Curriculum Vitae

Yaomin Zhao

Assistant Professor
School of Mechanics and Engineering Science
Center for Applied Physics and Technology
Peking University

Address: Room 3013, Xin'ao Engineering Building, Peking University,
No. 5 Yiheyuan Road, Haidian District, Beijing 100871, China

Email: yaomin.zhao@pku.edu.cn
Homepage: http://www2.coe.pku.edu.cn/subpaget.asp?id=703

1 Education

2007.09–2011.07 B.S. in Physics, Yuanpei College, Peking University

2011.09–2017.07 Ph.D. in Fluid Mechanics, College of Engineering, Peking University
Advisors: Prof. Shiyi Chen and Prof. Yue Yang

2 Professional Experience

2017.07–2020.09 Postdoctoral Research Fellow, Department of Mechanical Engineering, University of Melbourne, Australia
Advisor: Prof. Richard D. Sandberg

2020.10–present Assistant Professor,
School of Mechanics and Engineering Science & Center for Applied Physics and Technology, Peking University

3 Research Areas

Turbulence simulation, wall-bounded turbulence, laminar-turbulent transition, machine learning applications in fluid mechanics.

4 Honors and Awards

1. 2021 Young Elite Scientists Sponsorship Program, China Association for Science and Technology
2. 2021 Peking University–BOE Education Award, Peking University
3. 2023 Third Prize, 23rd Peking University Young Faculty Teaching Competition (Science & Engineering), Peking University

4. 2023 Peking University Excellent Teaching Team Award, Peking University (ranked 8/8)
5. 2025 Peking University Zhengda Education Award, Peking University
6. 2025 Peking University Teaching Excellence Award, Peking University

5 Research Projects

Completed or currently undertaking 17 research projects, with total funding of 13.67 million CNY (approx. 1.9 million USD) granted and 11.45 million CNY (approx. 1.6 million USD) received.

1. **2022.01–2024.12**, NSFC Excellent Young Scientists Fund (Overseas), *Aero-engine Internal Flows*.
   Role: PI, 2,000,000 CNY (received: 2,000,000 CNY).
2. **2022.01–2024.12**, NSFC Major Research Plan – Incubation Project, *Data-Driven Generalized Modeling of Shear Turbulence*.
   Role: PI, 1,276,000 CNY (1,000,000 direct + 276,000 indirect; received: 1,276,000 CNY).
3. **2026.01–2029.12**, NSFC General Program, *Intelligent Turbulence Simulation and Modeling Based on Differentiable Computing*.
   Role: PI, 646,000 CNY (520,000 direct + 126,000 indirect; received: 260,000 CNY).
4. **2022.09–2024.03**, JKW Advanced Aero-engine Power Workstation Project, *First-Principles-Based Direct Numerical Simulation of Rough-Wall Turbine Aerodynamics*.
   Role: PI, 1,800,000 CNY (received: 1,800,000 CNY).
5. **2023.12–2026.11**, National Key R&D Program – Young Scientist Project Sub-task, *Quantum Computing Algorithms Based on Quantum Virtual Machines and Superconducting Chips*.
   Role: PKU lead, 600,000 CNY (PKU total: 900,000 CNY; received: 450,000 CNY).
6. **2022.01–2025.12**, NSFC Major Research Plan – Key Project, *Evolution Mechanisms of Complex Curved-Wall Flows Under Solid Particle Erosion*.
   Role: Co-I, 600,000 CNY (project total: 3,000,000 CNY; received: 600,000 CNY).
7. **2025.01–2029.12**, NSFC Key Program, *Vortex-Surface-Based Geometric Theory and Computational Methods for Fluid Mechanics*.
   Role: Co-I, 639,000 CNY (500,000 direct + 139,000 indirect; project total: 2,390,000 CNY; received: 279,000 CNY).
8. **2025.04–2029.12**, NSFC Basic Science Center Program – PKU Collaborative Project, *Non-Equilibrium Particle-Laden Turbulent Flows*.
   Role: Co-I, 1,000,000 CNY (project total: 10,560,000 CNY; received: 300,000 CNY).

9. **2026.01–2030.12**, NSFC Excellent Research Groups Program – Topic 1: *Fundamental Theory of Interfacial Instability Evolution Under Extreme Conditions.*
   Role: Co-I, 500,000 CNY (topic total: 12,000,000 CNY; received: 500,000 CNY).

