Yiqing Li

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General Information



Nationality: China
Birth: 06/23/1994
Degree: PhD in Power Engineering

Skills:
Programming (Python, Matlab, Fortran, Simulink, C, Labview);
Computational Fluid Dynamics (Ansys, Altair HyperWorks, in-home solvers);
High-performance computing (Open MPI); Others (Latex, Linux).

GoogleScholar:
https://scholar.google.com/citations?user=Lvx2U8sAAAAJ&hl=en
Homepage: https://yiqing-li.com/

Research Interests: Flow control, Optimization, Machine learning, Jets and wakes, Indoor airflow, Airborne diseases

Professional Experience

2025/04 – Now	**Research Fellow** in Fluid Mechanics, Dept of Mechanical Engineering, University College London, London, UK (Supervisor: Prof. Manish Tiwari)
2022/12 – 2023/03	**Visiting Scholar**, Chair of Fluid Dynamics, Technical University of Berlin, Berlin, Germany (Supervisor: Prof. Oliver Paschereit)
2017/09 – 2020/04	**Assistant Engineer**, Shanghai Automotive Wind Tunnel Center, Shanghai, China (Supervisor: Prof. Zhigang Yang)

Education

2020/09 – 2025/03	**Ph.D.** in Power Engineering, School of Mechanical Engineering & Automation, Harbin Institute of Technology, Shenzhen, China (Supervisor: Prof. Bernd Noack)
2017/09 – 2020/04	**M.Sc.** in Power Engineering, School of Mechanical Engineering, Tongji University, Shanghai, China (Supervisor: Prof. Zhigang Yang)
2012/09 – 2016/06	**B.Eng.** in Air conditioning, School of Environmental Science and Technology, Suzhou University of Science and Technology, Suzhou, China

Teaching

2026/01, 2025/08	Invited lectures "Research at UCL: Fluid Mechanics, Disease Control, and Machine Learning" by Prof. Gao Jie, Institute of Education, UCL.
2017 – 2020	Teaching Assistant in "Parallelize Computer Clusters with Redhat", Partners for the Advancement of Collaborative Engineering (Pace) Center, Tongji University.

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Awards & Honors

2026	Third prize in Prof. J.W. Elsner Competition for Young Researchers
2026	European Commission Seal of Excellence, Marie Skłodowska-Curie Postdoctoral Fellowship (MSCA PF) proposal
2026	1st place in the UCL Mechanical Engineering Staff Three-Minute Thesis Competition, UCL Mechanical Engineering.
2025	Provincial Outstanding Graduates, Hei Longjiang Province, China
2022	National Scholarship, China
2013-2016	Outstanding Graduate & Merit Student & The First-Class Scholarships, Suzhou University of Science and Technology, Suzhou, China

Research Experience

1. **Transfer learning of wind turbine wake and control from QBlade to UBeRT, Sino-German (CSC-DAAD) Postdoc Fellowship, 2025.** Awarded (not taken up).
2. **A programme to prevent aerosol borne respiratory diseases using Artificial Intelligence (participant), UK National Institute for Health Research, 2024.** I contributed to developing an interpretable air-safety decision tool based on artificial intelligence and computational simulations. The tool enables accurate assessment and risk control of aerosol transmission in hospitals through laboratory and clinical validation.
3. **Key Technologies for Urban Low-Altitude Environment Simulation and Dynamic Monitoring Based on Digital Twins (participant), Shenzhen Major Science and Technology Project, 2024.** I contributed to a high-fidelity numerical simulation platform for urban low-altitude building environments, optimization algorithms for constructing reduced-order flow models and selecting critical flow-field sensors.
4. **Automobile drag reduction technology based on distributed sensing-excitation and artificial intelligence (participate), Shenzhen Basic Research Project, 2022.** I contributed to the design of distributed actuation at the rear of a vehicle, the development of machine learning algorithms, and the construction of numerical prototypes. The study demonstrated the excellent performance of boat-tail structures in wake drag reduction, achieving a 20% drag reduction on a simplified vehicle model.
5. **Research on cavity flow control based on active and passive combination of distributed excitation system and machine learning (participate), National Natural Science Foundation of China, 2022.** I contributed to the development of gradient-enriched genetic programming for feedback control. This approach improves the learning efficiency of classical genetic programming by an order of magnitude.
6. **Research on flexible surface and microfluidic controlled jet hybrid enhancement based on machine learning algorithms (participate), Natural Science Foundation of Guangdong Province, 2022.** I developed a machine learning control platform based on high-fidelity numerical simulations and developed deep learning-based active learning algorithms. The study identified bouquet-shaped and double-helix jet structures and, achieving a fourfold improvement in mixing efficiency.
7. **Aerodynamic design and drag reduction of autonomous split-type car (participate), National Natural Science Foundation of China, 2019.** I contribute to the design of track width, wheelbase, ground clearance of a baseline split-type autonomous vehicle, with 10% drag reduction.

