

Guofeng Zhang, Ph.D.

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Education

- 2001 – 2005 📖 **Ph. D.** in Applied Mathematics, University of Alberta, Edmonton, Canada
- 1998 – 2000 📖 **M. Sc.** in Applied Mathematics, Northeastern University, Shenyang, China
- 1994 – 1998 📖 **B. Sc.** in Applied Mathematics, Northeastern University, Shenyang, China

Employment History

- 2017.07 – present 📖 **Associate Professor**, The Hong Kong Polytechnic University
- 2011.12 – 2017.06 📖 **Assistant Professor**, The Hong Kong Polytechnic University
- 2010.04 – 2011.12 📖 **Research Fellow**, The Australian National University
- 2007.09 – 2011.12 📖 **Associate Professor**, University of Electronic Science and Technology of China (on leave from 2010.04 to 2011.12)
- 2006.09 – 2007.08 📖 **Faculty Member**, Hangzhou Dianzi University, China
- 2005.09 – 2006.08 📖 **Postdoctoral Fellow**, University of Windsor, Canada

Publications

Journal papers

1. Yu Pan, Yifan Tong, Shibe Xue, and **Guofeng Zhang**, “Efficient depth selection for the implementation of noisy quantum approximate optimization algorithm,” **Journal of Franklin Institute**, accepted, **2022**.
2. Wenlong Li, Xue Dong, **Guofeng Zhang** (corresponding author), and Re-bing Wu (corresponding author), “Flying-qubit control via a three-level atom with tunable waveguide,” **Physical Review B**, vol. 106, paper no. 134305, **2022**.
3. **Guofeng Zhang** (corresponding author) and Zhiyuan Dong, “Linear quantum systems: a tutorial,” **Annual Reviews in Control**, 21 pages, accepted, **2022 (Invited Tutorial Research Paper)** (online: <https://www.sciencedirect.com/science/article/pii/S136757882200027X>).
4. Zhiyuan Dong, **Guofeng Zhang** (corresponding author), Ai-Guo Wu, and Re-Bing Wu, “On the dynamics of the Tavis-Cummings model,” **IEEE Transactions on Automatic Control**, 15 pages, accepted, **2022 (Full Paper)**, (<https://ieeexplore.ieee.org/document/9763002>).
5. Wenlong Li, **Guofeng Zhang**, and Re-bing Wu, “On the control of flying qubits,” **Automatica**, vol. 143, paper no. 110338, 9 pages, **2022 (Full Paper)**.

6. Hongbin Song (corresponding author), **Guofeng Zhang** (corresponding author), Xiaoqiang Wang, Hidehiro Yonezawa (corresponding author), and Kaiquan Fan, "Amplification of optical Schrödinger cat states with an implementation protocol based on a frequency comb," **Physical Review A**, vol. 105, paper no. 043713, 11 pages, 2022.
7. Yiwei Chen, Yu Pan (corresponding author), **Guofeng Zhang** (corresponding author), and Shuming Cheng (corresponding author), "Detecting quantum entanglement with unsupervised learning," **Quantum Science and Technology**, vol. 7, paper no. 015005, 12 pages, 2022.
8. **Guofeng Zhang**, "Control engineering of continuous-mode single-photon states: a review," **Control Theory and Technology**, vol. 19, pp. 544-562, 2021 (Invited Paper).
9. Xiaoqiang Wang, Lejia Gu, Heung-wing Joseph Lee, and **Guofeng Zhang** (corresponding author), "Quantum tensor singular value decomposition," **Journal of Physics Communications**, vol. 5, paper no. 075001, 16 pages, 2021.
10. Xiaoqiang Wang, Lejia Gu, Heung-wing Joseph Lee, and **Guofeng Zhang** (corresponding author), "Quantum context-aware recommendation systems based on tensor singular value decomposition," **Quantum Information Processing**, vol. 20, no. 5, paper no. 190, 32 pages, 2021
11. **Guofeng Zhang**, Ian R. Petersen, and Jinghao Li, "Structural characterization of linear quantum systems with application to back-action evading measurement," **IEEE Transactions on Automatic Control**, vol. 65, no. 7, pp. 3157-3163, 2021
12. **Guofeng Zhang** and Yu Pan, "On the dynamics of two photons interacting with a two-qubit coherent feedback network," **Automatica**, vol. 117, paper no. 108978, 13 pages, 2020 (Full Paper)
13. Mengshi Zhang, Guyan Ni and **Guofeng Zhang**, "Iterative methods for computing U-eigenvalues of non-symmetric complex tensors with application in quantum entanglement," **Computational Optimization and Applications**, vol. 75, pp. 779-798, 2020
14. **Guofeng Zhang** and Ian R. Petersen, "Structural decomposition for quantum two-level systems," **Automatica**, vol. 113, paper no. 108751, 8 pages, 2020
15. Qing Gao, **Guofeng Zhang** (corresponding author), and Ian R. Petersen, "An improved quantum projection filter," **Automatica**, vol. 112, paper no. 108716, 9 pages, 2020 (Full Paper)
16. Gangshan Jing, **Guofeng Zhang**, Heung Wing Joseph Lee, and Long Wang, "Angle-based shape determination theory of planar graphs with application to formation stabilization," **Automatica**, vol. 105, pp. 117-129, 2019 (Full Paper)
17. Gaopeng Duan, Aming Li, Tao Meng, **Guofeng Zhang**, and Long Wang, "Energy cost for controlling complex networks with linear dynamics," **Physical Review E**, vol. 99, paper no. 052305, 12 pages. 2019
18. Zhiyuan Dong, **Guofeng Zhang** (corresponding author), and Nina H. Amini, "Quantum filtering for a two-level atom driven by two counter-propagating photons," **Quantum information Processing**, vol. 18, paper no. 136, 27 pages, 2019
19. Zhiuan Dong, **Guofeng Zhang** (corresponding author), and Nina H. Amini, "On the response of a two-level system to two-photon inputs," **SIAM Journal on Control and Optimization**, vol. 57, no. 5, pp. 3445-3470, 2019 (Full Paper)

