Hsin-Yuan Huang (Robert)

hsinyuan@caltech.edu TEL: (206)765-6010
hsinyuan@google.com https://hsinyuan-huang.github.io

POSITIONS

California Institute of Technology
Assistant Professor of Theoretical Physics; William H. Hurt Scholar Starting in 2025

MIT Center for Theoretical Physics
Visiting Scientist Sep. 2023 - Present

Google Quantum AI
Research Scientist Sep. 2023 - Present
Research Intern (Mentored by Jarrod R. McClean) Jun. 2020 - Oct. 2020

AWS Center for Quantum Computing
Research Intern (Mentored by Steven T. Flammia) Jun. 2021 - Sep. 2021

Allen Institute for Artificial Intelligence
Research Intern (Mentored by Scott Wen-tau Yih) Jun. 2018 - Sep. 2018

Microsoft Research
Research Intern (Mentored by Chenguang Zhu) Jun. 2017 - Sep. 2017

EDUCATION

Ph.D., California Institute of Technology Oct. 2018 - Sep. 2023
Advised by John Preskill (Physics) and Thomas Vidick (CS).
Member of the Institute for Quantum Information and Matter (IQIM).

B.S., National Taiwan University Sep. 2014 - Jun. 2018
Studied Computer Science (major) and Physics (minor). GPA: 4.30/4.30, Rank: 1/120.
Member of the Machine Learning and Data Mining Group; Advisor: Chih-Jen Lin

AWARDS AND HONORS

Early-Career Endowed Professorship:
William H. Hurt Scholar, California Institute of Technology offered in 2023 (deferred)
Terman Faculty Fellowship, Stanford University offered in 2023 (declined)

Graduate Fellowships and Awards:
Google Ph.D. Fellowship 2021 - 2023
Boeing Quantum Creators Prize 2021
Kortschak Graduate Scholarship 2018 - 2020

Awards for Academic Excellence:
First Place Scholarship, Taiwan (awarded to Olympiad medalists ranking top 1) 2015, 2016, 2017, 2018
Presidential Award, Taiwan (awarded to students ranking top 5%) Fall / Spring 2015, 2016, 2017, 2018

OTHER AWARDS AND HONORS

Quantum Innovator in CS and Math	*2022*
MediaTek Research Young Scholarship	*2021*
J. Yang Graduate Scholarship	*2020 - 2021*
Taiwan Government Scholarship to Study Abroad	*2019*
The Phi Tau Phi Scholastic Honor Society of the Republic of China	*2018*
Undergraduate Research Project Exhibition, First Place	*2017*
Appier Scholarship	*2016, 2017*
AAAI Conference on Artificial Intelligence Scholarship	*2017*
Shih-Liang Chien Memorial Award	*2016*
SIAM International Conference on Data Mining Travel Award	*2016*
Wang Da Gang Natural Science Scholarship	*2013*
25th International Olympiad in Informatics, Bronze Medal	*2013*
2013 Asia-Pacific Informatics Olympiad, Silver Medal	*2013*
National Informatics Olympiad in Taiwan, First Place	*2012*
Taiwan International Science Fair, Third Prize	*2012*
Science Research Grant for High School Student, First Prize	*2012*
Taipei High School Informatics Competition, First Place	*2012*

SYNERGISTIC ACTIVITY

Program committee: QIP 2024, TQC 2023.

Conference review: QIP, TQC, STOC, FOCS, SODA, ITCS, NeurIPS, ICML, ICLR.

Journal review: Nature, Nature Physics, Nature Communications, Science Advances, Physical Review X, Physical Review Letters, PRX Quantum, IEEE Transactions on Information Theory, Journal of Machine Learning Research, npj Quantum Information, npj Quantum Materials, Quantum, ACM Transactions on Quantum Computing, Physical Review Research, Physical Review A, Quantum Machine Intelligence, Data Mining and Knowledge Discovery.

Conference volunteer: QIP 2022, AAAI 2017.

