

Cunlu Zhou

CONTACT INFORMATION	+1 (819) 821-8000 x62406 cunlu.zhou@usherbrooke.ca Homepage: cunluzhou.com Google Scholar Profile: link	Département d'informatique (D4) Université de Sherbrooke 2500 Boul. de l'Université Sherbrooke (Québec), Canada, J1K 2R1
RESEARCH INTERESTS	Quantum computing, quantum algorithms, quantum learning, optimization, computational complexity, and quantum many-body physics	
APPOINTMENTS	Current: 01/2026– IBM Quantum Research Chair, Université de Sherbrooke, QC 09/2025– Associate Academic Member, Mila – Quebec AI Institute, QC 11/2024– Member, Institut quantique, Université de Sherbrooke, QC 08/2024– Assistant Professor of Computer Science, Université de Sherbrooke, QC Past: 08/2021– FRHTP Postdoctoral Fellow, Center for Quantum Information and Control, 08/2024 University of New Mexico, Albuquerque, NM 2020–2021 Postgraduate Affiliate, Vector Institute, Toronto, ON 07/2019– Postdoctoral Fellow in Computer Science, University of Toronto, ON 07/2021 Supervisor: Henry Yuen	
EDUCATION	University of Notre Dame Notre Dame, IN, USA Ph.D. in Mathematics May 2019 • Dissertation: <i>Entropy, Optimization, and Coding Theory</i> • Advisors: Roxana Smarandache and Leonid Faybusovich Capital Normal University Beijing, China M.S. in Mathematics June 2012 • Thesis: <i>A Remark on Calc. Var. Partial Differential Equations, 329–344 (2002)</i> • Advisor: Zhaoli Liu Chongqing Normal University Chongqing, China B.A. in Mathematics June 2009	
HONORS AND AWARDS	2026–2030 2021–2024 2020–2021 2009–2012	IBM Quantum Research Chair NSF FRHTP Postdoctoral Fellowship Center for Quantum Information and Control, University of New Mexico, Albuquerque, NM, USA Postgraduate Affiliate Award Vector Institute, Toronto, ON, Canada University Scholarships Capital Normal University, Beijing, China
GRANTS	2026–2029 2026–2031 2026–2029	NSERC Alliance Advantage, Co-PI (total award: \$760,402) NSERC Discovery Grant, PI (\$192,500) Mitacs Accelerate Grant, PI (\$315,000)

PUBLICATIONS

Dai, J., Nahman-Lévesque, O., Rabusseau, G., Hu, H., and **Zhou, C.**, *Generative Learning for Quantum Measurement Design*, arXiv:2608.11396, 2026. Submitted.

Yi, C., Takahashi, J., and **Zhou, C.**, *Modular-Annihilator Parent Hamiltonians for Purified Gibbs States: Spectral Design and Controlled Approximation*, arXiv:2608.30272, 2026.

Yi, C. and **Zhou, C.**, *A Symmetry-Enabled Direct Quantum Protocol for Many-Body Green's Functions*, arXiv:2509.03288. Submitted.

Yi, C., **Zhou, C.**, and Takahashi, J., *Quantum Phase Estimation by Compressed Sensing*, Quantum **8**, 1579, Dec. 2024. doi:10.22331/q-2024-12-27-1579

Takahashi, J., Rayudu, C., **Zhou, C.**, King, R., Thompson, K., and Parekh, O., *An $SU(2)$ -Symmetric Semidefinite Programming Hierarchy for Quantum Max Cut*, arXiv:2307.15688, Jul. 2023. Accepted to TQC 2024; journal manuscript submitted.

Wiersema, R., **Zhou, C.**, Carrasquilla, J. F., and Kim, Y. B., *Measurement-induced entanglement phase transitions in variational quantum circuits*, SciPost Phys. **14**, 147, Jun. 2023. doi:10.21468/SciPostPhys.14.6.147

Faybusovich, L. and **Zhou, C.**, *Long-Step Path-Following Algorithm in Quantum Information Theory: Some Numerical Aspects and Applications*, Numerical Algebra, Control & Optimization, 12(2):445-467, Jun. 2022. doi:10.3934/naco.2021017

Wiersema, R., **Zhou, C.**, de Sereville, Y., Carrasquilla, J. F., Kim, Y. B., and Yuen, H., *Exploring entanglement and optimization within the Hamiltonian Variational Ansatz*, PRX Quantum **1**, 020319, Dec. 2020. doi:10.1103/PRXQuantum.1.020319

