Yupan Liu

Curriculum Vitae

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Education

2020.07–2020.12 **Ph.D. in Computer Science (Discontinued)**, *Hebrew University*, Jerusalem, Israel.
Advisors: Dorit Aharonov

2017.10–2020.03 **M.Sc. in Computer Science**, *Hebrew University*, Jerusalem, Israel.
Advisors: Dorit Aharonov and Itai Arad (Technion)
Overall GPA: 93.22
M.Sc. Thesis: *Towards a quantum-inspired proof for* IP = PSPACE

2013.09–2017.07 **B.Eng. in Computer Science and Technology**, *Zhejiang University*, Hangzhou, China.
Overall GPA: 85.28, Major (last-two-year) GPA: 88.22
Senior Project Advisor: Xin Wan

Research Interests

My research interests lie in theoretical computer science, with a particular focus on quantum computing and complexity theory, such as problems that I used to work on: derandomization's consequences from a quantum perspective (e.g., StoqMA vs. MA), Hamiltonian complexity (e.g., Hamiltonian learning problem, stoquastic area law), and delegating quantum computation using interactive proofs. I am also broadly interested in theoretical computer science in general.

Research Experience

2017-2020 **Research Student**, *CS Theory Group*, Hebrew University, Jerusalem, Israel.
Advisors: Dorit Aharonov and Itai Arad

2018-2019 **Research Student**, *CS Theory Group*, Hebrew University, Jerusalem, Israel.
Advisors: Guy Kindler

Summer 2019 **Research Internship**, National University of Singapore, Singapore.
Advisors: Itai Arad and Miklos Santha

Summer 2016 **Research Internship**, National University of Singapore, Singapore.
Advisors: Itai Arad and Miklos Santha

2016–2017 **Research Student**, *Department of Physics*, Zhejiang University, Hangzhou, China.
Advisor: Xin Wan

Publications

(The authors of papers in theoretical computer science are listed alphabetically.)
(Detailed abstracts can be found on my website.)

◇ Yupan Liu. StoqMA *meets distribution testing*. In Proceedings of 16th Conference on the Theory of Quantum Computation, Communication and Cryptography (TQC 2021), LIPIcs volume 197, pp.4:1-4:22, 2021. Also available at arXiv: 2011.05733, 2020.

- ◇ Dorit Aharonov, Alex B. Grilo, and Yupan Liu. StoqMA *vs.* MA*: the power of error reduction*. To appear in Quantum. Also available at arXiv: 2010.02835, 2020.
- ◇ Ayal Green, Guy Kindler, and Yupan Liu. *Towards a quantum-inspired proof for* IP = PSPACE. Quantum Information & Computation, 21(5-6):0377-0386, 2021. Also available at arXiv: 1912.11611, 2019.
- ◇ Yupan Liu. *On learning Pauli commuting local Hamiltonians*. Appeared as an accepted poster at the 23rd Conference on Quantum Information Processing (QIP 2020).

Invited Talks

- ◇ StoqMA *meets distribution testing*. Contributed talk, 16th Conference on the Theory of Quantum Computation, Communication and Cryptography (TQC 2021), Jul. 7th, 2021.
- ◇ StoqMA *meets distribution testing*. Invited talk at AMSS-UTS Joint Workshop on Quantum Computing, Dec. 16th, 2020.
- ◇ StoqMA *meets distribution testing*. Invited talk at Nanjing University, Dec. 9th, 2020.
- ◇ *The untold story of* StoqMA. Invited talk at University College London, Dec. 3rd, 2020.
- ◇ *The untold story of* StoqMA. Invited talk at Kyoto University, Nov. 30th, 2020.
- ◇ *Towards a quantum-inspired proof for* IP = PSPACE. Invited talk at NTT Basic Research Laboratories, Oct. 18th, 2019.
- ◇ *Towards a quantum-inspired proof for* IP = PSPACE. Invited talk at Kyoto University, Oct. 15th, 2019.
- ◇ *An Invitation to Stoquastic Hamiltonian Complexity*. Invited talk at University of Science and Technology of China, Oct. 8th, 2019.

Professional Service

Reviewer TQC 2020(2), FOCS 2020, QIP 2021, SODA 2022

Teaching Experience

Fall 2019 **Kazhdan's Lecture: Computation, quantumness, symplectic geometry, information**, Hebrew University, Jerusalem, Israel.
Instructors: Gil Kalai, Leonid Polterovich, Dorit Aharonov, Guy Kindler
Scribed notes for all computer science oriented lectures (half of the course).

Languages

Chinese **Mothertongue**
English **Fluent**