Jun Li, Ph.D.
Department of Computer Science
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PERSONAL INFORMATION

- Citizenship: China
- Permanent Residence: United States & Canada

RESEARCH INTERESTS

- distributed computing, coding theory, big data, machine learning, distributed storage

EDUCATION

- Doctor of Philosophy, September 2012 - June 2017
  Department of Electrical and Computer Engineering, University of Toronto
  Toronto, ON, Canada
  ▷ Supervisor: Baochun Li
  ▷ Supervisory committee: Frank Kschischang and Cristiana Amza
  ▷ Dissertation: Efficient Erasure Coding in Distributed Storage Systems
- Master of Science, September 2009 - June 2012
  School of Computer Science, Fudan University
  Shanghai, China
- Bachelor of Science, September 2005 - June 2009
  School of Computer Science, Fudan University
  Shanghai, China

PROFESSIONAL EXPERIENCE

- Assistant Profeesor (tenure-track), August 2020 - present
  Department of Computer Science, Queens College & Graduate Center
  City University of New York
  New York, NY
- Assistant Professor (tenure-track), August 2017 – August 2020
  School of Computing and Information Sciences, Florida International University
  Miami, FL

GRANTS

[G1] PI, Flexible Mitigation of Stragglers in Distributed Training with Gradient Coding, Google Cloud Research Credits, 2022, $5,000.

[G2] PI, CIF: Small: Coding Techniques for Distributed Machine Learning (with REU Supplement), National Science Foundation, 2019-2022, $516,000, CCF-1910447.

[G3] PI, Parallelism-aware Coding for Distributed Storage and Computing, AWS Cloud Credits for Research, 2019, $9,000.

[G4] Senior Personnel, REU SITE: ASSET: Research Experiences for Undergraduates in Advanced Secured Sensor Enabling Technologies, National Science Foundation, 2019-2022, $377,684.

[G5] PI, Google Cloud Platform Education Grant, 2018, $2,000.

[G6] Senior Personnel, RET in Engineering and Computer Science SITE: Research Experience for Teachers on Cyber-Enabled Technologies, National Science Foundation, 2018-2021, $600,000.

PUBLICATIONS

- Journal publications

  [J1] Xian Su, Jared Parker, Xiaomei Zhong, Xiaodi Fan, **Jun Li**, "Local Re-encoding for Coded Matrix Multiplication", in IEEE Open Journal of the Communications Society, vol. 3, pp. 1265-1279, 2022.

  [J2] Pedro Soto, Xiaodi Fan, Angel Saldivia, **Jun Li**, "Rook Coding for Batch Matrix Multiplication," in IEEE Transactions on Communications, vol. 70, no. 6, pp. 3641-3654, 2022.

  [J3] **Jun Li**, Baochun Li, "Demand-aware Erasure Coding for Distributed Storage Systems," in IEEE Transactions on Cloud Computing, vol. 9, no. 2, pp. 532-545, 2021.

  [J4] **Jun Li**, Baochun Li, Bo Li, "Efficient Dissemination of Erasure-coded Data in Data Centers," in IEEE Transactions on Emerging Topics in Computing, vol. 7, no. 8, pp. 468-480, 2019.

  [J5] **Jun Li**, Baochun Li, "Beehive: Erasure Codes for Fixing Multiple Failures in Distributed Storage Systems," in IEEE Transactions on Parallel and Distributed Systems, vol. 28, no. 5, pp. 1257-1270, May 2017.

  [J6] **Jun Li**, Baochun Li, "Erasure Coding for Cloud Storage Systems: A Survey," in Tsinghua Science and Technology, vol. 18, no. 3, pp. 259-272, June 2013.

- Conference proceedings and workshop papers

  [C1] Pedro Soto, Ilia Ilmer, Haibin Guan, **Jun Li**, "Lightweight Projective Derivative Codes for Compressed Asynchronous Gradient Descent," in Proc. of the 39th International Conference on Machine Learning (ICML), Baltimore, MD, July 17-23, 2022 (acceptance ratio: 21.9%).

  [C2] Xiaodi Fan, Angel Saldivia, Pedro Soto, **Jun Li**, "Coded Matrix Chain Multiplication," in Proc. IEEE/ACM 29th International Symposium on Quality of Service (IWQOS), Virtual Conference, June 25-28, 2021.

