

Jianai Zhao

AEROSPACE ENGINEER GRADUATE, RSI-TSINGHUA'15, IBDP'17, CU BOULDER AEROENGR'22, TU DARMSTADT AEROENGR'24

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PROFESSIONAL PREPARATION

MS, Aerospace Engineering	Technical University of Darmstadt	Germany	Oct 2022 – Dec 2024
BS, Aerospace Engineering Sciences	University of Colorado Boulder	United States	Aug 2017 – May 2022
International Baccalaureate Diploma	Beijing Huijia Private School	China	Sep 2014 – May 2017

AWARDS/ FELLOWSHIPS/ MEMBERSHIPS/ GRANTS

Aug 2021 – May 2022	CROACS Research Grant , CU Boulder [Smead Aerospace] Senior Design CROACS Research Grant sponsored by [Astroscale U.S.]; managed research budget and procurement via SAP.	\$5K USD
Apr 2022	American Institute of Aeronautics and Astronautics Region V , Student Member [PDF].	Stdnt. Mbr.
Aug 2017	Outstanding Performance Counselor , Research Science Initiative (RSI) at Tsinghua.	Award
Aug 2015	RSI Rickoids Alumni , Research Science Institute [Rickoids].	Rickoids

RESEARCH EXPERIENCE/ MISCELLANEOUS

Jan 2025 – Present	Career Break (Independent Research in Reinforcement Learning) , Reside in Frankfurt am Main. Implemented Multi Agent Proximal Policy Optimization (MAPPO) for remaining useful life prediction using distributed agents with a centralized critic. [Link]	
May–Dec 2024	MS Thesis , [Chair of Fluid Dynamics] (TU Darmstadt FDY). Thesis topic: Neural Network based Shock Detection in Compressible Flow at Space-re-entry Conditions [PDF]. Thesis Advisor: [Dr. Florian Kummer]. About: Developed AI-trained artificial viscosity stabilization algorithms learned from the existing [Persson Sensor], and integrated them into the existing customized CFD (BoSSS Solver) for online CFD simulations in high-performance computing (HPC).	Thesis Grade: 1.0 (Highest)
Nov 2022 – Apr 2023	MS Major Project (Group Work) , [Institute of Flight Systems and Automatic Control] (TU Darmstadt FSR). Topic: Reverse Engineering and Machine Learning for Concept Creation of a Data Mining Hardware [PDF]. Faculty Advisor: [Prof. Uwe Klingauf]. About: Fault Tolerant Assessment for Digital Twin Electric Aircraft. Applied 5 different data mining algorithms for fault tolerant assessment from a Very High Frequency digital twin generated by Simulink. Resulted in onboard data logger requirements via data corruption in MATLAB.	Grade: 1.3 (2nd Highest)
Aug 2021 – May 2022	BS Thesis/ Capstone Project (Group Work) , sponsored by Astroscale U.S. [Topic]: Close Range Orbital Attitude Characterization System [PDF]. Advisor: Dr. Yu Takahashi (NASA Jet Propulsion Laboratory). Project Advisory Board (all Profs): Kathryn Wingate, Dennis Akos, [etc]. About: Characterized uncooperative space debris client using a scannerless LiDAR servicer and a customized 3 degree of freedom tumbling rig for ground truth. Employed 3D online template matching for initial pose acquisition and iterative closest point algorithms for dynamic tracking.	Thesis Grade: 4.0 (Highest)

OUTREACH/ PROFESSIONAL DEVELOPMENT/ SERVICE

Jul 27–29 2025	Research Science Institute (RSI) 2025 at Massachusetts Institute of Technology , Paper Reader. Reviewed penultimate and final papers in Aeronautics and Astronautics. [Link].	Service
Jun–Oct 2021	Smith Lab at CU Boulder , Undergrad Research Assistant. Produced science outreach videos as a part of U.S. National Science Foundation (NSF) funded (INSF 1553114) research. [Link].	Outreach
Jul–Aug 2017	Research Science Initiative (RSI) 2017 at Tsinghua University , Counselor. Supported student needs; aided social and academic adjustment; reported concerns; planned activities.	Professional Development
Jul–Aug 2015	Research Science Initiative (RSI) 2015 at Tsinghua University , Scholar at the School of Aerospace. Independent research in flow-induced vibration using a wind tunnel. [Link].	Professional Development