10. **2024.10–2026.09**, National Key Laboratory of Computational Physics Project, *Mathematical Methods and Intelligent Models for Compressible Interfacial Instabilities.*
    Role: PI, 200,000 CNY (received: 180,000 CNY).

11. **2024.10–2027.09**, National Key Laboratory of Computational Physics Project, *Algorithms, Modeling, and Mechanisms of Complex Multi-Material Interfacial Turbulent Mixing.*
    Role: Co-I, 485,000 CNY (project total: 2,900,000 CNY; received: 339,000 CNY).

12. **2023.11–2025.12**, Laoshan Laboratory, *Mechanisms of Oceanic Meso- and Submeso-Scale Turbulence and Large-Eddy Simulation Modeling – Topic 2: Novel Numerical Methods and Physical Models for Ocean Hydrodynamics.*
    Role: Co-I, 860,000 CNY (topic total: 2,580,000 CNY; received: 860,000 CNY).

13. **2023.11–2025.12**, Laoshan Laboratory, *Design Principles and Validation of High-Speed Water Tunnel Systems – Topic 6: Turbulence Characteristics and Flow Quality of High-Speed Water Tunnels.*
    Role: Co-I, 860,000 CNY (topic total: 4,300,000 CNY; received: 860,000 CNY).

14. **2021.07–2022.09**, National Numerical Wind Tunnel Project, *Vortex-Surface-Structure-Based Aerodynamic Modeling and Visualization.*
    Role: Co-I, 150,000 CNY (project total: 1,000,000 CNY; received: 150,000 CNY).

15. **2020.12–2023.11**, National Key R&D Program, *China–Russia Joint Laboratory for Mathematics and Its Applications along the Belt and Road – Sub-topic: Key Mechanics Problems in Aerospace and Advanced Manufacturing.*
    Role: Co-I, 100,000 CNY (topic total: 600,000 CNY; received: 100,000 CNY).

16. **2022.01–2023.12**, CAST Young Elite Scientist Sponsorship Project.
    Role: PI, 450,000 CNY (managed by Chinese Society of Theoretical and Applied Mechanics).

17. **2021.01–2023.12**, Central University Discipline Development Special Funds.
    Role: PI, 1,500,000 CNY (received: 1,500,000 CNY).

6 Publications

A total of 45 journal papers published (or in press): 13 before joining PKU, 32 after joining PKU (20 as corresponding/first author). Total citations exceed 1,400, with annual citations growing steadily (127/2021, 176/2022, 222/2023, 313/2024, 349/2025). Single-paper highest citation exceeds 350. One paper selected as ESI Highly Cited Paper. Data from Google Scholar, as of May 2026.

6.1 Corresponding/First-Author Papers After Joining PKU (20 papers)

*(Underline denotes supervised or co-supervised graduate student; asterisk * denotes corresponding author.)*

1. **Y. Zhao**, T. Wang and B. Lyu*, "low-wavenumber wall pressure fluctuations in turbulent flows within concentric annular ducts," *Journal of Fluid Mechanics*, In press (arxiv.org/abs/2601.04590).
2. T. Wang, C. Zhang, and **Y. Zhao***, "Asymmetric particle transport in turbulent flows within concentric annular ducts," *Journal of Fluid Mechanics*, In press (arxiv.org/abs/2605.26981).
3. H. Ji, Y. Luo, H. Zhou and **Y. Zhao***, "Progressive mixture-of-experts with autoencoder routing for continual RANS turbulence modelling," *Journal of Fluid Mechanics*, In press (arxiv.org/abs/2601.09305).
4. X. Zhu, Y. Ge, **Y. Zhao***, Z. Xiao and R. D. Sandberg, "Boundary layer transition induced by surface roughness distributed over a low-pressure turbine blade," *Journal of Turbomachinery*, In press (doi.org/10.1115/1.4072013).
5. W. Shen, Y. Ge, Z. Han, **Y. Zhao*** and Y. Yang*, "Constructing wall turbulence using hierarchical hairpin vortices," *Physical Review Fluids*, 11, 044604, 2026.
6. T. Wang, B. Lyu and **Y. Zhao***, "Frequency response of the unsteady separating boundary layer in a compressor cascade," *Acta Mechanica Sinica*, In Press.
7. Y. Ge, X. Zhu, Y. Fang and **Y. Zhao***, "A machine-learning-enhanced four-equation model for predicting roughness induced transition," *AIAA Journal*, In Press.
8. T. Wang, B. Meng, B. Tian and **Y. Zhao***, "A high-fidelity and efficient framework for point-particle direct numerical simulation based on multi-block overset grids," *Computer Physics Communications*, 322, 110059, 2026.
9. H. Xie, T. Luo, **Y. Zhao***, Y. Zhang* and J. Wang, "A compressible Reynolds-averaged mixing model considering turbulent composition and heat fluxes," *Journal of Fluid Mechanics*, 1019, A56, 2025.
10. H. Xie, M. Xiao, **Y. Zhao***, Y. Zhang*, J. Wang and Y. Shi, "A detached-eddy simulation methodology for interfacial mixing flows," *Physica D: Nonlinear Phenomena*, 482, 134892, 2025.
11. H. Xie, H. Qi, M. Xiao, Y. Zhang* and **Y. Zhao***, "An intermittency based Reynolds-averaged transition model for mixing flows induced by interfacial instabilities," *Journal of Fluid Mechanics*, 1002, A31, 2025.
12. H. Li, J. Xie, C. Zhang, Y. Zhang and **Y. Zhao***, "A transformer-based convolutional method to model inverse cascade in forced two-dimensional turbulence," *Journal of Computational Physics*, 520, 113475, 2025.
13. H. Li, **Y. Zhao***, F. Waschkowski, and R. D. Sandberg, "Evolutionary neural networks for learning turbulence closure models with explicit expressions," *Physics of Fluids*, 36, 055126, 2024.

