Xiao He

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Email Website LinkedIn GitHub

ACADEMIC APPOINTMENTS

Associate Professor **02/2025 – present**
School of Aeronautics and Astronautics, Shanghai Jiao Tong University *Shanghai, China*

Postdoctoral Research Assistant/Associate **08/2022 – 01/2025**
UQ Lab, Department of Aeronautics, Imperial College London *London, UK*
Advisor: Prof. Francesco Montomoli, Dr. Vittorio Michelassi

EDUCATION

Imperial College London **09/2018 – 03/2023**
Ph.D. in Mechanical Engineering *London, UK*
Advisor: Prof. Mehdi Vahdati, Prof. Ricardo Martinez-Botas

Tsinghua University **09/2015 – 07/2018**
M.S. in Power Engineering and Engineering Thermophysics - ***Rank: 5%*** *Beijing, China*
Advisor: Prof. Xinqian Zheng

Tsinghua University **08/2011 – 07/2015**
B.E. (Hons) in Vehicle Engineering - ***Rank: 5%*** *Beijing, China*

SELECTED AWARDS AND HONORS

GPPS Early Career Award	**2024**
Imperial College Katopodis Prize (best PhD thesis within the Thermofluids division)	**2023**
ASME IGTI Turbomachinery Committee Best Paper Finalist	**2022**
Chinese Government Award for Outstanding Self-Financed Students Abroad	**2022**
ASME IGTI Turbo Expo Early Career Engineer Travel Award	**2020,2021,2024**
ASME IGTI Student Advisory Committee Travel Award	**2019**
Imperial College President's PhD Scholarship	**2018**
China National Scholarship	**2017**
Japan Student Services Organization Scholarship	**2017**
Tsinghua University Honored Graduate Award	**2015**
Tsinghua University Best Undergraduate Thesis Award	**2015**

FUNDED PROJECTS

NSFC Excellent Young Scientists Fund Program (Overseas)	**2025-2027**
Shanghai Magnolia Talent Plan Young Scientists Program	**2025-2027**

TEACHING AND MENTORING EXPERIENCE

Graduate Teaching Assistant, Fluid Mechanics (undergraduate) | Imperial College **10/2019 – 06/2021**
- Led tutorial sessions in a class size of 15; wrote and graded exams.

Mentor for Master Thesis and Research Internship | Imperial College **01/2020 – 09/2023**
- Mentored eight students with weekly support (6-months duration).

Mentor for Undergraduate Thesis | Tsinghua **01/2016 – 06/2018**
- Mentored three students with weekly support (6-months duration).

INVITED TALKS

1. Seminar talk: "Progress of Data-Driven Turbulence Modeling for Compressor Stalled/Separated Flows"
   - School of Power and Energy, Northwestern Polytechnical University (05/2025).
   - School of Energy and Power Engineering, Xi'an Jiao Tong University (05/2025).
   - School of Energy and Power Engineering, Beihang University (04/2025).
   - Digital Twin Research Center, Institute of Engineering Thermophysics, Chinese Academy of Science (04/2025).

2. Seminar talk: "Data-Driven RANS Turbulence Modeling for Compressor Stall"
   - School of Aeronautics and Astronautics, Shanghai Jiao Tong University (06/2023).
   - Institute of Gas Turbines and Aerospace Propulsion, Technische Universität Darmstadt (06/2022).
   - Institute of Turbomachinery, School of Mechanical Engineering, Shanghai Jiao Tong University (04/2022).

SELECTED PUBLICATIONS

I have authored over 30 peer-reviewed research papers including 19 journal papers as the first/correspondence author. My Google Scholar statistics are: Citation≥603, h-index≥16; my WOS statistics are: Citation≥439, h-index≥13. Selected publication list is provided below. (* corresponding author; † equal contribution)

1. **He, X.***, Zhao, F., and Vahdati, M., "A Turbo-Oriented Data-Driven Modification to the Spalart-Allmaras Turbulence Model," **ASME Journal of Turbomachinery**, 2022, 144(12), 121007. ASME IGTI Turbomachinery Committee Best Paper Finalist. [preprint] [doi]
2. **He, X.***, Montomoli, F., Michelassi, V., Panizza, A., and Pulga, L., "Characteristics of Deterministic and Stochastic Unsteadiness of Trailing Edge Cutback Film Cooling Flows," **ASME Journal of Turbomachinery**, 2025, 147(1), 011009. [doi]
3. **He, X.***, Zhao, F., and Vahdati, M., "Detached Eddy Simulation: Recent Development and Application to Compressor Tip Leakage Flow," **ASME Journal of Turbomachinery**, 2022, 144(1), 011009. . [preprint] [doi]
4. **He, X.***, Zhao, F., and Vahdati, M., "Uncertainty Quantification of Spalart-Allmaras Turbulence Model Coefficients for Compressor Stall," **ASME Journal of Turbomachinery**, 2021, 143(8), 081007. [preprint] [doi]
5. **He, X.***, Fang, Z., Rigas, G., and Vahdati, M., "Spectral Proper Orthogonal Decomposition of Compressor Tip Leakage Flow," **Physics of Fluids**, 2021, 33(10), 105105. [preprint] [doi]

SOFTWARES

HADES: an unstructured finite volume CFD solver for internal and external flows.

PyMeshHADES: a Pythonic mesh generation and conversion tool for the in-house solver HADES.

SPOD Python: a Pythonic realization of SPOD and its applications to some fluid mechanics problems.

TurbAna: a Python toolkit that calculates turbulence anisotropy and turbulent viscosity from Reynolds stress.

ACADEMIC SERVICE

Conference Session Chair

ASME Turbo Expo: Heat Transfer (2024)
GPPS Conference: CFD Workshop (2021-2024)
GPPS Conference: Turbomachinery Aerodynamics (2024)
GPPS Conference: Turbomachinery Aeroelasticity (2024)

Reviewer for Journals and Conferences

I have reviewed 73 manuscripts from 30 journals and 2 conferences, and more details can be found in my WOS account. The full list of reviewed journals and conferences is as follows (in alphabatic order).

Acta Astronaut	ASME Turbo Expo	Entropy	J Appl Fluid Mech
Adv Mech Eng	Chinese J Aeronaut	Fluids	J Glob Power Propuls Soc
Aerosp Sci Technol	Comput Fluids	GPPS Conference	J Mar Sci Eng
Aerospace	Discov Appl Sci	IMechE A: J Power Energy	Math Comput Simul
AIAA J Aircr	Energies	IMechE D: J Automob	Phys Fluids
ASCE J Aerosp Eng	Energy	IMechE G: J Aerosp Eng	Renew Energy
ASME J Fluids Eng	Energy Convers Manag	Int J Mech Sci	Sci Rep
ASME J Turbomach	Energy Sci Eng	Int J Therm Sci	