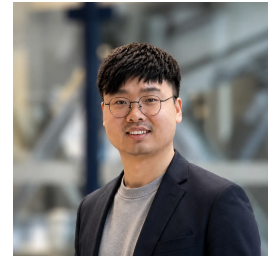


Liming Zheng

Ph.D. Researcher in Bio-Inspired Aerial Robotics

Morphology-driven intelligence • Adaptive flight • Environmental field robotics

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🔧 MAVLAB • BioMorphic Intelligence Lab



Ph.D. researcher in bio-inspired aerial robotics at TU Delft. My research investigates how morphology can provide aerial robots with embodied intelligence for adaptive flight and physical interaction. My work combines aerodynamic analysis, wind-tunnel and flow visualization experiments, mechanical design, adaptive control, and real-world flight testing, with applications in perching and environmental monitoring.

RESEARCH INTERESTS

Morphology-driven intelligence Bio-inspired aerial robotics Morphing aircraft Adaptive flight and perching
Field robotics and environmental monitoring Flight dynamics and control

EDUCATION

2022 – Present **Ph.D. in Aerospace Engineering**

Delft University of Technology, The Netherlands

Thesis: *Morphology-Driven Design of Bio-Inspired Aerial Robots for Adaptive Flight and Perching.*

Supervisors: Prof. Guido de Croon, Prof. Salua Hamaza, and Dr. Alexander van Zuijlen.

2018 – 2021 **M.Sc. in Control and Simulation**

Northwestern Polytechnical University, China

Thesis: *Autonomous Soaring in Turbulent Environments Using Reinforcement Learning.*

2014 – 2018 **B.Sc. in Airworthiness**

Northwestern Polytechnical University, China

Thesis: *Optimal Transition Corridor Planning for VTOL Fixed-Wing Aircraft.*

JOURNAL ARTICLES AND PREPRINTS

2026 **A squirrel-inspired drone with enhanced stability, agility and maneuverability via whole-body morphing**

Liming Zheng, Alexander van Zuijlen, Salua Hamaza

Nature Communications **17**, 6365. DOI: [10.1038/s41467-026-72822-w](https://doi.org/10.1038/s41467-026-72822-w).

2026 **Head-body coupling inspired by gliding mammals restores pitch stability and enables aerodynamic braking for perching**

Liming Zheng, Baihui Chen, Alexander van Zuijlen, Salua Hamaza

Under review at the *Proceedings of the National Academy of Sciences*.

2026 **Patagium and tail morphology shape aerodynamic performance and control authority in gliding-mammal-inspired wings**

Liming Zheng, Baihui Chen, Alexander van Zuijlen, Salua Hamaza

Under review at *Bioinspiration & Biomimetics*.

- 2026** **Tactile memory enables active semantic exploration and sensor deployment by tiny drones**
Chaoxiang Ye, **Liming Zheng**, Guido de Croon, Salua Hamaza
Under review at *IEEE Transactions on Robotics*.
- 2024** **Albero: Agile landing on branches for environmental robotics operations**
Liming Zheng, Salua Hamaza
IEEE Robotics and Automation Letters **9**(3), 2845–2852.
- 2020** **A novel control mode of bionic morphing tail based on deep reinforcement learning**
Liming Zheng, Zhou Zhou, Pengbo Sun, Zhilin Zhang, Rui Wang
arXiv preprint. [arXiv:2010.03814](https://arxiv.org/abs/2010.03814)

CONFERENCE PAPERS

- 2026** **Cooking beyond frames: A stereo event camera dataset in the kitchen**
Chengming Feng, Hesam Araghi, **Liming Zheng**, Julien Dupeyroux, Xucong Zhang, Jan van Gemert, Nergis Tomen
European Conference on Computer Vision (ECCV), accepted for oral presentation.
- 2025** **The influence of wing and tail morphology on the aerodynamics of gliding mammals**
Liming Zheng[†], Baihui Chen[†], Alexander van Zuijlen, Salua Hamaza
International Symposium on Adaptive Motion of Animals and Machines (AMAM). [†]Equal contribution.
- 2022** **Using deep reinforcement learning to improve the robustness of UAV lateral-directional control**
Rui Wang, Zhou Zhou, Xiaoping Zhu, **Liming Zheng**
33rd Congress of the International Council of the Aeronautical Sciences (ICAS), 5489–5504.
- 2020** **Application of vector jet control technology on aircraft longitudinal control**
Liming Zheng, Zhiliang Bai, Zhou Zhou, Rui Wang
32nd Congress of the International Council of the Aeronautical Sciences (ICAS).

SELECTED AWARDS AND ACHIEVEMENTS

- 2024** **First Place, International Micro Air Vehicle Conference and Competition (IMAV)**
- 2024** **XPRIZE Rainforest Bonus Prize**
- 2019** **Top Prize, Challenge Cup academic competition**
- 2019** **First Prize, 5th China Post-Graduate Future Flight Vehicle Innovation Competition**
- 2018** **Second Prize, 15th China Post-Graduate Mathematical Contest in Modeling**
- 2018** **First Prize, Dassault AERO-Design Innovation Civil Aircraft Design Challenge**
- 2017** **6th Place, Air Cargo Challenge (ACC), Zagreb**
- 2015** **National Third Prize, China Aeromodelling Design Challenge**

RESEARCH AND TECHNICAL EXPERTISE

Aerial robotics and control

Bio-inspired robot design; morphing aircraft; adaptive flight and perching; flight dynamics; nonlinear and adaptive control; autonomous flight testing

Aerodynamics and experiments

Aerodynamic analysis; CFD; wind-tunnel testing; flow visualization; aerodynamic characterization; high-angle-of-attack flight

Programming

MATLAB; Python; C++; C; ROS; ROS 2

Design and prototyping

Mechanical design; CATIA; SolidWorks; AutoCAD; Fusion 360; lightweight aircraft design; platform integration

Field and flight experience

More than ten years of aircraft building, drone piloting, experimental flight operations, and field deployment

Languages

Mandarin Chinese; English