PUBLICATIONS (ALL ARTICLES REFEREED)

[1] A. Abbas, R. King, **H.-Y. Huang**, W. J. Huggins, R. Movassagh, D. Gilboa, J. R. McClean. On quantum backpropagation, information reuse, and cheating measurement collapse. In *37th Conference on Neural Information Processing Systems (NeurIPS)*, 2023. (Spotlight)

[2] **H.-Y. Huang**[†] **(co-first author)**, Y. Tong[†], D. Fang, Y. Su. Learning many-body Hamiltonians with Heisenberg-limited scaling. *Physical Review Letters* 130, 200403 (2023). In *26th Annual Conference on Quantum Information Processing (QIP-23)*, 2023. (Short plenary talk)

[3] M. C. Caro[†], **H.-Y. Huang**[†] **(co-first author)**, N. Ezzell, J. Gibbs, A. T. Sornborger, L. Cincio, P. J. Coles, Z. Holmes. Out-of-distribution generalization for learning quantum dynamics. *Nature Communications* 14.1 (2023): 3751.

[4] J. Choi, A. Shaw, I. Madjarov, X. Xie, J. Covey, J. Cotler, D. Mark, **H.-Y. Huang**, A. Kale, H. Pichler, F. Brandao, S. Choi, M. Endres. Preparing random states and benchmarking with many-body quantum chaos. *Nature* 613 (2023): 468-473.

[5] J. Cotler[†], D. Mark[†], **H.-Y. Huang**[†] **(co-first author)**, F. Hernandez, J. Choi, A. L. Shaw, M. Endres, S. Choi. Emergent quantum state designs from individual many-body wavefunctions. *PRX Quantum*

4, 010311 (2023).

[6] **(alphabetical order)** A. Elben, S. Flammia, **H.-Y. Huang**, R. Kueng, J. Preskill, B. Vermersch, P. Zoller. The randomized measurement toolbox. *Nature Review Physics*, 2022.

[7] L. Lewis, **H.-Y. Huang**, V. Tran, S. Lehner, R. Kueng, J. Preskill. Improved machine learning algorithms for predicting ground state properties. In *26th Annual Conference on Quantum Information Processing (QIP-23)*, 2023. (Contributed talk)

[8] **H.-Y. Huang**, S. Chen, J. Preskill. Learning to predict arbitrary quantum processes. In *26th Annual Conference on Quantum Information Processing (QIP-23)*, 2023. (Contributed talk)

[9] **(alphabetical order)** S. Chen, J. Cotler, **H.-Y. Huang**, J. Li. The complexity of NISQ. In *26th Annual Conference on Quantum Information Processing (QIP-23)*, 2023. (Contributed talk)

[10] **H.-Y. Huang**, R. Kueng, G. Torlai, V. V. Albert, J. Preskill. Provably efficient machine learning for quantum many-body problems. *Science* 377.6613 (2022). In *25th Annual Conference on Quantum Information Processing (QIP-22)*, 2022. (Plenary talk)

[11] M. Cerezo, G. Verdon, **H.Y. Huang**, L. Cincio, P. Coles. Challenges and opportunities in quantum machine learning. *Nature Computational Science* 2 (2022): pp. 567-576.

[12] M. C. Caro, **H.-Y. Huang**, M. Cerezo, K. Sharma, A. Sornborger, L. Cincio, P. J. Coles. Generalization in quantum machine learning from few training data. *Nature Communications* 13.1 (2022): pp. 1-11.

[13] **H.-Y. Huang**, M. Broughton, J. Cotler, S. Chen, J. Li, M. Mohseni, H. Neven, R. Babbush, R. Kueng, J. Preskill, J. R. McClean. Quantum advantage in learning from experiments. *Science* 376.6598 (2022): pp. 1154-1155.