Faybusovich, L. and **Zhou, C.**, *Self-Concordance and Matrix Monotonicity with Applications to Quantum Entanglement Problems*, Applied Mathematics and Computation, 375:125071, Jun. 2020. doi:10.1016/j.amc.2020.125071

Faybusovich, L. and **Zhou, C.**, *Long-Step Path-Following Algorithm for Solving Symmetric Programming Problems with Nonlinear Objective Functions*, Comput Optim Appl, 72(3):769-795, Apr. 2019. doi:10.1007/s10589-018-0054-7

Zhou, C., Mitchell, D. G. M., and Smarandache, R., *Free Pseudodistance Growth Rates for Spatially Coupled LDPC Codes over the BEC*, 2018 IEEE Information Theory Workshop (ITW), pp. 1-5, Guangzhou, 2018. doi:10.1109/ITW.2018.8613507

PRESENTATIONS

Generative Learning for Quantum Measurement Design, DRDC Ottawa Research Center Seminar Series, Sep. 2026 (invited talk, online)

Generative Learning of Optimal Quantum Measurements, 2026 CAP Congress, Ottawa, ON, Jun. 2026 (invited talk)

Unlocking Quantum Computing's Power through Optimization and Learning, INTRIQ Spring Meeting, Bromont, QC, May 2026 (invited talk)

Unlocking Quantum Computing's Power through Optimization and Learning, Institut quantique (IQ) Annual Colloquium, Sherbrooke, QC, Apr. 2026 (invited talk)

Generative Learning of Optimal Quantum Measurements, Quantum Computing for

Quantum Chemistry, Molecular Dynamics, and Beyond workshop, Telluride, CO, Mar. 2026 (invited talk)

AI-Driven Quantum Algorithm Design: Towards Optimal Measurement Protocols via GFlowNets, Mila-DistriQ AI x Quantum Annual Event, Sherbrooke, QC, Feb. 2026 (invited talk)

AI-Driven Quantum Algorithm Design: Towards Optimal Measurement Protocols via GFlowNets, Quantum Days 2026, Victoria, BC, Feb. 2026 (invited talk)

Ancilla-Free Quantum Protocol for Thermal Green's Functions, INTRIQ Fall Meeting, Bromont, QC, Nov. 2025 (invited talk)

Quantum Phase Estimation by Compressed Sensing, Algorithms for Quantum Advantage Workshop, Montréal, QC, Jul. 2025 (invited talk)

Advancing Quantum Algorithm Development in Québec, Quantum Forum 2025, Troy, NY, Apr. 2025 (keynote)

Quantum Phase Estimation by Compressed Sensing, 10th International Conference on Quantum Information and Quantum Control, The Fields Institute, Toronto, ON, Aug. 2024 (talk)

Algorithms, Complexity, and Quantum Many-body Physics, University of Calgary, Calgary, AB, Apr. 2024 (talk)

Algorithms, Complexity, and Quantum Many-body Physics, University of Pittsburgh, Pittsburgh, PA, Mar. 2024 (talk)

Algorithms, Complexity, and Quantum Many-body Physics, Université de Montréal, Montréal, QC, Feb. 28, 2024 (talk)

Some Recent Results on Quantum Phase Estimation and Quantum MaxCut, University of Miami, Coral Gables, FL, Feb. 2024 (talk)

Some Recent Results on Quantum Phase Estimation and Quantum MaxCut, Université de Sherbrooke, Sherbrooke, QC, Jan. 22, 2024 (talk)

An $SU(2)$ -Symmetric Semidefinite Programming Hierarchy for Quantum MaxCut, Université de Sherbrooke, Sherbrooke, QC, Oct. 2023 (invited talk)

An $SU(2)$ -Symmetric Semidefinite Programming Hierarchy for Quantum MaxCut, 2023 Modeling and Optimization: Theory and Applications (MOPTA), Lehigh University, Bethlehem, PA, Aug. 2023 (talk)

A Singlet Projector Based NPA Hierarchy for the Quantum MaxCut problem, Vector Institute, Toronto, ON, Jun. 2023 (invited talk)

A Singlet Projector Based NPA Hierarchy for the Quantum MaxCut problem, 2023 CMS Summer Meeting, Ottawa, ON, Jun. 2023 (invited talk)

