Alex Baowend Soom M. A. Zongo

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EDUCATION

PhD in Mechanical and Aerospace Engineering August 2024 - Present
School of Engineering and Applied Sciences,
George Washington University, Washington, DC, USA.

Master in Control Sciences and Engineering September 2021 - May 2024
Department of Automation,
Tsinghua University, Beijing, China.
GPA: 3.81/4.0

Machine Learning Summer School June 2022 - August 2022
Oxford University, London, United Kingdom.

Bachelor of Engineering in Aircraft Design September 2018 - June 2021
Department of Aeronautics,
Beijing University of Aeronautics and Astronautics, Beijing, China.
GPA: 3.78/4.0

Freshman year in Aeronautics and Astronautics September 2017 - June 2018
Department of Aeronautics and Astronautics,
National Cheng Kung University, Tainan, Taiwan.
GPA: 4.05/4.3

SKILLS AND INTERESTS

Interests	Artificial Intelligence, Flight Control, Reinforcement Learning, Optimization, Robotics, Modeling and Simulation
Software And Frameworks	MATLAB, SIMULINK, ROS/ROS2 (Robotic Operation System), Python, C/C++, PyTorch, Scikit-learn, OpenCV
Soft Skills	Self-learning, Initiative, Team Work, technical writing, presentation and great communication
Languages	French(native), English(C2), Chinese(B1)

PROJECTS

Courses Projects September 2021 - September 2023
Tsinghua University

- Music Sound Source Separation via Deep Learning
- Menon Cells Hierarchical Classification with Machine Learning (ML)
- Application of Reinforcement Learning Algorithms on OpenAI gym LunarLander-v2, within the course on Performance Optimization and Evaluation of Complex Systems.

Aircraft Modeling, Control and Simulation March 2020
Beijing University of Aeronautics and Astronautics

- A personal project to better understand flight mechanics and control. I used the RCAM model (FM_AG-08_TP088-9) as a basis to build a simulation in MATLAB/SIMULINK.
- FlightGear was incorporated as an interface for graphical illustration.

General Aviation Aircraft Design Sept 2020 - May 2021
Beijing University of Aeronautics and Astronautics

· As part of my graduation project, I designed a lightweight sports airplane that met specific requirements, including maximum speed, endurance, weight, range, and flight envelope.
· Another project consisted of the preliminary design of a helicopter, also based on the requirements provided.

RESEARCH PUBLICATION

Zongo, A.B., Wei Peng. (2025). Submitted, September 2025
Robust Multi-Agent Reinforcement Learning for Small UAS Separation Assurance under GPS Degradation and Spoofing, In American Control Conference (ACC) 2026.

Zongo, A.B., LiQing. (2025). August 2024
Towards Intelligent Fault Tolerant Attitude Flight Control Of A Fixed-Wing Aircraft,
In: Yan, L., Duan, H., Deng, Y. (eds) Advances in Guidance, Navigation and Control. ICGNC 2024. Lecture Notes in Electrical Engineering, vol 1353. Springer, Singapore. https://doi.org/10.1007/978-981-96-2264-1_15

PEER REVIEWS

Reviewer, **Journal of Aerospace Information Systems (JAIS)** March-September 2025

Reviewer, **International Conference in Guidance, Navigation, and Control (ICGNC) 2024** March 2024

INTERNSHIP/TRAININGS

Robotics Software Engineer Intern,
Popular Robotics, Beijing, China June-November 2022

I worked on a biped simulation in Gazebo with ROS & ROS2

A course on gait motion basics was drafted for an online course.

POSITION OF RESPONSIBILITY AND EXPERIENCE

Graduate Teaching Assistant January 2025 - May 2025
George Washington University, School of Mechanical and Aerospace Engineering
· Course: Linear Systems Dynamics (MAE 3134), Spring 2025
· Responsibilities: Grading assignments and exams;
conducting recitations (office hours) to reinforce the lecture material.

Graduate Research Assistant September 2024 - Present
George Washington University Intelligent Aerospace Systems Lab
· Focus: **Robust Markov Decision Process / (Multi-Agent) Reinforcement Learning**
· Organizing and hosting the **Safe and Responsible AI workshop** on September 27, 2024, Washington, DC, USA. This workshop provided participants with the opportunity to identify challenges and opportunities, share work progress from multiple agencies (FAA, HASS COE, Johns Hopkins APL, and MIT Lincoln Labs) and institutes (TRAILS, NIST AI, RAIUK), and promote research collaborations.

Research Assistant September 2021 - May 2024
Tsinghua University Navigation and Control Lab
· Participated in various lab projects, including Trajectory-Based Optimization Performance Graphical Simulation
· Research on applying AI to Flight Control: Fault-tolerant flight control
· Resulting in a publication to the International Conference on Guidance, Navigation, and Control (ICGNC 2024).
· Reviewer of ICGNC 2024.

Secretary General May 2022 - May 2024
Tsinghua University African Student Association

· A student association established by students with the aim of cultural exchanges, learning, and leadership skill development
among students and peers
· Lead in cultural activities planning and organization
· Team leader and active member working to promote leadership and engagement in community service and problem-solving.

R&D Engineer September 2022 - May 2023
Tsinghua University Artificial Intelligence International Student Association club
· A graduate-level AI club established by students with the aim of learning and professional skill development among students and peers
· Active member working to develop AI solutions for societal problems

EXTRA-CURRICULAR

- Seminar on **Future of AI, The 6th Academic Forum on Artificial Intelligence of Beijing Universities**, Beijing, China — April 2024
- Church Musician at **North Cathedral of Beijing** — September 2023 - July 2024
- Campus Service Volunteer at **Tsinghua University** — September 2021 - May 2024
- Performed as a piano player during the **Global Village** and **Starry Night** events at Tsinghua University, Beijing, China — May 2023

ACHIEVEMENTS

Graduate Research and Teaching Assistanship Recipient	2024 - Present
Chinese Government Scholarship Recipient	2018 - 2024
Outstanding Academic Achievement Awardee	2019 - 2020
Taiwan Ministry of Foreign Affairs Scholarship Recipient	2016 - 2018

DECLARATION

I hereby declare that the information provided above is true and accurate to the best of my knowledge and belief.