[14] **H.-Y. Huang**, S. Flammia, J. Preskill. Foundations for learning from noisy quantum experiments. In *25th Annual Conference on Quantum Information Processing (QIP-22)*, 2022. (Contributed talk)

[15] **H.-Y. Huang**, Learning quantum states from their classical shadows. *Nature Review Physics* 4.2 (2022): pp. 81-81.

[16] **(alphabetical order)** S. Chen, J. Cotler, **H.-Y. Huang**, J. Li. Exponential separation between learning with and without quantum memory. In *62nd Annual IEEE Symposium on Foundations of Computer Science (FOCS-21)*, 2021. Invited to SIAM Journal of Computing Special Issue.

[17] J. R. McClean, N. C. Rubin, J. Lee, M. P. Harrigan, T. E. O'Brien, R. Babbush, W. J. Huggins, **H.-Y. Huang**. What the foundations of quantum computer science teach us about chemistry. *Journal of Chemical Physics* 155.15 (2021): 150901.

[18] **H.-Y. Huang**, R. Kueng, J. Preskill. Efficient estimation of Pauli observables by derandomization. *Physical Review Letters* 127.3 (2021): 030503.

[19] **H.-Y. Huang**, R. Kueng, J. Preskill. Information-theoretic bounds on quantum advantage in machine learning. *Physical Review Letters (Editor's Suggestion)* 126.19 (2021): 190505. In *24th Annual Conference on Quantum Information Processing (QIP-21)*, 2021 (Talk title: Fundamental aspects of solving quantum problems with machine learning).

[20] Y. Su, **H.-Y. Huang**, E. Campbell. Nearly-tight Trotterization of interacting electrons. *Quantum* 5 (2021): 495. In *24th Annual Conference on Quantum Information Processing (QIP-21)*, 2021. (Contributed talk)

[21] **H.-Y. Huang**, M. Broughton, M. Mohseni, R. Babbush, S. Boixo, H. Neven, J. R. McClean. Power of data in quantum machine learning. *Nature Communications* 12.1 (2021): 1-9. In *24th Annual*

Conference on Quantum Information Processing (QIP-21), 2021 (Talk title: Fundamental aspects of solving quantum problems with machine learning).

[22] C.-F. Chen[†], **H.-Y. Huang**[†] **(co-first author)**, R. Kueng, J. Tropp. Concentration for random product formulas. *PRX Quantum* 2.4 (2021): 040305.

[23] **H.-Y. Huang**, K. Bharti, P. Rebentrost. Near-term quantum algorithms for linear systems of equations with regression loss functions. *New Journal of Physics* 23.11 (2021): 113021.

[24] A. Elben, R. Kueng, **H.-Y. Huang**, R. van Bijnen, C. Kokail, M. Dalmonte, P. Calabrese, B. Kraus, J. Preskill, P. Zoller, B. Vermersch. Mixed-state entanglement from local randomized measurements. *Physical Review Letters* 125.20 (2020): 200501.

[25] **H.-Y. Huang**, R. Kueng, J. Preskill. Predicting many properties in a quantum system from very few measurements. *Nature Physics* 16.10 (2020): 1050-1057. In *23rd Annual Conference on Quantum Information Processing (QIP-20)*, 2020. (Short plenary talk)

[26] **H.-Y. Huang**, E. Choi, W. Yih. FlowQA: grasping flow in history for conversational machine comprehension. In *7th International Conference on Learning Representations (ICLR-19)*, 2019.

[27] **H.-Y. Huang**, C. Zhu, Y. Shen, W. Chen. FusionNet: Fusing via Fully-aware attention with application to machine comprehension. In *6th International Conference on Learning Representations (ICLR-18)*, 2018. (top 3% in review score)

[28] H.-F. Yu, **H.-Y. Huang**, I. S. Dhillon, C.-J. Lin. A unified algorithm for one-class structured matrix factorization with side information. In *31st AAAI Conference on Artificial Intelligence (AAAI-17)*, 2017. (acceptance rate: 24.6%)

[29] **H.-Y. Huang**, C.-J. Lin. Linear and kernel classification: When to use which? In *SIAM International Conference on Data Mining (SDM-16)*, 2016. (acceptance rate: 25.8%)

[30] C.-Y. Chen, A. Ho, **H.-Y. Huang**, H.-F. Juan and H.-C. Huang. Dissecting the human protein-protein interaction network via phylogenetic decomposition. In *Scientific Reports* 4.1 (2014): 1-10.