Entanglement and Optimization within the Hamiltonian Variational Ansatz, Fermilab, Batavia, IL, Jan. 2021 (invited talk)

Entanglement and Optimization within the Hamiltonian Variational Ansatz, Dahlem Center for Complex Quantum Systems, Freie Universität Berlin, Berlin, Dec. 2020 (invited talk)

Entanglement and Optimization within the Hamiltonian Variational Ansatz, 2020 Quantum Techniques in Machine Learning (QTML), Cambridge, MA, Nov. 2020 (invited talk)

A Long-Step Path-Following Algorithm for Quantum Entropy Optimization, IQC, Waterloo, ON, Jan. 2019 (invited talk)

Long-Step Path-Following Algorithm for Nonlinear Symmetric Problems with Applications to Quantum Entropy Optimization, 2019 Joint Mathematics Meetings (JMM), Baltimore, MD, Jan. 2019 (talk)

Free Pseudodistance Growth Rates for Spatially Coupled LDPC Codes over the BEC, 2018 IEEE Information Theory Workshop (ITW), Guangzhou, Nov. 2018 (talk)

Long-Step Path-Following Algorithm for Nonlinear Symmetric Programming Problems, 23rd International Symposium on Mathematical Programming (ISMP), University of Bordeaux, Bordeaux, Jul. 2018 (talk)

TRAINEES

PhD Rabah Abdelmouheymen Khamadja (Fall 2026–)
 PhD Hamna Aslam (Fall 2026–)
 PhD Mandar Thatte (co-supervised with Dave Touchette, Fall 2026–)
 MSc Fedor Prikolab (Fall 2026–)
 MSc Elisabeth Mailhot (co-supervised with Dave Touchette, Winter 2026–)
 MSc Julien-Pierre Houle (co-supervised with Alexandre Blais, Fall 2025–)
 UG Mariel Alvarez Salas (Mitacs Globalink Research Internship, Summer 2026)
 UG Marco Antonio Martinez Martinez (Mitacs Globalink Research Internship, Summer 2026)
 UG Louis-Félix Vigneux (industry internship, co-supervised with Quandela, 2026)
 UG Ludovic Chabot Provencher (co-supervised with Dave Touchette, 2026)
 UG Elisabeth Mailhot (co-supervised with Dave Touchette, Summer 2025)
 UG Ludovic Chabot Provencher (co-supervised with Dave Touchette, Summer 2025)
 UG Mathis Beaudoin (co-supervised with Dave Touchette, Summer 2025)
 UG Louis-Félix Vigneux (co-supervised with AlgoLab, Summer 2025)

TEACHING EXPERIENCE

Université de Sherbrooke:

Winter 2026 Instructor, Advanced Topics in Quantum Algorithms
 Summer 2025 Instructor, Quantum Algorithms

University of New Mexico:

Summer 2024 Instructor, Optimization and Quantum Foundations

University of Notre Dame:

Spring	2018	Teaching Assistant, Calculus III
Spring	2017	Instructor, Calculus B
Fall	2016	Teaching Assistant, Linear Algebra and Differential Equations
Spring	2015	Teaching Assistant, Linear Algebra and Differential Equations
Fall	2014	Teaching Assistant, Linear Algebra and Differential Equations
Spring	2014	Teaching Assistant, Calculus B
Fall	2013	Teaching Assistant, Calculus B

SERVICE

External Service

08/2026–	Committee Member, NSERC Discovery Grants Computer Science Eval-
06/2029	uation Group (EG 1507)
05/2026–	Program Committee Member, 2026 IEEE International Conference on
09/2026	Quantum Computing and Engineering
10/2025–	Planning & Scientific Committee Member, 2026 Canadian Workshop on
04/2026	Quantum Algorithms
08/2025–	Local Organizing Committee Member, Theory of Quantum Computation,
09/2026	Communication and Cryptography (TQC 2026)
2022	Program Committee Member, Southwest Quantum Information and
	Technology (SQuInT 2022)

Institutional & Research Community Service

05/2025–	Management Committee Member, AlgoLab
01/2025–	Organizer, Quantum Algorithms Research Seminar (QARS)
12/2024–	Scientific Committee Member, 2026 AlgoLab Summer School
06/2026	
2023	Organizer, CQuIC Seminar
2022	Organizer, SDP & Approximation Algorithms Seminar