  [C3] Xiaodi Fan, Pedro Soto, Xiaomei Zhong, Dan Xi, Yan Wang, **Jun Li**, "Leveraging Stragglers in Coded Computing with Heterogeneous Servers," in Proc. IEEE/ACM 28th International Symposium on Quality of Service (IWQoS), Hangzhou, China, June 15-17, 2020 (acceptance ratio: 29%).

  [C4] Pedro Soto, **Jun Li**, "Straggler-free Coding for Concurrent Matrix Multiplications," in Proc. of IEEE International Symposium on Information Theory (ISIT), Los Angeles, CA, June 21-26, 2020.

[C5] Xian Su, Xiaomei Zhong, Xiaodi Fan, **Jun Li**, "Local Re-encoding for Coded Matrix Multiplication," in Proc. of IEEE International Symposium on Information Theory (ISIT), Los Angeles, CA, June 21-26, 2020.

[C6] Xian Su, Xiaodi Fan, **Jun Li**, "Dynamic Coding for Distributed Matrix Multiplication," NeurIPS 2019 Workshop on Information Theory and Machine Learning, Vancouver, BC, Canada, December 13, 2019.

[C7] Pedro Soto, **Jun Li**, Xiaodi Fan, "Dual Entangled Polynomial Code: Three-Dimensional Coding for Distributed Matrix Multiplication," in Proc. of the 36th International Conference on Machine Learning (ICML), Long Beach, CA, June 10-13, 2019 (acceptance ratio: 22.6%).

[C8] **Jun Li**, Baochun Li, "Parallelism-Aware Locally Repairable Code for Distributed Storage Systems," in Proc. of the 38th IEEE International Conference on Distributed Computing Systems (ICDCS), Vienna, Austria, July 2-5, 2018 (acceptance ratio: 20%).

[C9] **Jun Li**, Baochun Li, "On Data Parallelism of Erasure Coding in Distributed Storage Systems," in Proc. of the 37th IEEE International Conference on Distributed Computing (ICDCS), Atlanta, GA, June 5-8, 2017 (acceptance ratio: 16.9%).

[C10] Wei Wang, Baochun Li, Ben Liang, **Jun Li**, "Multi-Resource Fair Sharing for Datacenter Jobs with Placement Constraints," in Proc. of the International Conference for High Performance Computing, Networking, Storage and Analysis (SC), Salt Lake City, UT, November 13-18, 2016, pp. 1-12 (acceptance ratio: 18%).

[C11] **Jun Li**, Baochun Li, "Zebra: Demand-aware Erasure Coding for Distributed Storage Systems," in Proc. of the 24th IEEE/ACM International Symposium on Quality of Service (IWQoS), Beijing, China, June 20-21, 2016, pp. 1-10 (acceptance ratio: 21%).

[C12] Wei Wang, Baochun Li, Ben Liang, **Jun Li**, "Towards Multi-Resource Fair Allocation with Placement Constraints," in Proc. of ACM SIGMETRICS 2016 (2-page poster paper), Antibes Juan-les-Pins, France, June 14-18, 2016, pp. 415-416 (acceptance ratio: 24%).

[C13] **Jun Li**, Baochun Li, "Beehive: Erasure Codes for Fixing Multiple Failures in Distributed Storage Systems," in Proc. of the USENIX Workshop on Hot Topics in Storage and File Systems (HotStorage), Santa Clara, CA, July 6-7, 2015 (acceptance ratio: 30%).

[C14] **Jun Li**, Baochun Li, "Cooperative Repair with Minimum-Storage Regenerating Codes for Distributed Storage," in Proc. of the IEEE Conference on Computer Communications (INFOCOM), Toronto, ON, April 27 - May. 2, 2014, pp. 316-324 (acceptance ratio: 19%).

[C15] **Jun Li**, Xin Wang, and Baochun Li, "Cooperative Pipelined Regeneration in Distributed Storage Systems," in Proc. of the IEEE Conference on Computer Communications (INFOCOM), Turin, Italy, April 14-19, 2013, pp. 2346-2354 (acceptance ratio: 17%).

[C16] **Jun Li**, Xin Wang, and Baochun Li, "Pipelined Regeneration with Regenerating Codes for Distributed Storage Systems," in Proc. of International Symposium on Network Coding (NetCod), Beijing, China, July 25-27, 2011, pp. 1-6.