PREPRINTS

[1] H. Zhao, L. Lewis, I. Kannan, Y. Quek, **H.-Y. Huang**, M. C. Caro. Learning quantum states and unitaries of bounded gate complexity. arXiv preprint, arXiv:2310.19882, 2023.

[2] **(alphabetical order)** C.-F. Chen, **H.-Y. Huang**, J. Preskill, L. Zhou. Local minima in quantum systems. arXiv preprint, arXiv:2309.16596, 2023.

[3] S. Chen, C. Oh, S. Zhou, **H.-Y. Huang**, L. Jiang. Tight bounds on Pauli channel learning without entanglement. arXiv preprint, arXiv:2309.13461, 2023.

[4] Y. Zhan, A. Elben, **H.-Y. Huang**, Y. Tong. Learning conservation laws in unknown quantum dynamics. arXiv preprint, arXiv:2309.00774, 2023.

[5] S. Jerbi, J. Gibbs, M. S. Rudolph, M. C. Caro, P. J. Coles, **H.-Y. Huang**, Z. Holmes. The power and limitations of learning quantum dynamics incoherently. arXiv preprint, arXiv:2303.12834, 2023.

[6] K. V. Kirk, J. Cotler, **H.-Y. Huang**, M. D. Lukin. Hardware-efficient learning of quantum many-body states. arXiv preprint, arXiv:2212.06084, 2022.

[7] J. Gibbs, Z. Holmes, M. C. Caro, N. Ezzell, **H.-Y. Huang**, L. Cincio, A. T. Sornborger, P. J. Coles. Dynamical simulation via quantum machine learning with provable generalization. arXiv preprint, arXiv:2204.10269, 2022.

[8] **(alphabetical order)** J. Cotler, **H.-Y. Huang**, J. R. McClean. Revisiting dequantization and quantum advantage in learning tasks. arXiv preprint, arXiv:2112.00811, 2021.

[9] **(alphabetical order)** S. Chen, J. Cotler, **H.-Y. Huang**, J. Li. A hierarchy for replica quantum advantage. arXiv preprint, arxiv:2111:05874, 2021.

[10] M. Broughton, G. Verdon, T. McCourt, A. J. Martinez, J. H. Yoo, S. V. Isakov, P. Massey, R. Halavati, M. Y. Niu, A. Zlokapa, E. Peters, O. Lockwood, A. Skolik, S. Jerbi, V. Dunjko, M. Leib, M. Streif, D. V. Dollen, H. Chen, S. Cao, R. Wiersema, **H.-Y. Huang**, J. R. McClean, R. Babbush, S. Boixo, D. Bacon, A. K. Ho, H. Neven, M. Mohseni. TensorFlow Quantum: A Software Framework for Quantum Machine Learning. arXiv preprint, arXiv:2003.02989, 2020.

TEACHING EXPERIENCE

Guest lecture on "Predicting properties in quantum systems" for the course "Quantum computation and quantum complexity" at Harvard University (2022).

Guest lecture on "Learning quantum states" for the course "Quantum algorithms and programming" at Caltech (2021).

Lecture on "Online learning" for the course "Advanced algorithms" at Caltech (2020).

Teaching Assistant: Introduction to the Theory of Computation (2017).

TALKS

[1] "Local minima in quantum systems", Invited talk at the High Energy Theory Seminar at Northeastern University, Nov. 7th, 2023.

[2] "Local minima in quantum systems", Invited talk at the Long Table Physics Seminar, Harvard University, Nov. 4th, 2023.

[3] "The complexity of NISQ", Invited talk at the Theory of Computing Seminar, Harvard University, Nov. 1st, 2023.

