

Ziqiang Feng

PhD | Software Engineer
zqfeng@google.com

EDUCATION

Ph.D in Computer Science, Carnegie Mellon University 08/2021
Advisor: [Mahadev Satyanarayanan \(Satya\)](#)
Thesis: *Human-efficient Discovery of Edge-based Training Data for Visual Machine Learning*

M.Phil in Computing, Hong Kong Polytechnic University 03/2016
Advisor: [Eric Lo](#)
Thesis: *ByteSlice: Pushing the Envelop of Main Memory Data Processing with a New Storage Layout*

B.S in Computing, Hong Kong Polytechnic University 10/2013
Graduated with First Class Honours.

INDUSTRY EXPERIENCE

Google, Mountain View, CA 09/20/2021 – present
Software Engineer

- Building and optimizing system infrastructure for machine learning workloads
- Optimizing machine learning algorithms on accelerators

Microsoft Research Redmond, WA 05/21/2018 – 08/10/2018
Research Intern Mentor: Dr. Eduardo Cuervo

- Adding neural-network-based object detection to Windows Mixed Reality applications

ACADEMIC EXPERIENCE

Carnegie Mellon University 09/2016 – 08/2021
Graduate Research Assistant Advisor: Prof. M. Satyanarayanan (Satya)

- Eureka: Edge-based Discovery of Training Data for Machine Learning (MLSys'18, SEC'18)
- Improving Edge Elasticity via Decode Offload
- Bandwidth-efficient Live Video Analytics for Drones via Edge Computing (SEC'18)
- LiveMap: Live Synthesis of Vehicle-Sourced Data Over 4G LTE (MSWiM'17)

Hong Kong Polytechnic University 09/2013 – 06/2016
Graduate Research Assistant Advisor: Prof. E. Lo

- Architectural Conscious Main Memory Data Processing (ICDE'15, SIGMOD'15, SIGMOD'16)
- Thrifty: Massively Parallel Database as a Service (SIGMOD'15)

Carnegie Mellon University 06/01/2015 – 08/21/2015
Student Intern Mentor: Prof. Andy Pavlo

- Peloton: The Self-Driving Database Management System

PUBLICATIONS

Google Scholar: <https://scholar.google.com/citations?user=3ADT4qIAAAAJ>

Selected papers:

- [1] Z. Feng, M. Satyanarayanan. Semantic Fast-Forwarding for Video Training Set Construction. IEEE International Workshop on Mobile Computing Systems and Applications (**HotMobile**) 2023.
- [2] M. Satyanarayanan, Z. Feng, S. George, J. Harkes, R. Iyengar, H. Turki, P. Pillai. Accelerating Silent Witness Storage. IEEE Micro. 2022.

