Chenzhi Zhu

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Education

Institute for Interdisciplinary Information Sciences (Yao Class), Tsinghua University Beijing, China
B.E. in Computer Science and Technology *2016 - present*

· GPA: **3.83/4.00**; Ranking: 6/38

Research Experience

Carnegie Mellon University Pennsylvania, USA
Research Assistant with Professor Vipul Goyal *Feb. 2019 - present*

Multi-source Non-malleable Randomness Extractor:

· Constructed multi-source non-malleable randomness extractors against a stronger tampering function family.
· Showed the construction is efficiently pre-image sampleable and can be transferred to a multi-split-state non-malleable code against a stronger tampering function family.
· Extended the construction to non-malleable t-out-of-n secret sharing scheme.
· Provided instantiations for all the above protocols.

Efficient Secure Multiparty Computation (MPC) with Guaranteed Output Delivery:

· Developed an efficient MPC protocol with guaranteed output delivery and lower asymptotic communication complexity in the honest-majority setting.
· Improved the concrete communication complexity required per multiplication gate.
· Proposed a dynamic segment division protocol that improves the communication complexity under the best case.
· Reduced the number of broadcasts required when localizing a disputed pair.

Private Storage and Computation on Blockchain:

· Explored cryptographic primitives to add privacy guarantees to Blockchain protocols.
· Designed a new blockchain protocol that allows users to privately store, and execute smart contracts on their data.

Stanford University California, USA
Research Assistant with Professor Keith Winstein *Jul. 2018 - Sep. 2019*

Real-World Video Streaming:

· Designed and implemented a continual learning algorithm for bitrate selection in streaming video which combines deep learning algorithm with model predictive control.
· Proposed a new transmission time prediction model that could make more accurate prediction than previous model.
· Built a video-streaming website, Puffer, for gathering real-world data and testing performance of different algorithms.

Submitted/Manuscripts

1. Vipul Goyal, Akshayaram Srinivasan, and **Chenzhi Zhu**. Multi-source non-malleable extractors and applications. *Submitted to STOC 2020*
2. Vipul Goyal, Yifan Song, and **Chenzhi Zhu**. Communication-efficient unconditional honest-majority mpc with guaranteed output delivery. *Submitted to Eurocrypt 2020*
3. Francis Y Yan, Hudson Ayers, **Chenzhi Zhu**, Sadjad Fouladi, James Hong, Keyi Zhang, Philip Levis, and Keith Winstein. Learning in situ: a randomized experiment in video streaming. *Accepted by NSDI 2020*. https://arxiv.org/pdf/1906.01113.pdf

Honors & Rewards

· Yao Award, Tsinghua University *2019*

· Academic Excellence Award, Tsinghua University *2017, 2018*

· Fellowship of Xuetang Talents Program, Tsinghua University *2017, 2018*

· Freshman Scholarship, Tsinghua University *2016*

· **Gold medal** in the National Olympiad in Informatics (China) *2015*

Selected Courses

Theory of Computation	*A+*	Quantum Information	*A*
Fundamentals of Cryptography	*A*	Distributed Computing	*A*
Algorithm Design	*A-*	Abstract Algebra	*A*

Additional Information

Computer & Language Skills:

· Programming Languages: C/C++, Java, Python, JavaScript, HTML, PHP

· Libraries & Software: Django, InfluxDB, libscapi, Latex, MATLAB

· Language spoken: Mandarin, English

Hobbies & Interests:

· Member of the institue's basketball and baseball teams.

· Rubik's Cube: Can solve the 3 x 3 puzzle in under 20 seconds

· Others: Skating, Swimming, Billiards, Harmonic