[C17] **Jun Li**, Shuang Yang, Xin Wang, "Building Regeneration Trees in Distributed Storage Systems with Asymmetric Links," in Proc. of the 6th International Conference on Collaborative Computing: Networking, Applications, and Worksharing (CollaborateCom 2010), Chicago, IL, October 9-12, 2010, pp. 1-10 (acceptance ratio: 37%).

[C18] Markus Kliegl, Jason Lee, **Jun Li**, Xinchao Zhang, Chuanxiong Guo, David Rincón, "Generalized DCell Structure for Load-Balanced Data Center Network," in Proc. of the 29th

IEEE Conference on Computer Communications (INFOCOM), Work-In-Progress Track, San Diego, CA, March 15-19, 2010, pp. 1-5 (acceptance ratio: 28%).
– The first four authors share equal contributions.

[C19] **Jun Li**, Shuang Yang, Xin Wang, Baochun Li, "Tree-structured Data Regeneration in Distributed Storage Systems with Regenerating Codes," in Proc. of the IEEE Conference on Computer Communications (INFOCOM), San Diego, CA, March 15-19, 2010, pp. 1-9 (acceptance ratio: 17%).

[C20] **Jun Li**, Shuang Yang, Xin Wang, Xiangyang Xue, Baochun Li, "Tree-structured Data Regeneration with Network Coding in Distributed Storage Systems," in Proc. of the 17th IEEE International Workshop on Quality of Service (IWQoS), Charleston, SC, July 13-15, 2009, pp. 1-9 (acceptance ratio: 33%).

- Technical Reports

[TR1] Markus Kliegl, Jason Lee, **Jun Li**, Xinchao Zhang, David Rincón, Chuanxiong Guo, "The Generalized DCell Network Structures and Their Graph Properties," Microsoft Research TechReport, MSR-TR-2009-140.

PRESENTATIONS

[P1] "Straggler-free Erasure Coding for Distributed Matrix Multiplication," Guest Talk (online), CUNY Graduate Center, Feb. 8, 2021

[P2] "Straggler-free Erasure Coding for Distributed Matrix Multiplication," Research Seminar (online), Arizona State University, April 10, 2020.

[P3] "Dual Entangled Polynomial Code: Three-Dimensional Coding for Distributed Matrix Multiplication," Research Seminar, McMaster University, Hamilton, ON, Canada, July 27, 2019.

[P4] "Parallelism-aware Erasure Coding for Distributed Data Analytics," Research Seminar, Huawei Technologies Co., Ltd. Chengdu Institute, Chengdu, China, August 14, 2018.

[P5] "Parallelism-aware Locally Repairable Code for Distributed Storage Systems," Research Seminar, Fudan University, Shanghai, China, August 9, 2018.

[P6] "Parallelism-aware Locally Repairable Code for Distributed Storage Systems," Oral Presentation, IEEE International Conference on Distributed Computing Systems (ICDCS), Vienna, Austria, July 4, 2018.

[P7] "Erasure Coding for Distributed Storage Systems," Oral Presentation, FIU SCIS's Faculty Seminar Series, Miami, FL, Feburary 9, 2018.

[P8] "On Data Parallelism of Erasure Coding in Distributed Storage Systems," Oral Presentation, IEEE International Conference on Distributed Computing Systems (ICDCS), Atlanta, GA, June 6, 2017.

[P9] "Erasure Coding in Distributed Storage Systems with Optimal Network Overhead," Invited Research Talk, Shanghai Jiao Tong University, Shanghai, China, March 23, 2017.

[P10] "Erasure Coding in Distributed Storage Systems with Optimal Network Overhead," Invited Research Talk, Florida International University, Miami, FL, March 6, 2017.

[P11] “Erasure Coding in Distributed Storage Systems with Optimal Network Overhead,” Invited Research Talk, Queen’s University Belfast, Belfast, United Kingdom, February 2, 2017.

[P12] “Zebra: Demand-aware Erasure Coding for Distributed Storage Systems,” Poster Presentation, SAVI Annual General Meeting, Toronto, ON, July 6, 2016.

[P13] “Zebra: Demand-aware Erasure Coding for Distributed Storage Systems,” Oral Presentation, IEEE/ACM International Symposium on Quality of Service (IWQoS), Beijing, China, June 20, 2016.

[P14] “Beehive: Erasure Codes for Fixing Multiple Failures in Distributed Storage Systems,” Oral Presentation, USENIX Workshop on Hot Topics in Storage and File Systems (HotStorage), Santa Clara, CA, July 6, 2015.