20. Qing Gao, **Guofeng Zhang** (corresponding author), and Ian R. Petersen, "An exponential quantum projection filter for open quantum systems," **Automatica**, vol. 99, pp. 59-68, 2019 (**Full Paper**)
21. Xiaofeng Wang, **Guofeng Zhang**, and Weijian Kong, "Evolutionary dynamics of the prisoner's dilemma with expellers," **Journal of Physics Communications**, vol. 3, paper no. 015011, 26 pages, 2019.
22. Maolin Che, Yimin Wei, Liqun Qi, and **Guofeng Zhang**, "Geometric measures of entanglement in multipartite pure states via complex-valued neural networks," **Neurocomputing**, vol. 313, pp. 25-38, 2018
23. Shi Wang, Hendra I. Nurdin, **Guofeng Zhang**, and Matthew R. James, "Representation and network synthesis for a class of mixed quantum-classical linear stochastic systems," **Automatica**, vol. 96, no. 10, pp. 84-97, 2018 (**Full Paper**)
24. Gangshan Jing, **Guofeng Zhang**, Heung Wing Joseph Lee, and Long Wang, "Weak rigidity theory and its application to formation stabilization," **SIAM Journal on Control and Optimization**, vol. 56, no.3, pp. 2248-2273, 2018 (**Full Paper**)
25. Liqun Qi, **Guofeng Zhang** (corresponding author), and Guyan Ni, "How entangled can a multi-party system possibly be?" **Physics Letters A**, vol. 382, pp. 1465-1471, 2018
26. **Guofeng Zhang**, Symeon Grivopoulos, Ian R. Petersen, and John E. Gough, "The Kalman decomposition for linear quantum systems," **IEEE Transactions on Automatic Control**, vol. 63, no. 2, pp. 331-346, 2018 (**Full Paper**)
27. Zhiyuan Dong, **Guofeng Zhang** (corresponding author), and Nina H. Amini, "Single-photon quantum filtering with multiple measurements," **International Journal of Adaptive Control and Signal Processing**, vol. 32, pp. 3, pp. 528-546, 2018
28. Yu Pan and **Guofeng Zhang** (corresponding author), "Scattering of few photons by a ladder-type quantum system," **Journal of Physics A: Mathematical and Theoretical**, vol. 50, no. 34, paper no. 345301, 16 pages, 2017
29. John E. Gough and **Guofeng Zhang**, "Classical and quantum stochastic models of resistive and memristive circuits," **Journal of Mathematical Physics**, vol. 58, paper no. 073505, 19 pages, 2017
30. **Guofeng Zhang**, "Dynamical analysis of quantum linear systems driven by multi-channel multi-photon states," **Automatica**, vol. 83, pp. 186-198, 2017 (**Full Paper**)
31. Liqun Qi, **Guofeng Zhang**, Daniel Braun, Fabian Bohnet-Waldraff, Olivier Giraud, "Regularly decomposable tensors and classical spin states," **Communications in Mathematical Sciences**, vol. 15, no, 6, pp. 1651-1665, 2017
32. Lei Cui, Zhiyuan Dong, **Guofeng Zhang** (corresponding author), and Heung Wing Joseph Lee, "Mixed LQG and H_∞ coherent feedback control for linear quantum systems," **International Journal of Control**, vol. 90, no. 12, pp. 2575-2588, 2017
33. Liang Qiao, Qingling Zhang, and **Guofeng Zhang**, "Admissibility analysis and control synthesis for T-S fuzzy descriptor Systems," **IEEE Transactions on Fuzzy Systems**, vol. 25, no. 4, pp. 929-740, 2017 (**Full Paper**)