14. H. Zhou, H. Li, and **Y. Zhao***, "Identification of partial differential equations from noisy data with integrated knowledge discovery and embedding using evolutionary neural networks," *Theoretical and Applied Mechanics Letters*, 14(2), 100511, 2024.

15. T. Wang, **Y. Zhao***, J. Leggett, and R. D. Sandberg, "Direct numerical simulation of an high-pressure turbine stage: unsteady boundary layer transition and the resulting flow structures," *Journal of Turbomachinery*, 145(12), 121009, 2023.

16. H. Xie, **Y. Zhao***, and Y. Zhang*, "Data-driven nonlinear K-L turbulent mixing model via gene expression programming method," *Acta Mechanica Sinica*, 39, 322315, 2023.

17. J. Leggett, **Y. Zhao***, and R. D. Sandberg, "High-fidelity simulation study of the unsteady flow effects on high-pressure turbine blade performance," *Journal of Turbomachinery*, 145(1), 011002, 2023.

18. Q. Wu, **Y. Zhao***, Y. Shi and S. Chen, "Large eddy simulation of particle-laden isotropic turbulence using machine-learned subgrid scale model," *Physics of Fluids*, 34, 065129, 2022. **(Editor's Pick)**

19. H. Li, **Y. Zhao***, J. Wang and R. D. Sandberg, "Data-driven model development for large-eddy simulation of turbulence using gene-expression programming," *Physics of Fluids*, 33, 125127, 2021.

20. **Y. Zhao*** and X. Xu, "Data-driven turbulence modelling based on gene-expression programming," *Chinese Journal of Theoretical and Applied Mechanics*, 53(10), 1–16, 2021. **[in Chinese]**

6.2 Co-Authored Papers Published After Joining PKU (12 papers)

1. Z. Wang, J. Zhong, K. Wang, Z. Zhu, Z. Bao, C. Zhu, W. Zhao, **Y. Zhao**, Y. Yang, C. Song* and S. Xiong*, "Simulating fluid vortex interactions on a superconducting quantum processor," *Nature Communications*, 17, 2602, 2026.

2. Y. Fang*, M. Reissmann, R. Pacciani, **Y. Zhao**, A.S.H. Ooi, M. Marconcini, H. D. Akolekar and R.D. Sandberg, "Accelerating CFD-driven training of transition and turbulence models for turbine flows by one-shot and real-time transformer integration," *Computers & Fluids*, 306, 106927, 2026.

3. B. Wang, Z. Meng, **Y. Zhao** and Y. Yang*, "Quantum lattice Boltzmann method for simulating nonlinear fluid dynamics," *npj Quantum Information*, 11, 196, 2025.

