussian classifiers, logistic regression, kernelization, and neural networks

CS 61BL, Data Structures and Programming Methodology (Summer 2016)

- Prepared daily mini-lectures, developed course material and led 12 hours of laboratory instruction per week

CS 61B, Data Structures and Algorithms (Spring 2016)

- Held office hours, wrote exam problems and led weekly discussion and laboratory sections
- Led the CS Scholars section, comprised primarily of students with little to no background in computer science and from typically underrepresented demographic groups

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