34. Zhiyuan Dong, Lei Cui, **Guofeng Zhang** (corresponding author), and Hongchen Fu, “Wigner spectrum and coherent feedback control of continuous-mode single-photon Fock states,” **Journal of Physics A: Mathematical and Theoretical**, vol. 49, no. 43, paper no. 435301, 21 pages, 2016 (Figure 7 in the paper was used in the cover page of this issue.)
35. Hongting Song, **Guofeng Zhang** (corresponding author), and Zairong Xi, “Continuous-mode multiphoton filtering,” **SIAM Journal on Control and Optimization**, vol. 54, no. 3, pp.1602-1632, 2016 (Full Paper)
36. Yu Pan, Daoyi Dong, and **Guofeng Zhang** (corresponding author), “Exact analysis of the response of quantum systems to two photons using a QSDE approach,” **New Journal of Physics**, vol. 18, paper no. 033004, 15 pages, 2016
37. Yu Pan, **Guofeng Zhang**, and Matthew R. James, “Analysis and control of quantum finite-level systems driven by single-photon input states,” **Automatica**, vol. 69, pp. 18-23, 2016
38. Shenglong Hu, Liqun Qi, and **Guofeng Zhang** (corresponding author), “Computing the geometric measure of entanglement of multipartite pure states by means of non-negative tensors,” **Physical Review A**, vol. 93, paper no. 012304, 7 pages, 2016
39. Yi Zhang, Qiaoling Zhang, and **Guofeng Zhang**, “ H^∞ Control of T-S fuzzy fish population logistic model with the invasion of alien species,” **Neurocomputing**, vol. 173, pp. 724-733, 2016
40. John E. Gough and **Guofeng Zhang**, “Generating nonclassical quantum input field states with modulating filters,” **EPJ Quantum Technology**, vol. 2, no.1, 2:15, 2015
41. John E. Gough and **Guofeng Zhang** (corresponding author), “On realization theory of quantum linear Systems”, **Automatica**, vol. 59, pp. 139-151, 2015 (Full Paper)
42. Shenglong Hu, Liqun Qi, Yisheng Song, and **Guofeng Zhang** (corresponding author), “Geometric measure of quantum entanglement for multipartite mixed states,” **Special Issue on Quantum Computation and Quantum Information Processing, Guest Editors Shunlong Luo, Matteo G. A. Paris, and Yun Shang, International Journal of Software and Informatics**, vol. 8, no. 3-4, pp. 317-326, 2014 (Invited Paper).
43. **Guofeng Zhang**, “Analysis of quantum linear systems’ response to multi-photon states,” **Automatica**, vol. 50, no. 2, pp. 442-451, 2014 (Full Paper)
44. Shi Wang, Hendra I. Nurdin, **Guofeng Zhang**, and Matthew R. James, “Quantum optical realization of classical linear stochastic systems,” **Automatica**, vol. 49, no. 10, pp. 3090-3096, 2013
45. **Guofeng Zhang** and Matthew R. James, “On the response of quantum linear systems to single photon input fields,” **IEEE Transactions on Automatic Control**, vol. 58, no. 5, pp. 1221-1235, 2013 (Full Paper)
46. **Guofeng Zhang**, Heung-wing Joseph Lee, Bo Huang, and Hu Zhang, “Coherent feedback control of linear quantum optical systems via squeezing and phase shift,” **SIAM Journal on Control and Optimization**, vol. 50, no. 4, pp. 2130-2150, 2012 (Full Paper)
47. Chuanxin Bian, **Guofeng Zhang** (corresponding author), and Heung-wing Joseph Lee, “Squeezing enhancement of degenerate parametric amplifiers via coherent feedback control,” **International Journal of Control**, vol. 85, no. 12, pp. 1865-1875, 2012