4. Z. Meng, Z. Lu, S. Xiong, **Y. Zhao** and Y. Yang*, "Advances in quantum computing for fluid dynamics," *Advances in Mechanics*, 55(3), 541–566, 2025. **[in Chinese]**

5. C. Zhu, Z. Wang, S. Xiong*, **Y. Zhao** and Y. Yang, "Quantum implicit representation of vortex filaments in turbulence," *Journal of Fluid Mechanics*, 1014, A31, 2025.

6. F. Waschkowski*, H. Li, A. Deshmukh, T. Grenga, **Y. Zhao**, H. Pitsch, J. Klewicki, R. D. Sandberg, "Gradient information and regularization for gene expression programming to develop data-driven physics closure models," *Flow, Turbulence and Combustion*, 2024.

7. Y. Fang*, **Y. Zhao**, H. D. Akolekar, A. S. H. Ooi, R. D. Sandberg, R. Pacciani, and M. Marconcini, "A data-driven approach for generalizing the laminar kinetic energy model for separation and bypass transition in low- and high-pressure turbines," *Journal of Turbomachinery*, 146(9): 091005, 2024.

8. Y. Fang*, **Y. Zhao**, F. Waschkowski, A. S. H. Ooi, and R. D. Sandberg, "Toward more general turbulence models via multicase computational-fluid-dynamics-driven training," *AIAA Journal*, 65(5), 2023.

9. B. Xu, H. Li, X. Liu, Y. Xiang, P. Lv, X. Tan, **Y. Zhao**, C. Sun and H. Duan*, "Effect of micro-grooves on drag reduction in Taylor–Couette flow," *Physics of Fluids*, 35, 063608, 2023.

10. C. Lav*, A. J. Banko, F. Waschkowski, **Y. Zhao**, C. J. Elkins, J. K. Eaton, R. D. Sandberg, "A coupled framework for symbolic turbulence models from deep-learning," *International Journal of Heat and Fluid Flow*, 101, 109140, 2023.

11. R. D. Sandberg* and **Y. Zhao**, "Machine-learning for turbulence and heat-flux model development: A review of challenges associated with distinct physical phenomena and progress to date," *International Journal of Heat and Fluid Flow*, 95, 108983, 2022. **(Review Paper)**

12. F. Waschkowski*, **Y. Zhao**, R. D. Sandberg, and J. Klewicki, "Multi-objective CFD-driven development of coupled turbulence closure models," *Journal of Computational Physics*, 452, 110922, 2022.

6.3 Papers Published Before Joining PKU (13 papers)

(8 as first/corresponding author, 5 as co-author.)

1. H. D. Akolekar*, **Y. Zhao**, R. D. Sandberg and R. Pacciani, "Integration of machine learning and computational fluid dynamics to develop turbulence models for improved low-pressure turbine wake mixing prediction," *Journal of Turbomachinery*, 143, 121001, 2021.

2. **Y. Zhao*** and R. D. Sandberg, "High fidelity simulations of a high-pressure turbine vane subject to large disturbances: effect of exit Mach number on losses," *Journal of Turbomachinery*, 143, 091002, 2021.

3. **Y. Zhao*** and R. D. Sandberg, "Bypass transition in boundary layers subject to strong pressure gradient and curvature effects," *Journal of Fluid Mechanics*, 888, A4, 2020.

4. **Y. Zhao***, H. D. Akolekar, J. Weatheritt, V. Michelassi, and R. D. Sandberg, "RANS turbulence model development using CFD-driven machine learning," *Journal of Computational Physics*, 411, 109413, 2020.

5. **Y. Zhao*** and R. D. Sandberg, "Using a new entropy loss analysis to assess the accuracy of RANS predictions of an high-pressure turbine vane," *Journal of Turbomachinery*, 142, 081008, 2020.

6. J. Weatheritt, **Y. Zhao**, R. D. Sandberg*, S. Mizukami, and K. Tanimoto, "Data-driven scalar-flux model development with application to jet in cross flow," *International Journal of Heat and Mass Transfer*, 147, 118931, 2020.

7. R. Pichler, **Y. Zhao**, R. D. Sandberg*, V. Michelassi, R. Pacciani, M. Marconcini, and A. Arnone, "Large-eddy simulation and RANS analysis of the end-wall flow in a linear low-pressure turbine cascade, part I: flow and secondary vorticity fields under varying inlet condition," *Journal of Turbomachinery*, 141, 121005, 2019.

