Xiao He

141, City and Guilds Building, South Kensington Campus, Imperial College London, London SW7 2AZ, UK
+44-7523816078 xiao.he2014@imperial.ac.uk https://hexfluid.github.io xiao-he-ic HexFluid

ACADEMIC APPOINTMENTS

Postdoctoral Research Assistant/Associate **08/2022 – 12/2024**
UQ Lab, Department of Aeronautics, Imperial College London *London, UK*
Advisor: Prof. Francesco Montomoli, Dr. Vittorio Michelassi

EDUCATION

Imperial College London **10/2018 – 09/2022**
Ph.D. in Mechanical Engineering *London, UK*
Advisor: Prof. Mehdi Vahdati, Prof. Ricardo Martinez-Botas

Tsinghua University **08/2015 – 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

Katopodis Prize for best PhD thesis within the Thermofluids division (top 1 in Department)	**2023**
Chinese Government Award for Outstanding Self-Financed Students Abroad (600/year globally)	**2022**
Great Britain China Educational Trust Grant (35/year in UK)	**2021**
Henry Lester Trust Grant (35/year in UK)	**2021**
Turbo Expo Early Career Engineer Travel Award (20/year globally)	**2020,2021,2024**
Student Advisory Committee Travel Award (20/year globally)	**2019**
President's PhD Scholarship (50/year in Imperial College)	**2018**
National Scholarship (top 1% in Department)	**2017**
Honored Graduate Award (top 1% in Department)	**2015**
Best Undergraduate Thesis Award (top 3% in Department)	**2015**

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 supports in six months each.

Mentor for Undergraduate Thesis | Tsinghua **01/2016 – 06/2018**
- Mentored three students with weekly supports in six months each.

INVITED TALKS

1. "Data-Driven RANS Turbulence Modeling for Compressor Stall" Seminar talk at School of Aeronautics and Astronautics, Shanghai Jiao Tong University, June 2023.
2. "Data-Driven RANS Turbulence Modeling for Compressor Stall" Seminar talk at Institute of Gas Turbines and Aerospace Propulsion (GLR), Department of Mechanical Engineering, Technische Universität Darmstadt, June 2022.
3. "Data-Driven RANS Turbulence Modeling for Compressor Stall" Seminar talk at Institute of Turbomachinery, School of Mechanical Engineering, Shanghai Jiao Tong University, April 2022.

SELECTED PUBLICATIONS

I have authored/co-authored 23 peer-reviewed journal papers and 15 peer-reviewed conference papers. My Google Scholar statistics are: Citation≥415, h-index≥13; my WOS statistics are: Citation≥267, h-index≥10. 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 Paper No. GT2024-123002. (recommended for journal).
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. The solver is featured by advanced turbulence modeling capabilities, turbomachinery capabilities and multiphase flow capabilities.

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 and visualizes turbulence anisotropy and turbulent viscosity from Reynolds stress components.

ACADEMIC SERVICE

Referee for Journals and Conferences

ASME Journal of Turbomachinery, ASME Journal of Fluids Engineering, Physics of Fluids, Computers and Fluids, Energy Conversion and Management, Energy, International Journal of Mechanical Sciences, Acta Astronautica, Chinese Journal of Aeronautics, Aerospace Science and Technology, IMechE Journal of Power and Energy, IMechE Journal of Automobile Engineering, IMechE Journal of Aerospace Engineering, ASCE Journal of Aerospace Engineering, Mathematics and Computers in Simulation, Aerospace, Fluids, Entropy, Energies, Journal of Marine Science and Engineering, Journal of Applied Fluid Mechanics, Advances in Mechanical Engineering, Discover Applied Sciences, ASME Turbo Expo, GPPS Conference.

Conference Session Organizer

GPPS Turbomachinery CFD Workshop Executive Chair, ASME Turbo Expo Heat Transfer Session Co-Chair, GPPS Technical Conference Turbomachinery Session Chair

PROFESSIONAL SOCIETIES

ASME Student Member (ID: 000101977824)
AIAA Student Member (ID: 937472)
APS Student Member (ID: 62075782)
GPPS Ambassador Member