

# Giulio Zhou

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## Education

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

**PhD, Computer Science**, Advisor: Dave Andersen

Thesis title: “Mitigating fragility in machine learning systems with structured models”

*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

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**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

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### 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

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

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

## Teaching Experience

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### **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

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### **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.*