[4] "Local minima in quantum systems", Invited talk at the UC San Diego, Oct. 25th, 2023.

[5] "Learning in the quantum universe". Invited Talk at the Harvard Undergraduate Quantum Computing Association, Oct. 18th, 2023.

[6] "Learning to predict arbitrary quantum processes", Invited talk, Workshop on Mathematical Aspects of Quantum Learning, Institute for Pure & Applied Mathematics, UCLA, Sep. 16th, 2023.

[7] "Local minima in quantum systems", Invited talk at MIT, Sep. 27th, 2023.

[8] "Local minima in quantum systems", Invited talk at Quantum Algorithm Meeting, Google Quantum AI, Sep. 21st, 2023.

[9] "Learning shallow quantum circuits", Invited talk at Sitan Chen's group seminar, Harvard University, Sep. 21st, 2023.

[10] "Learning theory in the quantum universe Part II", Invited tutorial, Mathematical and Computational Challenges in Quantum Computing, IPAM, UCLA, Sep. 16th, 2023.

[11] "Learning theory in the quantum universe Part I", Invited tutorial, Mathematical and Computational Challenges in Quantum Computing, IPAM, UCLA, Sep. 16th, 2023.

[12] "The Complexity of NISQ", Invited talk, Frontiers of near-term quantum computing, Gothenburg, Sweden, Aug. 29th, 2023.

[13] "Proving quantum advantage in learning from experiments (Part II)". Invited lecture, QMATH Masterclass on quantum learning theory, Copenhagen, Aug. 25th, 2023.

[14] "Proving quantum advantage in learning from experiments (Part I)". Invited lecture, QMATH Masterclass on quantum learning theory, Copenhagen, Aug. 24th, 2023.

[15] "Learning many-body Hamiltonians with Heisenberg-limited scaling". Invited talk, International Workshop on Quantum Characterization, Verification and Validation, Shanghai, Aug. 22nd, 2023.

[16] "Learning to predict arbitrary quantum processes". Invited talk, QML Seminar, Centre for Quantum Technologies, Jul. 3rd, 2023.

[17] "Learning in the quantum universe". Invited Talk at the Electrical Engineering Department at Stanford University, Apr. 2nd, 2023.

[18] "Learning in the quantum universe". Invited Talk at Department of Mathematics and the Stephen A. Schwarzman College of Computing, Massachusetts Institute of Technology, Mar. 9th, 2023.

[19] "Learning in the quantum universe". Invited Talk at the Applied Physics Department at Stanford University, Mar. 1st, 2023.

[20] "Learning in the quantum universe". Invited Talk at Princeton University, Feb. 22nd, 2023.

[21] "Learning in the quantum universe". Invited Talk at Yale University, Feb. 14nd, 2023.

[22] "Learning many-body Hamiltonians with Heisenberg-limited scaling". Short plenary talk, 26th Annual Conference on Quantum Information Processing (QIP-23), Feb. 8th, 2023.

[23] "Learning to predict arbitrary quantum processes". Contributed talk, 26th Annual Conference on Quantum Information Processing (QIP-23), Feb. 6th, 2023.

[24] "Learning to predict arbitrary quantum processes". Invited Talk at Perimeter Institute, Feb. 2nd, 2023.

[25] "Learning in the quantum universe". Colloquium Talk at UC Berkeley, Jan. 24th, 2023.

[26] "Learning in the quantum universe". Invited Talk at Nanjing University, Dec. 27th, 2022.

[27] "Quantum advantage in learning from experiments". Invited Talk at Carnegie Mellon University hosted by Ryan O'Donnell, Dec. 9th, 2022.

[28] "Learning in the quantum universe". Colloquium Talk at the Pritzker School of Molecular Engineering, University of Chicago, Dec. 6th, 2022.

[29] "Learning to predict arbitrary quantum processes". Invited Talk at the University of Texas at Austin, Dec. 1st, 2022.

