Siyi Yang

Curriculum Vitae

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DOB: May 17, 1994

Education

2018–present — **University of California, Los Angeles**, *Ph.D. Candidate*, *Electrical and Computer Engineering*.
Research Assistant in Laboratory for Robust Information Systems
Research Interests: Error Correction Codes for Modern Data Storage and Quantum Information
Advancement to candidacy: July 13th, 2018; Anticipated date of graduation: summer 2021

2016–2018 — **University of California, Los Angeles**, *Master of Science*, *Electrical and Computer Engineering*.
Thesis: Theoretical Bounds and Constructions of Codes in the Generalized Cayley Metric

2012–2016 — **Tsinghua University, Beijing, China**, *Bachelor of Science*, *Electrical Engineering*.
Thesis: Theoretical Analysis on Information Coupling in Network Navigation

Summer 2015 — **Columbia University, New York**, *Research Assistant*, *Electrical Engineering*.
Project: LabVIEW USRP Implementation of MIMO RFID

Industrial Experiences

Jun. 2020 – Sep. 2020 — **Novel LDPC Codes for 3DXP and 3D NAND**, SoC Design Engineer.
Mentor: Dr. Ravi Motwani   **Company**: Intel Corporation (Non-volatile Memory Solution Group)
Error floor estimation and optimization of non-binary LDPC codes tailored for 3DXP and 3D NAND products. The work was recognized by my mentor and my manager, which brought me an Intel Spotaneous Recognition Award.

Manuscript in Preparation

Siyi Yang, Ahmed Hareedy, Robert Calderbank, and Lara Dolecek, *GRADE-AO: Fine-Grained Optimization of Spatially-Coupled Codes With High Memories*, to be submitted to IEEE Transactions on Information Theory

Publications and Preprints (Journal)

Siyi Yang, Ahmed Hareedy, Robert Calderbank, and Lara Dolecek, *Hierarchical Hybrid Error Correction for Time-Sensitive Devices at the Edge*, submitted to IEEE Transactions on Communications; available on https://arxiv.org/abs/2103.11046

Siyi Yang, Ahmed Hareedy, Robert Calderbank, and Lara Dolecek, *Hierarchical Coding for Cloud Storage: Topology-Adaptivity, Scalability, and Flexibility*, submitted to IEEE Transactions on Information Theory; available on https://arxiv.org/abs/2009.09146

Siyi Yang, Clayton Schoeny, and Lara Dolecek, *Theoretical Bounds and Constructions of Codes in the Generalized Cayley Metric*, in IEEE Trans. on Information Theory, vol. 65, no. 8, pp. 4746-4763, Aug. 2019. doi: 10.1109/TIT.2019.2899868

Shaoyuan Chen, Shan Zhong, **Siyi Yang**, and Xiaodong Wang, *A Multiantenna RFID Reader With Blind Adaptive Beamforming*, in IEEE Internet of Things Journal, vol. 3, no. 6, pp. 986-996, Dec. 2016. doi: 10.1109/JIOT.2016.2542242

Publications and Preprints (Conferences)

Siyi Yang, Ahmed Hareedy, Robert Calderbank, and Lara Dolecek, *GRADE-AO: Towards Near-Optimal Spatially-Coupled Codes With High Memories*, submitted to IEEE ISIT 2021; available on https://arxiv.org/abs/2101.09962

Siyi Yang, Ahmed Hareedy, Robert Calderbank, and Lara Dolecek, *Topology-Aware Cooperative Data Protection in Blockchain-Based Decentralized Storage Networks*, in IEEE ISIT 2020, Los Angeles, USA; **Runner up for Memorable Paper Award** at NVMW 2021

Siyi Yang, Murat Can Sarihan, Kai-Chi Chang, Chee Wei Wong, and Lara Dolecek, *Efficient Information Reconciliation for Energy-Time Entanglement Quantum Key Distribution*, in the 53nd Asilomar Conference on Signals, Systems and Computers, Nov. 2019; presented in 2020 Information Theory and Applications (ITA) Workshop; available on https://arxiv.org/abs/2001.00611

Siyi Yang, Ahmed Hareedy, Robert Calderbank, and Lara Dolecek, *Hierarchical Coding to Enable Scalability and Flexibility in Heterogeneous Cloud Storage*, in IEEE GLOBECOM 2019, Hawaii, USA; available on https://arxiv.org/pdf/1905.02279.pdf

