

HAOYU ZHANG

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ACADEMICS

- 09/2013 – *Present* Ph.D. student in Computer Science, **Princeton University**
M.A. in Computer Science, awarded in Summer 2015
Advisor: Michael J. Freedman GPA: 3.95 / 4.00
- 09/2009 – 06/2013 B.Sc. in Computer Science, **Peking University**, Beijing, China
GPA (overall): 3.77 / 4.00 GPA (major): 3.85 / 4.00 Rank: 3 / 150
B.A. in Economics (double-major), **Peking University**
- 09/2012 – 02/2013 Visiting Student in Faculty of Electrical Engineering
Technion — Israel Institute of Technology, Haifa, Israel

RESEARCH INTERESTS

My research interests lie in scalable, reliable and highly efficient distributed systems. My recent research focuses on cluster resource scheduling for big-data analytics and machine learning systems, strongly consistent and ultrafast key-value service using programmable data-plane networks (P4), and controller fault tolerance in software-defined networking (SDN).

EXPERIENCE

- 06/2017 – 08/2017 **Ph.D. Software Engineer Intern** Facebook, Menlo Park
Mentors: Brian Cho and Ergin Seyfe
- Designed and implemented an optimized shuffle service for Spark big-data analytics jobs on resource-disaggregated clusters at Facebook scale.
 - The system led to 10x reduction in IO requests and 20% better resource efficiency in production.
- 06/2015 – 08/2015 **Research Intern** Microsoft Research, Redmond
Mentors: Ganesh Ananthanarayanan and Peter Bodik
- Designed and implemented VideoStorm, a video analytics system that processes thousands of vision queries on live video streams over large clusters, with input from operational traffic cameras.
 - VideoStorm is currently deployed and running in Bellevue Traffic Department, and soon in more cities.
- 09/2014 – 05/2015 **Assistant Instructor, Introduction to Programming Systems** Princeton University
- Precept instructor and grader. Course topics span C, Unix and assembly programming.

PROFESSIONAL SKILLS

- Programming** C/C++, Java, Python, C#, Scala, Assembly, Javascript, SQL, Bash scripting
- Unix Tools** \LaTeX , Makefile, version-control tools, plotting tools, profiling tools, Vim, etc.
- Mathematics** Mathematical analysis, discrete mathematics, probability and statistics, linear algebra
- Systems Field** Operating systems, networking, database, and computer architecture
- Other Fields** Machine learning, compilation, software engineering, and digital image processing

PUBLICATIONS

- **Haoyu Zhang**, Logan Stafman, Andrew Or, Michael J. Freedman. SLAQ: Quality-Driven Scheduling for Distributed Machine Learning. In *Proc. ACM Symposium on Cloud Computing (SoCC '17)*. Santa Clara, CA, USA, September 2017
- Xin Jin, Xiaozhou Li, **Haoyu Zhang**, Robert Soulé, Nate Foster, Jeongkeun Lee, Changhoon Kim, Ion Stoica. NetCache: Balancing Key-Value Stores with Fast In-Network Caching. In *Proc. 26th ACM Symposium on Operating Systems Principles (SOSP '17)*. Shanghai, China, October 2017
- **Haoyu Zhang**, Ganesh Ananthanarayanan, Peter Bodik, Matthai Philipose, Paramvir Bahl, Michael J. Freedman. Live Video Analytics at Scale with Approximation and Delay-Tolerance. In *Proc. 14th Symposium on Networked Systems Design and Implementation (NSDI '17)*. Boston, MA, USA, March 2017
- Naga Katta, **Haoyu Zhang**, Michael J. Freedman, Jennifer Rexford. Ravana: Controller Fault-Tolerance in Software-Defined Networking. In *Proc. ACM Symposium on SDN Research (SOSR '15)*. Santa Clara, CA, USA, June 2015
- **Haoyu Zhang**. Automating the Implementation for Web-based Distributed Systems from State Machine Modeling Language. *Senior Thesis*, Peking University. May 2013

Workshop Papers and Posters

- Xin Jin, Xiaozhou Li, **Haoyu Zhang**, Robert Soulé, Nate Foster, Jeongkeun Lee, Changhoon Kim, Ion Stoica. NetCache: Balancing Key-Value Stores with Fast In-Network Caching. In *SOSP Posters*. Shanghai, China, October 2017
- **Haoyu Zhang**, Logan Stafman, Andrew Or, Michael J. Freedman. SLAQ: Quality-Driven Scheduling for Distributed Machine Learning. In *SoCC Posters*. Santa Clara, CA, USA, September 2017
- Xin Jin, Xiaozhou Li, **Haoyu Zhang**, Robert Soulé, Nate Foster, Jeongkeun Lee, Changhoon Kim, Ion Stoica. NetCache: Fast In-Network Caching for Key-Value Stores. In *P4 Workshop*. Stanford, CA, USA, May 2017

PROFESSIONAL SERVICE

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| 2017 | Reviewer, ACM Transactions on Architecture and Code Optimization (TACO) |
| 2017 | Program Committee Member, MobiSys PhD Forum |

HONORS

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| 09/2017 | Best Paper Award, ACM Symposium on Cloud Computing |
| 09/2013 | Princeton University Graduate Fellowship |
| 10/2012 | 8508 Alumni Scholarship Award |
| 10/2011 | Tian Chuang Scholarship Award |
| 10/2010 | Outstanding Student Award at Peking University |

MISCELLANEOUS

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|----------------|--|
| Service | Publicity Chair, Association of Chinese Students & Scholars at Princeton (ACSSPU), 2014–2015 Technology Chair, Princeton Association of Chinese Entrepreneurs (PACE), 2014–2016 |
| Hobbies | Calligraphy, Music, Web design, and Magic |