[30] "Provably efficient machine learning for quantum many-body problems". Invited Talk at CompQu Seminar Series, Taiwan National Center for Theoretical Sciences, Nov. 29th, 2022.

[31] "The complexity of NISQ". Invited Talk at the University of Texas at Austin, Nov. 28th, 2022.

[32] "Advanced protocols for extracting properties from quantum systems". Invited Talk at Perimeter Institute, Nov. 24th, 2022.

[33] "Learning in the quantum universe". Colloquium Talk at Perimeter Institute, Nov. 23th, 2022.

[34] "Learning in the quantum universe". Invited Talk at YQI/CS Quantum Computing Colloquium, Yale University, Nov. 18th, 2022.

[35] "Learning many-body Hamiltonians with Heisenberg-limited scaling". Invited Talk at IQuS Workshop, University of Washington, Nov. 16th, 2022.

[36] "Learning in the quantum universe". Invited Talk at International Olympiad Advanced Science and Engineering Conference, National Taiwan Normal University, Nov. 11th, 2022.

[37] "Learning to predict arbitrary quantum processes". Invited Talk at Quantum Colloquium, Simons Institute for the Theory of Computing, Nov. 8th, 2022.

[38] "Learning in the quantum universe". Invited Talk at Quantum Matter Seminar, Caltech, Nov. 7th, 2022.

[39] "Theory of learning in the quantum universe". Invited Talk at Q-FARM Seminar, Stanford University, Nov. 2nd, 2022.

[40] "Learning and making predictions in a quantum world". Invited Talk at Quantum Innovators in computer science and mathematics, University of Waterloo, Oct. 18th, 2022.

[41] "Provably efficient machine learning for quantum many-body problems". Invited Talk at Quantum Photonics, Clubhouse, Oct. 1st, 2022.

[42] "Provably efficient machine learning for quantum many-body problems". Invited Talk at the Center for Quantum Science and Engineering, National Taiwan University, Sep. 30th, 2022.

[43] "Quantum advantage in learning from experiments". Invited Talk at Hybrid Quantum Classical Computation workshop hosted by Andris Ambainis, Sep. 14th, 2022.

[44] "Quantum advantage in learning from experiments". Invited Talk at the Joint Colloquium, National Taiwan University, Sep. 13th, 2022.

[45] "Quantum advantage in learning from experiments". Invited Talk at 17th Conference on the Theory of Quantum Computation, Communication and Cryptography (TQC-22), Jul. 11th, 2022.

[46] "Quantum advantage in learning from experiments". Invited Lecture at Los Alamos Quantum Computing Summer School, Jul. 7th, 2022.

[47] "Quantum advantage in learning from experiments". Invited Talk at MediaTek, Jul. 3rd, 2022.

[48] "Quantum advantage in learning from experiments". Invited Talk at IBM Qiskit Quantum Seminar, Jun. 24th, 2022.

[49] "Learning from quantum experiments". Invited talk, Quantum and Lattices Joint Reunion Workshop at Simons Institute, Jun. 14th, 2022.

[50] "Foundations for learning from noisy quantum experiments". Invited talk, Quantum Research Seminars Toronto, May. 31st, 2022.

[51] "Quantum advantage in learning and making predictions". Invited Banquet Talk at QSC Quantum Algorithms Workshop, May. 19th, 2022.

[52] "Quantum advantage in learning from experiments". Contributed Talk at Caltech Balleroy Meeting, May. 13th, 2022.

[53] "Quantum advantage in learning from experiments". Invited Talk at CIFAR QIS program meeting, Apr. 22nd, 2022.

[54] "Quantum advantage in learning from experiments". Invited Talk at Quantum Science Center Hot Topics Talk, Apr. 14th, 2022.

[55] "Quantum advantage in learning from experiments". Invited Talk at QuICS, University of Maryland, Apr. 8th, 2022.

[56] "Predicting many properties of a quantum system from very few measurements". Invited Talk at Lawrence Berkeley National Laboratory, Mar. 31st, 2022.