Siyi Yang, Clayton Schoeny, and Lara Dolecek, *Order-Optimal Permutation Codes in the Generalized Cayley Metric*, presented in Information Theory Workshop, Nov. 2017, Kaohsiung, Taiwan; **Runner up for Memorable Paper Award** at NVMW 2018

Presentations

Mar. 2021 **Oral, Online**	*Cooperative Data Protection for Topology-Aware Decentralized Storage Networks*, **Siyi Yang***, Ahmed Hareedy, Robert Calderbank, and Lara Dolecek, in the 13th Annual Non-Volatile Memories Workshop (NVMW), San Diego, US, 2021
Jun. 2020 **Oral, Online**	*Topology-Aware Cooperative Data Protection in Blockchain-Based Decentralized Storage Networks*, **Siyi Yang***, Ahmed Hareedy, Robert Calderbank, and Lara Dolecek, in 2020 IEEE International Symposium in Information Theory (ISIT), Los Angeles, US, 2020
Feb. 2020 **Oral**	*Modulation and Coding for Energy-Time Entanglement Quantum Key Distribution*, **Siyi Yang**, Murat Can Sarihan, Kai-Chi Chang, Chee Wei Wong, and Lara Dolecek*, in 2020 Information Theory and its Applications Workshop (ITA), San Diego, US, 2018
Dec. 2019 **Oral**	*Hierarchical Coding to Enable Scalability and Flexibility in Heterogeneous Cloud Storage*, **Siyi Yang***, Ahmed Hareedy, Robert Calderbank, and Lara Dolecek, in 2019 IEEE Global Communications Conference (GLOBECOM), Hawaii, US, 2019
Nov. 2019 **Poster**	*Efficient Information Reconciliation for Energy-Time Entanglement Quantum Key Distribution*, **Siyi Yang***, Murat Can Sarihan, Kai-Chi Chang, Chee Wei Wong, and Lara Dolecek, in the 53nd Asilomar Conference on Signals, Systems and Computers, Pacific Grove, US, 2019
Mar. 2019 **Oral**	*Multi-level Access and Information Leakage in Scalable Cloud Storage*, **Siyi Yang***, Clayton Schoeny, Laura Conde-Caneicia, and Lara Dolecek, in the 10th Annual Non-Volatile Memories Workshop (NVMW), San Diego, US, 2018
Mar. 2018 **Oral**	*Order-Optimal Permutation Codes in the Generalized Cayley Metric*, **Siyi Yang***, Clayton Schoeny, and Lara Dolecek, in the 9th Annual Non-Volatile Memories Workshop (NVMW), San Diego, US, 2018
Nov. 2017 **Oral**	*Order-Optimal Permutation Codes in the Generalized Cayley Metric*, **Siyi Yang***, Clayton Schoeny, and Lara Dolecek, in IEEE Information Theory Workshop (ITW), Kaohsiung, Taiwan, 2017
	Note: the presenter is marked by "*".

Honors and Awards

2021	Runner-up recognition for Memorable Paper Award in NVMW
2020-2021	Dissertation Year Fellowship, UCLA
2020	Intel Spontaneous Recognition Award
2020	Qualcomm Innovation Fellowship Finalist
2019	D.E. Shaw Exploration Fellowship
2018	Runner-up recognition for Memorable Paper Award in NVMW
2016-2017	Departmental Fellowship, Electrical Engineering, UCLA

2015   Scholarship of Academic Excellence, Tsinghua University, Beijing, China

2012   Silver Medal in the 27th Chinese Mathematical Olympiad, Xi'an, China

2011   2nd place in the 10th Chinese Girls' Mathematical Olympiad, Shenzhen, China

2010   1st place in the 9th Chinese Girls' Mathematical Olympiad, Hebei, China

Professional Services

Journal Reviewing: *IEEE Transactions on Information Theory (TIT)*

IEEE Transactions on Communications (TCOM)

Conference Reviewing: ISITA 2018, ITW 2018, ISIT 2019, ISIT 2020,GLOBECOM 2020, ISIT 2021

Teaching

Fall 2019   ECE 131A, Probability and Statistics

Summer 2019   ENG 116, Statistics for Management Decisions

Los Angeles Computing Circle (LACC), Instructor of Graph Theory and Social Network Section

Fall 2018   ECE 131A, Probability and Statistics

Summer 2018   Los Angeles Computing Circle (LACC), Instructor of Graph Theory and Social Network Section

Winter 2018   ECE 205A, Matrix Analysis for Scientists and Engineers

Github Links

https://github.com/Siyi-Prisca-Yang/QKD

https://github.com/UCLA-LACC-2018/Graph-Theory-and-Social-Network