48. **Guofeng Zhang** and Matthew R. James, "Quantum feedback networks and control: a brief survey," **Chinese Science Bulletin**, vol. 57, no. 18, pp. 2200-2214, 2012 (Invited Paper)
49. **Guofeng Zhang** and Matthew R. James, "Direct and indirect couplings in coherent feedback control of linear quantum systems," **IEEE Transactions on Automatic Control**, vol. 56, pp. 7, pp. 1535-1550, 2011 (Full Paper)
50. **Guofeng Zhang**, Long Wang, and Tongwen Chen, "Complexity analysis of networked-based dynamical systems," **Journal of Systems Science and Complexity**, vol. 24, pp. 413-432, 2011.
51. Jinliang Shao, Tingzhu Huang, and **Guofeng Zhang**, "Linear system based approach for solving some related problems of M-matrices," **Linear Algebra and its Applications**, vol. 432, no. 1, pp. 327-337, 2010
52. **Guofeng Zhang** and Weixing Zheng, "Stability and bifurcation analysis of a class of networked dynamical systems," **IEEE Transactions on Circuits and Systems II: Express Briefs**, vol. 56, no. 8, pp/ 664-668, 2009
53. Junyan Yu, Long Wang, **Guofeng Zhang**, and Mei Yu, "Output feedback stabilisation of networked control systems via switched system approach," *International Journal of Control*, vol. 82, no. 9, pp. 1665-1677, 2009
54. Bin Wu, Long Wang, **Guofeng Zhang** (corresponding author), and Jing Wang, "Linguistic consensus on a circle," **International Journal Information and Systems Sciences**, 5(2): 219-229, 2009.
55. **Guofeng Zhang**, Xiang Chen and Tongwen Chen, "Digital redesign via the generalised bilinear transformation," **International Journal of Control**, vol. 82, no. 4, pp. 741-754, 2009
56. **Guofeng Zhang**, Xiang Chen, and Tongwen Chen, "A mixed-integer programming approach to networked control systems," **International Journal of Numerical Analysis and Modeling**, vol. 5, pp. 590-611, 2008
57. **Guofeng Zhang**, Tongwen Chen, and Xiang Chen, "Performance recovery in digital implementation of analogue systems," **SIAM Journal on Control and Optimization**, vol. 45, no. 6, pp. 2207-2223, 2007 (Full Paper)
58. **Guofeng Zhang**, Guanrong Chen, Tongwen Chen, and Maria B. D'Amico, "Dynamical analysis of a networked control system," **International Journal of Bifurcation and Chaos**, vol. 17, no. 1, pp. 61-83, 2007
59. **Guofeng Zhang**, Guanrong Chen, Tongwen Chen, and Yanping Lin, "Analysis of a type of nonsmooth dynamical systems," **Chaos, Solitons & Fractals**, vol. 30, pp. 1153-1164, 2006
60. **Guofeng Zhang** and Tongwen Chen, "Networked control systems: a perspective from chaos," **International Journal of Bifurcation and Chaos**, vol. 15, no. 10, pp. 3075-3101, 2005
61. **Guofeng Zhang** and Tongwen Chen, "Comparing digital implementation via the bilinear and step-invariant transformations," **Automatica**, vol. 40, no. 2, pp. 327-330, 2004
62. **Guofeng Zhang**, Qingling Zhang, Tongwen Chen, and Yanping Lin, "On Lyapunov theorems for descriptor systems," **Dynamics of Continuous, Discrete and Impulsive Systems, Series B: Applications and Algorithms**, 10(5):709-726, 2003.