[P15] “Repairing Erasure Codes Cooperatively in Storage-Intensive Applications,” Poster Presentation, SAVI Annual General Meeting, Toronto, ON, July 7, 2014.

[P16] “Cooperative Repair with Minimum-Storage Regenerating Codes for Distributed Storage,” Oral Presentation, IEEE Conference on Computer Communications (INFOCOM), Toronto, ON, April 29, 2014.

[P17] “Cooperative Pipelined Regeneration in Distributed Storage Systems,” Oral and Poster Presentation, Annual ECE Connections Graduate Symposium, Toronto, ON, May 7, 2013.

[P18] “Cooperative Pipelined Regeneration in Distributed Storage Systems,” Oral Presentation, IEEE Conference on Computer Communications (INFOCOM), Turin, Italy, April 18, 2013.

[P19] “Pipelined Regeneration with Regenerating Codes for Distributed Storage Systems,” Oral Presentation, International Symposium on Network Coding (NetCod), Beijing, China, July 25, 2011.

[P20] “Tree-structured Data Regeneration in Distributed Storage Systems with Regenerating Codes,” Oral Presentation, IEEE Conference on Computer Communications (INFOCOM), San Diego, CA, March 18, 2010.

[P21] “Generalized DCell Structure for Load-Balanced Data Center Network,” Oral Presentation, IEEE Conference on Computer Communications (INFOCOM), San Diego, CA, March 15, 2010.

[P22] “Router-supported Data Regeneration in Distributed Storage Systems,” Poster Presentation, USENIX Conference on File and Storage Technologies (FAST), San Jose, CA, February 24, 2010.

[P23] “Router Caching for Video Streaming Systems”, Poster Presentation, USENIX Conference on File and Storage Technologies (FAST), San Jose, CA, February 24, 2010.

[P24] “A Fast-repair P2P Data Backup System with Network Coding,” Oral Presentation, Universitas 21 (U21) Undergraduate Research Conference, Glasgow, UK, October 20, 2009.

[P25] “Tree-structured Data Regeneration with Network Coding in Distributed Storage Systems,” Oral Presentation, IEEE International Workshop on Quality of Service (IWQoS), Charleston, SC, July 13, 2009.

HONORS & AWARDS

- CUNY Queens College OER Faculty Fellowship, 2022
- Doctoral Completion Award, University of Toronto, 2016
- USENIX FAST '16 Student Travel Grant, 2016
- USENIX ATC '15 Student Travel Grant, 2015
- Shanghai Outstanding Achievement of Graduate Students (Master Thesis), 2015
- USENIX FAST '15 Student Travel Grant, 2015
- ECE Fellowship, University of Toronto, 2012-2015
- SGS Conference Grant, University of Toronto, 2013
- Scholarship for Graduate Students, 1^{st} Prize, Fudan University, 2011, 2010
- Morgan Stanley Scholarship, 2010
- Google Excellence Scholarship, 2010
- Scholarship for Freshmen, 1^{st} Prize, Fudan University, 2009
- Outstanding Graduate of Fudan University, 2009
- Excellent Bachelor Thesis, Fudan University, 2009
- Wangdao Scholarship, Fudan University, Summer, 2009
- People's Scholarship, 2^{nd} Prize, Fudan University, Autumn, 2009, 2008, 2007, 2006
- Excellent Student Award of Media Computing and Web Intelligence Lab, Fudan University, 2008

PROFESSIONAL ACTIVITIES

- Conference Chairs
  - 17th IEEE International Conference on Mobility, Sensing and Networking (MSN 2021), publicity co-chair
- Membership in Conference Committees
  - IEEE INFOCOM, technical program committee (2022, 2023)
  - Grace Hopper Celebration, faculty committee (2018)
  - IEEE ICC 2018 Workshop - Information Centric Networking Solutions for Real World Applications (ICNS), program committee (2018)
- Session Chairs
  - IEEE International Conference on Computer Communications (INFOCOM), May 2-5, 2022, Vancouver, BC, Canada

  - IEEE/ACM International Symposium on Quality of Service (IWQoS), June 25-28, 2021, Virtual Conference