8. M. Marconcini*, R. Pacciani, A. Arnone, V. Michelassi, R. Pichler, **Y. Zhao**, and R. D. Sandberg, "Large-eddy simulation and RANS analysis of the end-wall flow in a linear low-pressure turbine cascade, part II: loss generation," *Journal of Turbomachinery*, 141, 051004, 2019.

9. **Y. Zhao**, S. Xiong, Y. Yang*, and S. Chen, "Sinuous distortion of vortex surfaces in the lateral growth of turbulent spots," *Physical Review Fluids*, 3, 074701, 2018.

10. **Y. Zhao**, Y. Yang*, and S. Chen, "Vortex reconnection in the late transition in channel flow," *Journal of Fluid Mechanics*, 802, R4, 2016.

11. **Y. Zhao**, Y. Yang*, and S. Chen, "Evolution of material surfaces in the temporal transition in channel flow," *Journal of Fluid Mechanics*, 793, 840–876, 2016.

12. Z. Xia*, Y. Shi, and **Y. Zhao**, "Assessment of the shear-improved Smagorinsky model in laminar-turbulent transitional channel flow," *Journal of Turbulence*, 16(10), 925–936, 2015.

13. **Y. Zhao**, Z. Xia*, Y. Shi, Z. Xiao, and S. Chen, "Constrained large-eddy simulation of laminar-turbulent transition in channel flow," *Physics of Fluids*, 26, 095103, 2014.

7 Teaching

Since joining PKU, I have independently undertaken teaching for 2 graduate courses and 2 undergraduate courses, delivering 10 course offerings over 5 academic years (averaging 2 courses per year), totalling 480 teaching hours (averaging 96 hours per year) with 406 student enrollments.

7.1 Courses Taught

1. **Engineering Fluid Mechanics** (3 credits), undergraduate required course, College of Engineering
   Semesters: 2022 Spring, 2022 Autumn, 2023 Spring, 2025 Autumn

2. **Computational Fluid Mechanics** (3 credits), undergraduate required course, College of Engineering
   Semesters: 2024 Spring, 2025 Spring
3. **Fundamentals of Computational Fluid Mechanics** (3 credits), graduate elective course, College of Engineering
   Semesters: 2021 Autumn, 2023 Autumn
4. **High-Performance Scientific Computing** (3 credits), newly established graduate elective course, College of Engineering
   Semesters: 2024 Autumn, 2026 Spring

7.2 Teaching Reform Projects

1. *"Construction and Reform of* Computational Fluid Mechanics *Course in the Context of AI,"* 2025 Peking University Undergraduate Course Development Project – Passed.
2. *"Construction and Reform of* Engineering Fluid Mechanics *Course,"* 2024 College of Engineering Undergraduate Teaching Reform Project – Rated Excellent.
3. *"Course Development of* Engineering Fluid Mechanics*,"* 2023 College of Engineering Undergraduate Course Development Project – Rated Excellent.

8 Student Supervision

8.1 Postdoctoral Researchers

- Ziqi Ji (scheduled to join July 2026, selected for Peking University Boya Postdoctoral Fellowship)

8.2 Doctoral Students (13)

- Haochen Li (2020–2024) – Graduated
- Taiyang Wang (2021–2026) – PKU Presidential Doctoral Scholarship
- Hansong Xie (2022–2026) – National Scholarship, PKU Merit Graduate, PKU Presidential Doctoral Scholarship, PKU Merit Student, PKU Academic Innovation Award, Excellent Presentation Award at the 5th National Mechanics Doctoral Forum.
- Xianwen Zhu (2021–present)
- Yuchen Ge (2022–present)
- Hanyu Zhou (2022–present)
- Haoyu Ji (2023–present)
- Chenqi Wei (2023–present)

- Chi Zhang (2024–present)
- Chengrui Sun (2024–present)
- Xiangchen Feng (2024–present)
- Zhijun Li (2025–present)
- Ruolan Zhu (2025–present)

8.3 Master Students (1)

- Zhijie Zheng (2023–present)

8.4 Undergraduate Research Supervision (7)

- Haoyu Ji (Class of 2019, College of Engineering) – Ph.D. student at Peking University
- Chenqi Wei (Class of 2019, College of Engineering) – Ph.D. student at Peking University
- Xiangchen Feng (Class of 2020, College of Engineering) – Ph.D. student at Peking University
- Yuchen Zhang (Class of 2020, College of Engineering) – Ph.D. student at Stanford University
- Ruolan Zhu (Class of 2021, College of Engineering) – Ph.D. student at Peking University
- Xijun Lin (Class of 2023, College of Engineering)
- Jiayu Yuan (Class of 2023, College of Engineering)