- [3] S. George, T. Eiszler, R. Iyengar, H. Turki, Z. Feng, J. Wang, P. Pillai, M. Satyanarayanan. *OpenRTiST: End-to-End Benchmarking for Edge Computing*. IEEE Pervasive Computing 2020.
- [4] M. Satyanarayanan, T. Eiszler, J. Harkes, H. Turki, Z. Feng. *Edge Computing for Legacy Applications*. IEEE Pervasive Computing 2020.
- [5] J. Wang, Z. Feng, S. George, R. Iyengar, P. Pillai, M. Satyanarayanan. *Towards Scalable Edge-Native Applications*. ACM/IEEE Symposium on Edge Computing (SEC'19).
- [6] Z. Feng, S. George, J. Harkes, P. Pillai, R. Klatzky, M. Satyanarayanan. *Edge-based Discovery of Training Data for Machine Learning*. **SEC'18**.
- [7] J. Wang, Z. Feng, Z. Chen, S. George, M. Bala, P. Pillai, S. Yang, M. Satyanarayanan. *Bandwidth-efficient Live Video Analytics for Drones via Edge Computing*. **SEC'18**.
- [8] Z. Feng, J. Wang, J. Harkes, P. Pillai, M. Satyanarayanan. *EVA: An Efficient System for Exploratory Video Analysis* (poster). **MLSys'18**.
- [9] W. Hu, Z. Feng, Z. Chen, J. Harkes, P. Pillai, M. Satyanarayanan. *Live Synthesis of Vehicle-Sourced Data Over 4G LTE*. ACM International Conference on Modeling, Analysis and Simulation of Wireless and Mobile Systems (MSWiM'17).
- [10] W. Xu, Z. Feng, E. Lo. *Fast Multi-Column Sorting in Main-Memory Column-Stores*. ACM SIG on Management of Data (SIGMOD'16).
- [11] Z. Feng, E. Lo, B. Kao, W. Xu. *ByteSlice: Pushing the Envelop of Main Memory Data Processing with a New Storage Layout*. **SIGMOD'15**.
- [12] Z. Feng, E. Lo. *Accelerating Aggregation using Intra-cycle Parallelism*. IEEE International Conference on Data Engineering (ICDE'15).
- [13] P. Wong, Andy He, Z. Feng, W. Xu, E. Lo. *Thrifty: Offering Parallel Database as a Service using the Shared-Process Approach*. **SIGMOD'15, Demo**.
- [14] P. Wong, Z. Feng, W. Xu, E. Lo, B. Kao. *TLB Misses — the Missing Issue of Adaptive Radix Tree?* International Workshop on Data Management on New Hardware (DaMoN'15).

HONORS AND AWARDS

- **Croucher Doctoral Scholarship** (7 recipients), Croucher Foundation, Hong Kong, 2017 – 2019
- **ACM/IEEE SEC'18** Student Travel Grant
- **ACM SIGMOD'15** Student Travel Grant
- **IEEE ICDE'15** Student Travel Grant
- **CMU US-China IEA New Venture Competition**, Third Place, 04/2019
- **Siemens FutureMakers Challenge**, Winner team (\$140k research grant) , 03/2018
- **Full Academic Scholarship for Outstanding Entrance Student**, Hong Kong Polytechnic University (HKPU), 2008 – 2013
- Final Year Project **Technological Achievement Award**, HKPU, 06/2013
- **Dean's Honors List** of Outstanding Students, HKPU, 06/2009

PROFESSIONAL SERVICES

- Reviewer for IEEE Internet of Things Journal (IoT-J 2019, 2020, 2021)
- Reviewer for IEEE Transactions on Mobile Computing (TMC 2020)
- External reviewer for Database Systems for Advanced Applications (DASFAA 2015)

INVITED TALKS

Semantic Fast-Forwarding for Video Training Set Construction

- ACM HotMobile, Orange County, Feb 2023

Towards Big Visual Data Analytics

- SUSTech Global Scientist Interdisciplinary Forum, Shenzhen, China, 2020

Edge-based Discovery of Training Data for Machine Learning

- SUSTech, China, Dec 2018.
- Duke University, ECE590/COMPSCI590 Edge Computing, Guest Lecture, Nov 2018.
- ACM/IEEE SEC, Seattle, Oct 2018.

ByteSlice: Pushing the Envelop of Main Memory Data Processing with a New Storage Layout

- Carnegie Mellon University, Parallel Data Lab, Pittsburgh, Jul 2015
- ACM SIGMOD, Melbourne, Jun 2015
- University of Hong Kong, Database Group, May 2015

Accelerating Aggregation using Intra-cycle Parallelism

- IEEE ICDE, Seoul, Apr 2015

REFERENCES

Mahadev Satyanarayanann

Professor, ACM & IEEE Fellow
Computer Science
Carnegie Mellon University
satya@cs.cmu.edu
(Ph.D advisor)

Padmanabhan Pillai

Senior Research Scientist
Intel Labs
padmanabhan.s.pillai@intel.com

Eric Lo

Associate Professor
Computer Science and Engineering
The Chinese University of Hong Kong
ericlo@cse.cuhk.edu.hk
(M.Phil advisor)

Roberta Klatzky

Professor, IEEE Fellow
Psychology and HCI
Carnegie Mellon University
klatzky@cmu.edu