- Review for Funding Agencies
  - Mitacs (2022)
  - NSF (2018)
- Review for Journal/Conference Manuscript Submissions
  - IEEE Transactions on Network and Service Engineering (2021, 2022)
  - IEEE Transactions on Computers (2018, 2019, 2022)
  - International Conference on Machine Learning (2022)
  - ACM Transactions on Storage (2016, 2019, 2020, 2021)
  - IEEE Transactions on Parallel and Distributed Systems (2018, 2020, 2021)
  - ACM Transactions on Modeling and Performance Evaluation of Computing Systems (2020, 2021)
  - IEEE Transactions on Dependable and Secure Computing (2021)
  - IEEE Symposium on Information Theory (2019, 2020, 2021)
  - IEEE Transactions on Communications (2020)
  - IEEE Transactions on Cloud Computing (2014, 2015, 2017, 2018, 2019, 2020)
  - IEEE Transactions on Service Computing (2020)
  - IEEE Letters of the Computer Society (2019)
  - IEEE Transactions on Network and Service Management (2018, 2019)
  - IEEE Transactions on Mobile Computing (2015, 2016, 2017, 2018, 2019)
  - Frontiers of Computer Science (2017, 2018)
  - IEEE Communications Letters (2016)
  - Springer Multimedia System (2016)
  - PeerJ Computer Science (2016)
- Membership:
  - IEEE member, 2013 - present
  - ACM member, 2022 - present

TEACHING

- CSc 84030: Big Data Analytics, Graduate Center, City University of New York (Fall 2021, Fall 2022)
- CSc 85020: ST: Theoretical Computer Science (Coding Theory), Graduate Center, City University of New York (Fall 2022)
- CSCI 381/780: Special Topics in Computer Science (Parallel & Distributed Computing), Queens College, City University of New York (Spring 2022)

- CSCI 381/780: Special Topics in Computer Science (Cloud Computing), Queens College, City University of New York (Spring 2021, Spring 2022)
- CSCI 240: Computer Organization and Assembly Language, Queens College, City University of New York (Fall 2020, Spring 2021, Fall 2021)
- COT 3100: Discrete Structures, Florida International University (Spring 2020)
- CDA 4101: Structured Computer Organization, Florida International University (Spring 2020)
- CEN 4083: Introduction to Cloud Computing, Florida International University (Fall 2018)
- CDA 3103: Fundamentals of Computer Systems, Florida International University (Spring 2018, Spring 2019, Fall 2019)

MENTORSHIP

- Students Graduated in the Ph.D. Program

Xiaodi Fan	Fall 2018 - Summer 2022, now research scientist, Meta Platforms	Coded Matrix Multiplication
Pedro Soto	Fall 2017 - Spring 2022, now senior post-doctoral researcher, University of Oxford	Coded Distributed Function Computation

- Current Students in the Ph.D. Program

Yuchun Zou	CS Ph.D. student (CUNY Graduate Center)	Fall 2021 - present
Xian Su	CS Ph.D. student (CUNY Graduate Center)	Fall 2019 – present

- Students in the Master Program

Eunhee Cho	Master in Computer Science, Queens College	Summer 2022
Dan Xi	Master in Information Technology, FIU	Spring 2019 – Summer 2020
Xian Su	Master in Computer Science, FIU	Fall 2019 – Summer 2019
Zhongzhou Li	Master in Computer Engineering, FIU	Summer 2018 – Fall 2018
Ipsita Acharya	Master in Computer Engineering, FIU	Spring 2018 – Summer 2018

- Undergraduate Students funded by NSF REU programs

Brian Sukhnandan	CUNY Queens College	Spring 2021
Jared Parker	Virginia Commonwealth University	Summer 2020
Haobin Liang	Florida International University	Summer 2020
Angel Saldivia	Florida International University	Summer 2020
Eric Xu	Northwestern University	Summer 2018

- High School Students

Murat Khidoyatov	Franklin Delano Roosevelt High School	Fall 2022 - present
Sheikh Islam	Bronx High School of Science	Summer 2022 - present
Jesus Vento	Miami Springs Senior High School	Summer 2018
Christopher Del Rey	Miami Springs Senior High School	Summer 2018

- Students in Other Programs

Manuela Farhi	Justice Through Code	Summer 2022

- Visiting Scholars

Xiaomei Zhong	East China Jiao Tong Univeristy	Spring 2019 – present
Yan Wang	East China Jiao Tong University	Spring 2018 – Spring 2019

- Ph.D. Committee

Xiaojie Zhang	CUNY GC Ph.D. student, advisor: Saptarshi Debroy	2022
Motahare Mounesan	CUNY GC Ph.D. student, advisor: Huy Vo	2021
Proyash Podder	FIU CS Ph.D. student, advisor: Alex Afanasyev	2020