9 Academic Presentations (Selected)

1. Dec. 2025, Fudan University, "Knowledge- and Data-Driven Turbulence Modeling: From Expert Models to a General Framework."
2. Nov. 2025, 2025 International Symposium on AI for Fluid Mechanics, "Mixture-of-Experts RANS Turbulence Models by Continual Learning."
3. Nov. 2025, Shanghai, 14th National Youth Symposium on Fluid Mechanics, "Knowledge- and Data-Driven Turbulence Modeling: From Expert Models to a General Framework."
4. Jul. 2025, Italy, iTi Conference on Turbulence, "Constructing Wall Turbulence Using Attached Hairpin Vortices."
5. Jul. 2025, Zhangjiakou, Annual Conference of Beijing Institute of Applied Physics and Computational Mathematics, "Computable Modeling of Compressible Interfacial Unstable Mixing Flows."
6. Apr. 2025, Nanchang, National Symposium on Turbulence and Flow Stability, "Constructing Wall Turbulence Using Hierarchically Distributed Attached Hairpin Vortices."

7. Nov. 2024, Zhejiang University, "Interpretable Machine Learning and Subgrid-Scale Models for Large-Eddy Simulation of Turbulence."
8. Nov. 2024, Artificial Intelligence for Fluid Dynamics and Turbomachinery Symposium, "Interpretable Machine Learning for Turbulence Modelling."
9. Oct. 2024, Xi'an, National Conference on Intelligent Fluid Mechanics, "Subgrid-Scale Modeling for Large-Eddy Simulation of Turbulence Based on Interpretable Machine Learning."
10. Oct. 2024, Shanghai University, "Knowledge- and Data-Driven Modeling of Interfacial Mixing Turbulence."
11. Aug. 2024, Korea, 26th International Congress of Theoretical and Applied Mechanics, "Training Transformer-Based Subgrid-Scale Model for Inverse Cascade in Two-Dimensional Turbulence."
12. Sep. 2024, Kunming, 6th Symposium on Multi-Scale Mechanics Intelligent Simulation and Control, "Symbolic Regression for Interpretable Scientific Discovery in Fluid Dynamics."
13. Jun. 2024, Zhangjiakou, Annual Conference of Beijing Institute of Applied Physics and Computational Mathematics, "Knowledge- and Data-Driven Interfacial Mixing Turbulence Modeling."
14. Mar. 2024, Baidu Inc., "Machine Learning and Multi-Scale Turbulence Modeling."
15. Oct. 2023, Changsha, 5th Symposium on Multi-Scale Mechanics Intelligent Simulation and Control, "Progress in Interpretable Machine Learning for Turbulence Modeling."
16. Oct. 2023, PKU Chow Pei-Yuan College Academic Exchange, "Data and Turbulence."
17. Sep. 2023, Spain, European Turbulence Conference, "Developing Explicit Turbulence Models by Combining Gene Expression Programming and Artificial Neural Network."
18. Aug. 2023, University of Science and Technology of China, "Interpretable Machine Learning Turbulence Models with Enhanced Generalization."
19. Jul. 2023, Xi'an, 19th National Conference on Vortex, Separation and Flow Control, "High-Fidelity Numerical Simulation of a High-Pressure Turbine Cascade: Boundary Layer Separation and Free-Stream Turbulence Effects."
20. Apr. 2023, Hangzhou, 4th National Symposium on Intelligent Fluid Mechanics, "Interpretable Machine Learning Turbulence Models with Enhanced Generalization."
21. Apr. 2023, Tianjin, 2nd China Aerodynamics Conference, "GENets: Evolutionary Neural Networks for Physical Modeling."
22. Mar. 2023, Hangzhou, 8th Young Scholars Symposium on Aerodynamics and Fluid Machinery, "Direct Numerical Simulation of Rough-Wall Turbine Aerodynamics."
23. Mar. 2023, Xi'an, 2nd Aero-engine and Gas Turbine Youth Forum, "High-Fidelity Numerical Simulation of Internal Flow Turbulence and Machine Learning Modeling."
24. Jan. 2023, PKU Center for Applied Physics and Technology, "Theory, Models, and Intelligent Approaches for Interfacial Instabilities."

