

Giulio Zhou

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Education

Carnegie Mellon University (Pittsburgh, PA) 08/2017 – present

PhD, Computer Science, Advisor: Dave Andersen

Thesis title: “Improving reliability in machine learning systems with structured design”

Short abstract: We explore building and validating explicit structure in ML systems using simple parametrized models to more reliably and transparently model their variability, stationarity, and latent geometry.

University of California, Berkeley (Berkeley, CA) 08/2012 – 12/2016

Bachelor of Arts, Computer Science

Graduated with High Distinction, GPA: 3.89

Relevant Coursework: Machine Learning, Artificial Intelligence, Convex Optimization, Computer Vision, Deep Reinforcement Learning, Operating Systems, Computer Networking, Database Systems.

Experience

Google Inc., NLP Team (Research Intern, Host: Jacob Devlin) 06/2020 – 09/2020

Designed efficient models for text retrieval using lightweight attention mechanisms for query-document scoring that effectively trade off retrieval accuracy with joint computation and offline document storage costs.

Extensively evaluated architectures and training approaches on TPU compute infrastructure.

Google Inc., Brain Systems Team (Research Intern, Host: Martin Maas) 05/2019 – 06/2020

Devised a method for learning storage policies from distributed traces using Transformers. Built multi-step pipelines to generate datasets from unstructured storage traces. Demonstrated end-to-end improvements on SSD caching and SSD/HDD file placement in simulation. Collaborated closely with product teams working on datacenter storage.

Google Inc., Keyboard Team (Software Engineer) 03/2017 – 08/2017

Created infrastructure to support analytics data pipelines and interactive data visualization. Automated the generation, management and evaluation of Google Keyboard test sets.

Google Inc., Display Ad Automation Team (Software Engineering Intern) 05/2015 – 08/2015

Built a backend pipeline for automated text-to-image keyword matching for internationalized display ads.

Publications

Conference Publications

A Field Test of Bandit Algorithms for Recommendations: Understanding the Validity of Assumptions on Human Preferences in Multi-armed Bandits

*Giulio Zhou**, Liu Leqi*, Fatma Kilinc Karzan, Zachary Lipton, Alan Montgomery.

Conference on Human Factors in Computing Systems (CHI), 2023. [**Equal contribution*]

Learning on Distributed Traces for Datacenter Storage Systems

Giulio Zhou, Martin Maas. Conference on Machine Learning and Systems (MLSys), 2021.

Multi-Vector Attention Models for Deep Re-ranking

Giulio Zhou, Jacob Devlin. Empirical Methods in Natural Language Processing (EMNLP), 2021. [*Short paper*]

Scaling Video Analytics on Constrained Edge Nodes

Christopher Canel, Thomas Kim, *Giulio Zhou*, Conglong Li, Hyeontaek Lim, David G. Andersen, Michael Kaminsky, Subramanya R. Dulloor. Conference on Machine Learning and Systems (MLSys), 2019.

Clipper: A Low-Latency Online Prediction Serving System

Daniel Crankshaw, Xin Wang, *Giulio Zhou*, Michael J. Franklin, Joseph E. Gonzalez, Ion Stoica.

USENIX Symposium on Networked Systems Design and Implementation (NSDI), 2017.

Patents

Data Management Forecasting from Distributed Tracing

Martin Maas, *Giulio Zhou*. US Patent No. 11687833B2. Filed August 2020, issued June 2023. Held by Google Inc.

Technical Skills

Programming Languages: Python, Java, C, C++

Software/Frameworks: PyTorch, Tensorflow, NumPy, Pandas, Apache Beam

Teaching Experience

Machine Learning Systems Seminar

Led paper discussions and held weekly office hours.

CMU, Spring 2022

Introduction to Machine Learning, PhD

Mentored projects, created assignments, and gave recitations.

CMU, Spring 2020

Introduction to Machine Learning

Created assignments and led weekly discussion sections.

UC Berkeley, Fall 2016

Data Structures and Algorithms

Created assignments and led 12 hours of lab instruction per week.

UC Berkeley, Summer 2016

Data Structures and Algorithms

Held office hours, created assignments, and led weekly discussion and lab sections.

UC Berkeley, Spring 2016

Honors & Awards

NSF Graduate Research Fellowship Program, Honorable Mention.

Received an honorable mention in the field of machine learning.

EECS Honors Degree Program.

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

Tau Beta Pi, Engineering Honor Society.

Accepts the top 1/8th of students in the College of Engineering.