Conference papers

1. Zhiyuan Dong, **Guofeng Zhang**, and Ai-Guo Wu, "Covariance functions for quantum linear system driven by few photons," 39th Chinese Control Conference (CCC), pp. 5800-5804, 2020.
2. Wen-long Li, **Guofeng Zhang**, and Re-bing Wu. "The dynamical model of flying-qubit control systems," In 20th World Congress of The International Federation of Automatic Control (IFAC World Congress), volume 50, pp.1755-11759, 2020.
3. Lejia Gu, Xiaoqiang Wang, and **Guofeng Zhang**, "Quantum higher order singular value decomposition," 2019 IEEE International Conference on Systems, Man, and Cybernetics (SMC), pp. 1166-1171, Bari, Italy, 6-9 October, 2019.
4. Gaopeng Duan, Aming Li, Tao Meng, Guofeng Zhang, and Long Wang, "Upper bound of the minimum energy cost for controlling complex networks," the 38th Chinese Control Conference (CCC), pp. 5393-5398, Guangzhou, China 27-30, 2019.
5. Q. Gao and **Guofeng Zhang**, "Quantum projection filtering for open quantum systems," in *Proc. the 56th IEEE Conference on Decision and Control (CDC)*, pp. 5529-5534, Melbourne, Australia, December 12-15, 2017.
6. Zhiyuan Dong, **Guofeng Zhang**, and Nina H. Amini, "Exact analysis of quantum filter for systems driven by two counter-propagating single-photon states," in *Proc. the 20th World Congress of The International Federation of Automatic Control*, pp. 12246-12251, Toulouse, France, July 9-14, 2017.
7. S. Grivopoulos, **Guofeng Zhang**, I. R. Petersen, and J. E. Gough, "The Kalman decomposition for linear quantum stochastic systems," in *Proc. the 2017 American Control Conference (ACC)*, pp. 1073-1078, Seattle, WA, USA, May 2017.
8. Zhiyuan Dong, **Guofeng Zhang**, and Nina H. Amini, "Quantum filtering for multiple measurements driven by fields in single-photon states," in *Proc. the 2016 American Control Conference (ACC)*, pp. 4754-4759, Boston, MA, USA, July 6-8, 2016.
9. Zhiyuan Dong, **Guofeng Zhang**, and Nina H. Amini, "Quantum filtering for multiple measurements driven by two single-photon states," in *Proc. 12th World Congress on Intelligent Control and Automation (WCICA)*, pp. 3011-3015, Guilin, China, June 12-15, 2016.
10. Yu Pan, **Guofeng Zhang**, Wei Cui, and Matthew R. James, "Single photon inverting pulse for an atom in a cavity," in *Proc. 54th IEEE Conference on Decision and Control (CDC)*, pp. 6429-6433, Osaka, Japan, December 15-18, 2015.
11. Chuanxin Bian, **Guofeng Zhang**, and Heung-wing Joseph Lee, " $LQG|H_\infty$ control of linear quantum stochastic systems," in *Proc. 34th Chinese Control Conference (CCC)*, pp. 8303-8308, Hangzhou, China, July 28-30, 2015.
12. Shi Wang, Hendra I. Nurdin, **Guofeng Zhang**, and Matthew R. James, "Synthesis and structure of mixed quantum-classical linear systems," in *Proc. 51st IEEE Conference on Decision and Control (CDC)*, pp. 1093-1098, Maui, Hawaii, USA, December 10-13, 2012.
13. **Guofeng Zhang** and Matthew R. James, "On the response of linear quantum stochastic systems to single-photon inputs and pulse shaping of photon wave packets," in *Proc. 2011 Australian Control Conference (AUCC)*, Engineers Australia, Australia, pp. 62-67, 2011.
14. Shi Wang, Hendra I. Nurdin, **Guofeng Zhang**, and Matthew R. James, "Implementation of classical linear stochastic systems using quantum optical components," in *Proc. 2011 Australian Control Conference (AUCC)*, Engineers Australia, Australia, pp. 351-356, 2011.

15. **Guofeng Zhang**, Xiang Chen, and Tongwen Chen, " ℓ_p -equivalence of discretizations of analog controllers," in *Proc. the 17th IFAC World Congress*, pp. 15232-15237, Seoul, Korea, July 6-11, 2008.
16. **Guofeng Zhang**, Xiang Chen, and Tongwen Chen, "Performance comparison of digital implementation of analog systems," in *Proc. 46th Conference on Decision and Control (CDC)*, pp. 785-790, New Orleans, December 12-14, 2007
17. **Guofeng Zhang**, Xiang Chen, and Tongwen Chen, "A model predictive control approach to networked control systems," in *Proc. 46th Conference on Decision and Control (CDC)*, pp. 3339-3344, New Orleans, December 12-14, 2007.