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Publications

[1] **Li, Y.**, Wen, M., Zheng, G., Shi, P., Wang, D., Hu, Y., Salmonsmith, J., Ducci, A., Tiwari, M., Guo, L., Lovat, L., & Torii, R. Rapid prediction of the spatial concentration of aerosol dispersion in indoor space using deep learning (Manuscript in preparation).

[2] Robledo I., **Li Y.**, Maceda G. Y. C., & Castellanos R. (2026). Fast and robust parametric and functional learning with Hybrid Genetic Optimisation (HyGO). Adv. Eng. Softw., 216, 104139. DOI: https://doi.org/10.1016/j.advengsoft.2026.104139.

[3] Li H., Maceda G. Y. C., **Li, Y.**, Tan J., Noack B. R. (2025). Toward human-interpretable, automated learning of feedback control for the mixing layer. Phys. Fluids, 37(3): 035186. DOI: https://doi.org/10.1063/5.0262891.

[4] **Li, Y.**, Noack, B.R., Wang, T., Cornejo Maceda, G., Pickering, E. & Tyliszczak, A. (2024). Jet mixing enhancement with Bayesian optimization, deep learning and persistent data topology. J. Fluid Mech., 991, A5. DOI: https://doi.org/10.1017/jfm.2024.525.

[5] Jiang Z., Cornejo Maceda G. Y., **Li Y.**, Shaqarin T., Gao N., & Noack B. R. (2024). Jet mixing optimization using a flexible nozzle, distributed actuators, and machine learning. Phys. Fluids, 36(9): 095126. DOI: https://doi.org/10.1063/5.0223543.

[6] Reumschuessel, J.M., **Li, Y. (joint first author)**, Zur Nedden, P., Paschereit, C.O., Noack B.R. (2024). Experimental jet control with Bayesian optimization and persistent data topology. Phys. Fluids, 36 (9): 095164. DOI: https://doi.org/10.1063/5.0217519.

[7] **Li, Y.**, Cui, W., Jia, Q., Li, Q., Yang, Z., Morzynski, M., & Noack, B.R. (2022). Explorative gradient method for active drag reduction of the fluidic pinball and slanted Ahmed body. J. Fluid Mech., 932, A7. DOI: https://doi.org/10.1017/jfm.2021.974.

[8] Blanchard, A.B., Cornejo Maceda, G.Y., Fan, D., **Li Y.**, Zhou, Y., Noack, B. R., & Sapsis, T.P. (2022). Bayesian optimization for active flow control. Acta Mechanica Sinica, 37, 1786–1798. DOI: https://doi.org/10.1007/s10409-021-01149-0.

[9] Cornejo Maceda, G.Y., **Li, Y.**, Lusseyran, F., Morzynski, M., & Noack, B.R. (2021). Stabilization of the fluidic pinball with gradient-enriched machine learning control. J. Fluid Mech., 917, A42. DOI: https://doi.org/10.1017/jfm.2021.301.

[10] Reumschüssel, J.M., von Saldern, J.G., **Li, Y.**, Paschereit, C.O., & Orchini, A. (2021). Gradient-free optimization in thermoacoustics: application to a low-order model. J. Eng. Gas Turbines Power, 144(5): 051004. DOI: https://doi.org/10.1115/1.4052087.

[11] Yang, Z., **Li, Y. (corresponding author)**, Cui, W., & Jia, Q. (2019). Effect of driving frequency using synthetic jets on flow control for D-shaped body drag reduction. Journal of Tongji University (Natural Science Edition), 47(z1): 9-13. DOI:CNKI:SUN:TJDZ.0.2019-S1-004.