[57] "Power of data in quantum machine learning". Invited Talk at QuEra, Mar. 31st, 2022.

[58] "Quantum advantage in learning from experiments". Invited Talk at Harvard Quantum Initiative Special Seminar, Mar. 25th, 2022.

[59] "Provably efficient machine learning for quantum many-body problems". Invited Talk at Math Picture Language Seminar, Mar. 22nd, 2022.

[60] "Making predictions in a quantum world". Invited Talk at APS March Meeting, Mar. 18th, 2022.

[61] "Foundations for learning from noisy quantum experiments". Contributed talk, 25th Annual Conference on Quantum Information Processing (QIP-22), Mar. 7th, 2022.

[62] "Provably efficient machine learning for quantum many-body problems". Plenary talk, 25th Annual Conference on Quantum Information Processing (QIP-22), Mar. 7th, 2022.

[63] "Information-theoretic bounds on quantum advantage in machine learning". Invited talk at PsiQuantum, Mar. 1st, 2022.

[64] "Predicting many properties of quantum systems from very few measurements". Invited Talk at Graeme Smith's group at CU Boulder / JILA. Feb. 22th, 2022.

[65] "Making predictions in a quantum world". Invited Talk at CTQM Seminar, CU Boulder / JILA. Feb. 18th, 2022.

[66] "Quantum advantage in learning from experiments". Invited Talk at Los Alamos National Laboratory. Jan. 20th, 2022.

[67] "Making predictions in a quantum world". Invited Talk at Quantum Colloquium, Simons Institute for the Theory of Computing. Nov. 30th, 2021.

[68] "Provably efficient machine learning for quantum many-body problems". Invited Talk at Shivaji Sondhi's group at Oxford University. Nov. 19th, 2021.

[69] "Information-theoretic bounds on quantum advantage in machine learning". Invited talk at the International Conference on Quantum Techniques in Machine Learning (QTML), Nov. 9th, 2021.

[70] "Provably efficient machine learning for quantum many-body problems". Invited Talk at Perimeter Institute. Oct. 20th, 2021.

[71] "Provably efficient machine learning for quantum many-body problems". Quantum Creators Prize Symposium. Sep. 29th, 2021.

[72] "Provably efficient machine learning for quantum many-body problems". Invited Talk at QuSoft. Sep. 17th, 2021.

[73] "Provably efficient machine learning for quantum many-body problems". Invited Talk at MIT/Harvard QML Journal Club. Sep. 2nd, 2021.

[74] "Power of data in quantum machine learning". Invited Talk at QML Meetup. Aug. 26th, 2021.

[75] "Provably efficient machine learning for quantum many-body problems". Invited Talk at Technical University of Munich. Jul. 26th, 2021.

[76] "Experimental advantage in learning with noisy quantum memory". Invited Talk at Google Quantum Summer Symposium. Jul. 22nd, 2021.

[77] "Provably efficient machine learning for quantum many-body problems". Invited Talk at Simons Institute for the Theory of Computing. Jul. 15th, 2021.

[78] "How can we estimate properties of many-body quantum states in a Rydberg-atom system?". Theory Talk at Quantum Systems Accelerator meetings. Jul. 14th, 2021.

[79] "Experimental advantage in learning with noisy quantum memory". Invited Talk at Google Quantum AI Theory Meeting. Jul. 13th, 2021.

[80] "Provably efficient machine learning for quantum many-body problems". Invited Talk at Max Planck Institute of Quantum Optics. Jul. 13th, 2021.

[81] "Predicting many properties of quantum systems from very few measurements". Invited Talk at Cornell University. May 20th, 2021.

[82] "Recent advances on predicting properties of quantum many-body systems". Invited Talk at Peking University. May 12th, 2021.

[83] "Information-theoretic bounds on quantum advantage in machine learning". Invited talk at IBM Research, May 5th, 2021.