Book chapters

1. Guofeng Zhang, "Single-photon coherent feedback control and filtering," In: Baillieul J., Samad T. (eds) *Encyclopedia of Systems and Control*, Springer, London, 2020 (Invited Paper) [https://link.springer.com/referenceworkentry/10.1007/978-1-4471-5102-9_100156-1].

Citations (as of 19 October 2022)

- H-index: 20 in Google Scholar; 15 in Scopus.
- Total number of citations: 1281 citations in Google Scholar (<https://scholar.google.com/citations?user=H1QGkk0AAAAJ>); 838 in Scopus (<https://www.scopus.com/authid/detail.uri?authorId=7405273435>).

Summer Schools

1. Principal Lecturer, Summer School on **Quantum Algorithms**, organized by National University of Defense Technology, Hunan University, and the Operational Research Society, Hunan Province, 2-6 August, 2022 (20 hours).
2. Lecturer, Summer School on Quantum Control and Quantum Machine Learning, Nanjing, China, July 2019 (3 hours).
3. Principal Lecturer, Summer School on **Quantum Control and Single-Photon Pulse Shaping**, Tsinghua University, 29 April - 3 May, 2019 (18 hours).

Awards

- 2018/19, Best Paper Award, Department of Applied Mathematics, The Hong Kong Polytechnic University

Research Grants

(i) Grants received after the promotion to associate professor

1. **Guofeng Zhang** (PI), Dynamical Analysis of the Tavis-Cummings Model, National Natural Science Foundation of China (NSFC), No. 62173288, 2022-2025, Chinese ¥570,000. (Success

rate: 17.77%, Division of Information Science, 2021,
<https://www.nsf.gov.cn/publish/portal0/tab1377/info86609.htm>).

2. Hongbin Song and **Guofeng Zhang** (Co-I), Performance Optimization of a Quantum Teleportation System for Continuous Variables, Shenzhen Fundamental Research Fund under Grant No. JCYJ20190813165207290, 2020.02-2023.02, Chinese ¥400,000.
3. Estimation and Control of Open Quantum Systems — Q-COAST, ANR, France, Co-I, 01/10/2019-30/09/2023, €230,911,
<https://l2s.centralesupelec.fr/en/chairs-projects/#National-projects>
4. **Guofeng Zhang** (PI) and Ian R. Petersen, Quantum Finite-level Systems: Structure Analysis, Feedback Control, and Filtering, the Hong Kong Research Grant Council, 15203619, 2020 - 2023, HK\$695,919.
5. **Guofeng Zhang** (PI) and Ian R. Petersen, Quantum Linear Systems: Structure Analysis and Applications, the Hong Kong Research Grant Council, 15208418, 2018 - 2021, HK\$623,386.

(ii) Grants received before the promotion to associate professor

1. **Guofeng Zhang** (PI) and Ian R. Petersen, Control-oriented Quantum Systems analysis, the Hong Kong Research Grant Council, 15206915, 2015 - 2018, HK\$695,854.
2. **Guofeng Zhang** (PI), John E. Gough, and Matthew R. James, Analysis and feedback Control of Quantum linear Systems, the Hong Kong Research Grant Council, RGC PolyU 531213, 2013 - 2016, HK\$645,000.
3. John E. Gough (UK side) and **Guofeng Zhang** (China side), Royal Academy of Engineering UK-China Exchange grant, 2013 - 2015, UK £16,000.
4. **Guofeng Zhang** (PI), Mixed LQG/H^∞ Control and sampled-data Control of networked Quantum Control Systems, National Natural Science Foundation of China (NSFC), No. 61374057, 2014 - 2017, Chinese ¥790,000.
5. Heung-wing Joseph Lee, Matthew R. James, and **Guofeng Zhang** (Co-I) Coherent feedback Control of Quantum optical Systems, the Hong Kong Research Grant Council, RGC PolyU 5203/10E, 2010 - 2012, HK\$420,000.
6. **Guofeng Zhang** (PI), Complexity analysis and Control of network-based hybrid Systems, National Natural Science Foundation of China (NSFC), 2009 - 2011, Chinese ¥200,000.