25. Jan. 2023, Beijing Institute of Applied Physics and Computational Mathematics, "Interpretable Machine Learning Modeling of Turbulent Mixing Problems."
26. Sep. 2022, PKU Engineering Lecture Series, "Interpretable Machine Learning and Turbulence Modeling."
27. Aug. 2022, Beijing, Commemorative Youth Symposium for the 120th Anniversary of Prof. Pei-Yuan Chow's Birth, "Interpretable Machine Learning and Large-Eddy Simulation Modeling of Turbulence."
28. Jul. 2022, Northwestern Polytechnical University, "Numerical Simulation of Turbulence and Interpretable Machine Learning Models."
29. May 2022, Beijing Institute of Technology, "High-Fidelity Numerical Simulation of High-Pressure Turbine Cascades and Machine Learning Modeling."
30. Mar. 2022, Institute of Mechanics, Chinese Academy of Sciences, "Machine Learning Turbulence Models Based on Gene Expression Programming."
31. Jan. 2022, Beihang University, "Data-Driven Turbulence Modeling Based on Gene Expression Programming Methods."
32. Dec. 2020, PKU Center for Applied Physics and Technology Annual Conference, "High-Fidelity Numerical Simulation and Turbulence Model Development for Aero-engine High-Pressure Turbines."
33. Dec. 2020, Zhanjiang, New Year Fluid Mechanics Symposium, "High-Fidelity Numerical Simulation and Turbulence Model Development for Aero-engine High-Pressure Turbines."
34. Dec. 2020, Beijing, Joint Annual Conference of State Key Laboratory of Turbulence and Complex Systems and State Key Laboratory of Nonlinear Mechanics, "High-Fidelity Numerical Simulation and Turbulence Model Development for Aero-engine High-Pressure Turbines."

10 Service

10.1 Peking University Service

1. Since 2022: Class Advisor for the 2022 Master's Program in Mechanical Engineering, College of Engineering
2. Since 2025: Class Advisor for the 2025 Undergraduate Class 3, College of Engineering (Undergraduate College)
3. Since 2026: Associate Chair, Department of Scientific Computing and Engineering Intelligence, School of Mechanics and Engineering Science
4. Academic advisor for undergraduate students ($\sim$20 students)
5. Participation in faculty recruitment for the Fluid Mechanics discipline

6. Organization of multiple academic exchange activities for the College of Engineering, including "PKU College of Engineering – First Academy of CASC – Institute of Mechanics, CAS," "PKU College of Engineering – Aero Engine Academy of China," and "PKU College of Engineering – Institutes 8 and 9 of China Academy of Engineering Physics"
7. Organization of major academic conferences: Convened the "Fluid Mechanics – Combustion – Advanced Computing" Frontier Cross-Disciplinary Forum at the inaugural 2023 Beijing Cross-Science Conference; organized/co-organized the inaugural "Symposium on Quantum Computing for Fluid Mechanics," "2025 National Symposium on Turbulence and Flow Stability," "2025 JFM/FLOW China Symposium," and "2023 Chow Pei-Yuan Foundation Annual Conference"

10.2 Academic Service

1. Since 2025: Deputy Secretary-General, Chinese Society of Theoretical and Applied Mechanics
2. Since 2021: Member, Computational Aerodynamics Committee and Youth Working Committee, Chinese Aerodynamics Research Society
3. Since 2025: Editorial Board Member, *Theoretical and Applied Mechanics Letters*
4. Since 2025: Deputy Director, First Youth Editorial Board, *Physics of Gases*
5. Since 2023: Youth Editorial Board Member, *Acta Aerodynamica Sinica* and *Advances in Aerodynamics*
6. Organizer of the "Youth Academic Salon on Fluid Mechanics" – 48 online sessions, 192 invited speakers, averaging 150 online participants per session
7. Reviewer for: *Journal of Fluid Mechanics*, *Journal of Computational Physics*, *Communications Engineering*, *AIAA Journal*, *Physics of Fluids*, *Computers & Fluids*, *European Journal of Mechanics / B Fluids*, *Ocean Engineering*, *International Journal of Heat and Fluid Flow*, *Flow, Turbulence & Combustion*, *Acta Mechanica Sinica*, *Theoretical and Applied Mechanics Letters*, *Chinese Journal of Theoretical and Applied Mechanics*, *Acta Aerodynamica Sinica*, *Physics of Gases*, *Journal of Aerospace Power*