Conferences

[1] **Li Y.** & Noack, B.R. (2026). Jet-mixing control landscapes revealed by Bayesian optimization. XXVII Fluid Mechanics Conference, Lodz.

[2] **Li Y.**, Hu Y., Kong G., El-Sayed A., Wei Z., Cramm M., Guo L., Ducci A., Ciric L., Torii R., Lovat L. B., & Tiwari M. K. (2026). Data-driven prediction and mitigation of aerosol dispersion in clinical consulting rooms. Indoor Air 2026, Singapore.

[3] Hu Y., **Li Y.**, Guo L., Kong G., Ducci A., Tiwari M., Lovat L., & Torii R. A deep learning approach to predict spatiotemporal aerosol dispersion in a clinical consultation room. Indoor Air 2026, Singapore.

[4] **Li Y.**, Noack B.R., Wang, T., Cornejo Maceda, G.Y., Pickering, E., Shaqarin, T. & Tyliszczak, A.

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(2024). Jet flow control with Bayesian optimization enhanced by deep learning. The 26th International Congress for Theoretical and Applied Mechanics (ICTAM 2024), Daegu, Korea.

[5] Kaminski P., **Li Y.**, Wawrzak K., Tyliszczak A. & Noack, B.R. (2024). Machine learning-supported CFD optimization of heat transfer in a pipe with a corrugated wall shape. XXVI Fluid Mechanics Conference. Warsaw, Poland.

[6] **Li, Y.**, Blanchard, A., Pickering, E., Tyliszczak, A., & Noack, B.R. (2023). Bayesian optimization of jet mixing based on large eddy simulations. 16th International Conference on Fluid Control, Measurement and Visualization (FLUCOME2023), Beijing, China.

[7] **Li, Y.**, Yang, Z., Morzynski, M., & Noack, B.R. (2022). Explorative gradient method for high-dimensional actuation parameter spaces. 12th International Symposium on Turbulence and Shear Flow Phenomena (TSFP12), Osaka, Japan.

[8] Li, W., **Li, Y.**, Morzynski, M., Noack, B.R. (2021). Full-state flow field estimation of fluid pinball based on deep neural network. Chinese congress of Theoretical and Applied Mechanics 2021 (CCTAM2021), Chengdu, China.

[9] Xie, S., **Li, Y.**, Deng, N., Morzynski, M., Noack, B.R. (2021). Reinforcement learning of the active flow control of the fluidic pinball. Chinese congress of Theoretical and Applied Mechanics 2021 (CCTAM2021), Chengdu, China.

[10] **Li Y.**, et al. (2021). Explorative gradient method for active drag reduction of a slanted Ahmed body. 4th International Conference in Numerical and Experimental Aerodynamics of Road Vehicles and Trains, Berlin, Germany.

[11] **Li, Y.**, Cui, W., Jia, Q., Li, Q., Yang, Z., Morzynski, M., & Noack, B.R. (2020). Explorative gradient method for active drag reduction of the fluidic pinball and slanted Ahmed body. 73rd Annual Meeting of APS Division of Fluid Dynamics (DFD2020), Chicago, America.

[12] **Li, Y.**, Yang, Z., Morzynski, M., Qiao, Z., Krajnović, S., & Noack, B.R. (2020). Explorative gradient method for multi-actuator flow control. Machine Learning Methods for Prediction and Control of Separation Turbulent Flows, Paris, France.

Public engagement

[1] **Li, Y.** & Kong G. (2026). Beat Airborne Risk with Air Purifier Chess. Science of Surgery, April 2026.

[2] Ciric, L., Cramm, M., Kong, G., & **Li, Y.** (2025). Sing, say, spray! University College London Hospitals Research Open Day, July 2025.

Referee

Dr. Bernd Rainer Noack, Professor at School of Mechanical Engineering and Automation, Harbin Institute of Technology (Shenzhen), Shenzhen, China

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Dr. Zhigang Yang, Professor at Shanghai Automotive Wind Tunnel Center, Tongji University, Shanghai, China; Chief Designer at Beijing Aeronautic Science and Technology Research Institute, Beijing, China

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