Research Postgraduate Students Supervised

Name of student	Program	Year awarded	Institution	My role
Xiaoqiang Wang	Ph.D.	2021	PolyU	co-supervisor
Lejia Gu	Ph.D.	2020	PolyU	chief supervisor
Yun Shi	Ph.D.	2018	PolyU	co-supervisor
Lei Cui	Ph.D.	2017	PolyU	co-supervisor
Zhiyuan Dong	Ph.D.	2016	PolyU	chief supervisor
Yui Chi Peter Yuen	M.Sc.	2013	PolyU	chief supervisor
Shi Wang	Ph.D.	2013	Australian National University	co-supervisor

Invited Talks

Keynote talks

- **Keynote Speaker**, Quantum Technologies Awareness Programme in HK & Greater Bay Area, Hong Kong, October 14, **2022**.
- **Keynote Speaker**, International Conference on Quantum Computing & Applications (ICQCA 2021), Hong Kong, March 27, **2021**.
- **Plenary Speaker**, The 3rd Chinese Conference on Intelligent Networks of Things, Guangzhou, China, December 1-3, **2015**.

Invited talks (50+, since 2010)

- The Fifth International Academic Forum on Process Control and Optimization, 21-22 August 2022, China University of Petroleum (online).
- The International Academic Forum on Artificial Intelligence, 6 August 2022, Beijing (One of the three invited speakers).
- Q-coast : Estimation and Control of open Quantum Systems, 16-18 May 2022, Paris, France.
- Anhui University of Technology, 6 May 2022 (online).
- Chinese University of Hong Kong, December 2021.
- The 10th International Workshop on Solid-State Quantum Computing, November 29th-December 1st, 2021, Hong Kong.
- The 9th TCCT Quantum Control Workshop, July 15 - 17, 2021, Changsha, China.
- National University of Defense Technology, Changsha, China, 20 May 2021.
- University of Electronic Science and Technology, Chengdu, November 2020.
- Shanghai Jiaotong University, Shanghai, December 2019.
- Shandong University, Jinan, August 2019.
- Beijing Institute of Technology, Beijing, August 16, 2019.
- The Australian National University, Canberra, July 2019.
- Summer School on Quantum Control and Quantum Machine Learning, Nanjing, China, July 2019.
- University of Electronic Science and Technology, Chengdu, July 2019.
- Shenyang University of Technology, Shenyang, June 2019.
- Nanjing University of Science and Technology, Nanjing, May 31, 2019
- Beihang University, Beijing, May 2019
- Pre-workshop for the 1st Quantum Science, Engineering and Technology Conference, Canberra, Australia, 8-11 April 2019.

- The Mathematics of Quantum Information, March 18-21, 2019, University of Siegen, Germany.
- Harbin Institute of Technology, Shenzhen, February, 2019.
- East China Normal University, Shanghai, January, 2019.
- 2nd workshop on Quantum Machine Learning and Quantum Simulation, Chengdu, 2019.
- Henan University of Technology, Zhengzhou, December 2018.
- South China University of Technology, December 3, 2018.
- Southwest University for Nationalities of China, Chengdu, November 2018.
- Academy of Mathematics and Systems Science, Chinese Academy of Sciences, Beijing, September 2018.
- Wuhan University of Science and Technology, Wuhan, July 2018.
- 1st International Workshop on Quantum Cybernetics and Machine Learning & 6th TCCT Quantum Control Workshop, June 23-24, 2018, Hangzhou.
- University of Washington, Seattle, June 2018.
- Hunan University, Changsha, May 2018.
- Seminar Series on Complex Systems, Networks, Control and Applications, City University of Hong Kong, April 2018.
- Proc. the 56th IEEE Conference on Decision and Control (CDC), Melbourne, Australia, December 12-15, 2017.
- Northeastern University, Shenyang, June 2017.
- Principle and Application of Control in Quantum Systems (PRACQSYS), Seattle, July 17-20, 2017. (declined due to visa issue).
- Joint workshop organized by Shandong University and AMA joint workshop, June ?????
- Joint workshop organized by AMSS-AMA, January 2017.
- National University of Defense Technology, Changsha, September 2017.
- Hunan University, Changsha, September 2017.
- Henan Normal University, May 4, 2017.
- The 4th China-Australia Workshop on Quantum Control, Hefei, China, September 25-28, 2016. (declined due to time conflict with teaching).
- Proc. 12th World Congress on Intelligent Control and Automation (WCICA), Guilin, China, June 12-15, 2016.
- The 2016 Workshop of Stochastic Optimization and Tensor Analysis, Changsha, China, March 26-29, 2016.
- Principle and Application of Control in Quantum Systems (PRACQSYS) 2015, Sydney, July 20-24, 2015.

