

# Zhaoyang Zhang

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## Education

09/2016 - present	<b>Tsinghua University (THU), School of Aerospace</b> Aeronautical and Astronautical Engineering	Beijing GPA: 3.62/4.0
	<ul style="list-style-type: none"><li>• <b>Related courses:</b> Fluid Mechanics(A), Mechanics of Materials(A-), Aerodynamics(A+) Engineering Thermodynamics(A), Theoretical Mechanics(A-), Signals and Systems(A)</li><li>• <b>Honors and Awards:</b> Jiang Nanxiang Scholarship(1%), Academic Excellence(twice)</li><li>• <b>Certifications:</b> TOELF 109 (R30 L29 S23 W27), GRE(V157, Q170, W4.0)</li></ul>	

## Research Interests

Computational Fluid Dynamics(CFD), fluid-structure interaction(FSI)

## Lab Experiences

07/2019 - 09/2019	<b>Instability in double-diffusive fingering regime</b> Advisor: Prof. Eckart Meiburg	UCSB, CA CFD lab
	<ul style="list-style-type: none"><li>• Designed a 2D numerical configuration of rainwater layer over seawater, connected by a diffusive interface</li><li>• Conducted direct numerical simulations with different combinations of parameter via adapted flow solver PARTIES (developed by CFD lab)</li><li>• Observed Rayleigh-Taylor(RT) instability and double-diffusive(DD) salt fingers. Explored 1D analytical solution for explanation of the observed phenomenon</li><li>• Studied the effects of density ratio and diffusivity ratio on quantitative characteristics of mixed layer created by RT and DD fingers</li><li>• Currently summing up results and have a paper in preparation</li></ul>	
07/2018 - 10/2018	<b>Aerodynamic characteristics of aircraft with complex shape</b> Advisor: Prof. Ziniu Wu	THU, Beijing Lab of Aerodynamics
	<ul style="list-style-type: none"><li>• Explored Riemann problem analytical solution for 1-dimensional situation</li><li>• Established 3D unstructured mesh using ICEM CFD and completed simulation for cases with different parameters (velocity, altitude) in ANSYS FLUENT</li><li>• Visualized the evolution characteristics of flow field (streamlines, pressure, etc.) by recording and playing macro commands in TECPLOT</li><li>• Analyzed how the important parameters (flying velocity, altitude, etc.) influenced the direction of airflow in aircraft windshield accidents</li></ul>	
09/2018 - 07/2019	<b>Acoustic levitation of tiny particle influenced by fluid motion</b> Advisor: Associate Professor Lihao Zhao	THU, Beijing Lab of Mutiphase Flow
	<ul style="list-style-type: none"><li>• Conducted literature review, studied the theory of acoustic levitation(or acoustophoresis), and investigated the development of applied device</li><li>• Fabricated a functional system including ultrasonic transducers and a driving board. Achieved stable levitation of Styrofoam bits and water droplets</li><li>• Designed models of different structures (curvature, transducer size) and conducted numerical simulation in COMSOL to achieve higher acoustic energy density</li></ul>	

## Conference Presentation

Nov. 22, 2018 IIT Madras, India	Paper Presentation: "Direction of Airflow after the Break of an Aircraft Windshield" The 13th Asia-Oceania Top University League on Engineering(AOTULE)
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## Skills

- Advanced knowledge: Matlab, Ansys Fluent, ICEM CFD, Comsol, Tecplot, AutoCAD
- Intermediate knowledge: MS office, Solidworks, Origin
- Programming skill: C/C++, Fortran