Giulio Zhou

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Education

University of California, Berkeley (Berkeley, CA) 08/2012 – 05/2016
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 Artificial Intelligence 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 10 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.

Nanocrystal Synthesis Lab 01/2014 – 12/2014

- Ran experiments on the NERSC supercomputers, using gradient descent optimization and the generalized moments method to simulate the optical and mechanical properties of tetrapod nanocrystals.
- Implemented a 3D lattice-spring model (with Java multithreading) to simulate polymer stress-strain effects.

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 undergraduate and graduate students in two weekly 1-hour discussions, covering topics such as support vector machines, bias-variance tradeoff, 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. Taught a weekly seminar devoted to academic success and career development.

Organizations

Tau Beta Pi, Engineering Honor Society
Information Technology Chair 01/2015 – 05/2016

- Oversaw a 4-member team in Django full-stack development, maintaining a strict code review system and requiring comprehensive unit-testing and style adherence.
- Led the development and deployment of the Tau Beta Pi Alumni Database, connecting Tau Beta Pi members to alumni mentors throughout industry and academia.
- Coordinated Tau Beta Pi website hackathons, where participants work in teams on novel website features; notable projects include search autocompletion, Alumni Database prototype, and tools for website analytics.

Professional Development Officer 09/2014 – 12/2014

- Held mock interviews and critiqued resumes for Tau Beta Pi members and the broader engineering community.
- Coordinated professional skills events, featuring workshops on Analytical Problem Solving, People Skills and Cultural Awareness.

Member 05/2014 - *present*

- Tau Beta Pi accepts the top 25% seniors in the College of Engineering.

EECS Honors Degree Program
Member, *Concentration in Chemical Engineering* 01/2015 - *present*

- Honors Program with 20-30 students. Requirements include research and extended studies in concentration outside EECS.

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