- University of Electronic Science and Technology, Chengdu, December 2014.
- The 3rd China-Australia Workshop on Quantum Control, Brisbane, Australia, September 29-October 3, 2014.
- Quantum Control Engineering: Mathematical Principles and Application, Cambridge, July 21- August 15, 2014.
- Henan Normal University, April 2014.
- Seminar Series on Chaos, Control and Complex Systems, City University of Hong Kong, March 2014.
- Workshop on quantum information and control, Chinese Academy of Science, Beijing, October 2013.
- Aberystwyth University, Aberystwyth, July 2013.
- 2013 Quantum Control Spring Meeting, Institute of Intelligent Machines (IIM), Chinese Academy of Sciences (CAS), Hefei, April 2013.
- The 2nd China-Australia Workshop on Quantum Control, Beijing, China, November 5-8, 2012.
- University of New South Wales at the Australian Defence Force Academy, Canberra, July 2012.
- University of Victoria, Victoria, June 2012.
- Workshop on Quantum Information and Quantum Control, National University of Defense Technology, April 2012.
- Tsinghua University, Beijing, 2011.
- The Australian National University, Canberra, 2010.

Services

Professional/community service

Journal Editorship

- 2022, **Lead Guest Editor** for the Special Issue on Control, Estimation, and Machine Learning in a Quantum Framework for Journal of The Franklin Institute
- 2018 - present, **Guest Associate Editor**, International Journal of Bifurcation and Chaos
- 2021 - present, **Associate Editor** for IET Control Theory & Applications.
- **Associate Editor**, the 2015 IEEE Multi-Conference on Systems and Control, Sydney, Australia, September 21-23, 2015.

Conference programme committee membership

- **General Chair** of the 13th Workshop on Principle and Application of Control in Quantum Systems (PRACQSYS), Hong Kong, December 14-18, 2019 (All the preparation has been done, but unfortunately, the workshop was cancelled on November 16, 2019).

- One of the two Student Activities Co-Chairs, IEEE Conference on Control Technology and Applications (IEEE CCTA) , Hong Kong, August 19-21, 2019.
- One of the four General Co-chairs of the 23rd International Symposium on Mathematical Theory of Networks and Systems (MTNS 2018), Hong Kong, July 16-20, 2018.
- Presiders of The 13th Pacific Rim Conference on Lasers and Electro-Optics (CLEO Pacific Rim, CLEO-PR 2018), Hong Kong, July 29-August 3, 2018.
- Co-organizer of the 4th and 5th Workshops on Quantum Information, jointly held by PolyU and the University of Hong Kong.
- Member, IEEE SMC Technical Committee on Quantum Cybernetics.
- One of the five Board Members of the Hong Kong Automatic Control Association (HKACA).

External examiner of 14 PhD dissertations for

- The University of New South Wales (2012, 2015)
- The University of Hong Kong (2013, 2015, 2018)
- The Australian National University (2015)
- University of Western Australia (2015)
- City University of Hong Kong (2018)
- The Australian National University (2019)
- The Chinese University of Hong Kong (2019, 2020)
- The University of Science and Technology of Hong Kong (2021 for two Ph.D. candidates)
- The University of Science and Technology of Hong Kong (2022)

Reviewer for journals:

- Automatica
- Annual Reviews in Control
- Electronics
- Entropy
- IET Control Theory & Applications
- Journal of the Franklin Institute
- IEEE Control Systems Letters
- IEEE Transactions on Automatic Control
- IEEE Transactions on Circuits and Systems I: Regular Papers
- IEEE Transactions on Circuits and Systems II: Express Briefs
- IEEE Transactions on Control Systems Technology

- IEEE Transactions on Quantum Engineering
- International Journal of Bifurcation and Chaos
- Mathematics of Control, Signals, and Systems
- Quantum Information Processing
- SIAM Journal on Control and Optimization
- others