[84] "Information-theoretic bounds on quantum advantage in machine learning". Invited talk at Microsoft Research, Apr. 26th, 2021.

[85] "Making predictions in the quantum world". Invited talk at Quantum Information Processing Seminar, Massachusetts Institute of Technology, Apr. 23rd, 2021.

[86] "Information-theoretic bounds on quantum advantage in machine learning". Invited talk at Duke University, Apr. 16th, 2021.

[87] "Characterizing quantum advantage in machine learning". Invited Talk at Scientific Machine Learning Series, Carnegie Mellon University. Apr. 15th, 2021.

[88] "Power of data in quantum machine learning". Invited Talk at Rigetti Computing. Apr. 14th, 2021.

[89] "Recent advances on predicting properties of quantum many-body systems". Invited Talk at the 6th International Conference for Young Quantum Information Scientists. Apr. 12th, 2021.

[90] "Fundamental aspects of solving quantum problems with machine learning". Los Alamos National Laboratory, Mar. 25th, 2021.

[91] "Power of data in quantum machine learning". APS March Meeting, Mar. 18th, 2021.

[92] "Information-theoretic bounds on quantum advantage in machine learning". Invited talk at IST seminar series on Mathematics, Physics & Machine Learning, Mar. 17th, 2021.

[93] "Power of data in quantum machine learning". Invited talk at SIAM Conference on Computational Science and Engineering, Mar. 3rd, 2021.

[94] "Fundamental aspects of solving quantum problems with machine learning". Caltech Institute for Quantum Information and Matter (IQIM) Seminar, Feb. 26th, 2021.

[95] "Fundamental aspects of solving quantum problems with machine learning". QuICS Seminar, University of Maryland, Feb. 17th, 2021.

[96] "Fundamental aspects of solving quantum problems with machine learning". Contributed talk, 24rd Annual Conference on Quantum Information Processing (QIP-21), Jan. 30-31, 2021.

[97] "Information-theoretic bounds on quantum advantage in machine learning". Invited talk at National Tsing Hua University, Jan. 12th, 2021.

[98] "Information-theoretic bounds on quantum advantage in machine learning". Invited talk at Academia Sinica, Jan. 8th, 2021.

[99] "Predicting Many Properties of a Quantum System from Very Few Measurements", National Taiwan University, Center for Quantum Science and Engineering, Dec. 18th, 2020.

[100] "Predicting Many Properties of a Quantum System from Very Few Measurements", University College London, Quantum Information Seminar, Nov. 27th, 2020.

[101] "Power of data in quantum machine learning", Centre for Quantum Technologies, Quantum Machine Learning Seminar, Nov. 26th, 2020.

[102] "Predicting Many Properties of a Quantum System from Very Few Measurements", Caltech Institute for Quantum Information and Matter (IQIM) Seminar, Apr. 17th, 2020.

[103] "Predicting Features of Quantum Systems using Classical Shadows", Single-track talk, 23rd Annual Conference on Quantum Information Processing (QIP-20), Jan. 6-10,2020.

[104] "Understanding Machine Reading Comprehension", Invited Talk, Academia Sinica, Oct 16, 2017.

[105] "A Unified Algorithm for One-class Structured Matrix Factorization with Side Information", 31st AAAI Conference on Artificial Intelligence (AAAI-17), Feb. 4-9, 2017.

[106] "Linear and Kernel Classification: When to Use Which?", SIAM International Conference on Data Mining (SDM16), May 5-8, 2016.

[107] "Linear and Kernel Classifier: When to Use Which?", Spotlight presentation (acceptance rate: 11%), Machine Learning Summer School (MLSS'15), Kyoto University, August 23-September 4, 2015.

[108] "Brief Introduction to Automatic Machine Learning", Science Exploration Forum, National Taiwan University, August 11, 2015.

[109] "Dissecting Human Protein-Protein Interaction Network via Phylogenetic Decomposition." 14th International Conference on Systems Biology (ICSB2013), August 30-September 3, 2013.