

# Khanh Nguyen (He/Him)

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## EDUCATION

### Ph.D. in Smart Vehicle Engineering (Expected in February 2026)

Konkuk University, Seoul, Republic of Korea

Thesis: *From Wings to Fins: Bioinspired Robotics in Flying and Swimming Systems*

Outcome (as of April 2025): One co-authored paper on a fast-swimming robot (2023). Two first-author papers on flapping-wing stability (2023) and on gliding feasibility of the flying-fish-like robot (2024).

Relevant courses: Robot Kinematics, Numerical Analysis, Optimal Control Theory.

(GPA: 4.00/4.00)

### M.S. in Smart Vehicle Engineering (February 2021)

Konkuk University, Seoul, Republic of Korea

Thesis: *Investigation of stability and aerodynamic performance of a flapping-wing micro air vehicle in hover using three-dimensional computational fluid dynamics analyses*

Outcome: Two first-author papers on stability and aerodynamic analyses of the flapping-wing robot (2021)

Relevant courses: Finite Element Method, Advanced Finite Element Method, Structural Analysis.

(GPA: 3.89/4.00)

### B.S. in Mechanical and Aerospace Engineering (August 2018)

Ho Chi Minh City University of Technology, Vietnam

5-year Vietnam-France Excellent Engineer Training Program (PFIEV) is accredited by Engineering Degree Commission (CTI) in France and is eligible for the EUR-ACE (European Accredited Engineer) Masters label, issued by European Network for Accreditation of Engineering Education (ENAE). Total ECTS: 274.

Thesis: *Computational approach on the aerodynamics of UAV combining fixed wing and three propellers* (graded: 9.07/10)

Outcome: One first-author conference paper (2018)

Relevant courses: Aerodynamics, Aircraft Propulsion, Combustion, Computational Fluid Dynamics, Aircraft Design, Helicopters, Aerospace Materials, Flight Mechanics, Strength of Materials.

(GPA: 3.18/4.00)

## HONORS

Doctoral Fellowship, Konkuk University, Seoul, Republic of Korea (2022-2026)

Research-based Fellowship, Konkuk University, Seoul, Republic of Korea (2019-2021)

Best Paper Award at the 18th International Conference on Intelligent Unmanned Systems (ICIUS), Japan (2022)

Academic Award for Best Students, HCM City University of Technology, Ho Chi Minh, Vietnam (2018)

Quintessential Student Merit Award, Konkuk University, Seoul, Republic of Korea (2019 – 2021 & 2022-2024)

Quintessential Student Merit Award, HCM City University of Technology, Ho Chi Minh, Vietnam (2017-2018)

## PROFESSIONAL SERVICES

Reviewer, Journal of Aeronautics Astronautics and Aviation

Reviewer, International Journal of Intelligent Unmanned Systems

## UNIVERSITY SERVICES

### Teaching assistant

Assisted in grading assignments (KU): *Basics of mechanics* (Fall, 2020), *Finite Element Method* (Spring, 2025).

Facilitated students understanding assignments during lectures (HCMUT): *Applied Fluid Mechanics* (Spring, 2018).

### Research assistant

Co-supervised two junior students on their capstone projects during Spring & Fall, 2018 (HCMUT).

*Aerodynamic analyses of a hybrid design UAV in forward flight using OpenFOAM.*

*Numerical simulation of a tricopter in a forward flight using virtual blade element theory with OpenFOAM.*

Outcome: Two co-authored conference papers (2019 & 2023), and two peer-reviewed journal publications (2020 & 2024).

## TECHNICAL SKILLS

Computational Fluid Dynamics & Simulation Tools (ANSYS-Fluent, OpenFOAM, C++).

Image Processing & Visualization (MATLAB, Digitalizing Tool - DLTdv, Pixel-based Locomotion Analysis, Photoshop).

Geometric Design & CAD Tools (SolidWorks, AutoCAD).

Fabrication & Tools (CNC, 3D Printer, Silicone Molding).

Web Development (HTML, CSS).

## JOURNAL PUBLICATIONS

1. Le, T.H.H., **Nguyen, K.**, Vuong, T.H.N., **2024**, [Numerical analysis for aerodynamic characteristics of the unmanned aerial vehicle \(UAV\) in forward flight](#). *Journal of Aeronautics, Astronautics and Aviation*, 56. 6s, 1081-1097, 2024. (The second author is the main contributor)
2. **Nguyen, K.**, Ha, G.H., Kang, T.S., Park, H.C., **2024**, [Dynamic flight stability characteristics of a hovering insect-like flapping-wing robot on Mars](#). *Aerospace Science and Technology*, 152, 109371.
3. **Nguyen, K.**, Park, H.C., **2023**, [Feasibility study on mimicking the tail-beating supported gliding flight of flying fish](#). *Ocean Engineering*, 287, 115745.
4. Pham, T.H., **Nguyen, K.**, Park, H.C., **2023**, [A robotic fish capable of fast underwater swimming and water leaping with high Froude number](#). *Ocean Engineering*, 268, 113512.
5. **Nguyen, K.**, Au, L.T.K., Phan, H.V., Park, H.C., **2021**, [Comparative dynamic flight stability of insect-inspired flapping-wing micro air vehicles in hover: Longitudinal and lateral motions](#). *Aerospace Science and Technology*, 119, 107085
6. **Nguyen, K.**, Au, L.T.K., Phan, H.V., Park, S.H., Park, H.C., **2021**, [Effects of wing kinematics, corrugation, and clap-and-fling on aerodynamic efficiency of a hovering insect-inspired flapping-wing micro air vehicle](#). *Aerospace Science and Technology*, 118, 106990
7. Tran, D.K.K., **Nguyen, K.**, Le, T.H.H., Nguyen, N.H., **2020**, [Numerical simulation for the forward flight of the tri-copter using virtual blade model](#). *Journal of Advanced Research in Fluid Mechanics and Thermal Sciences*, 67, 1, 1-32

## CONFERENCE PAPERS

1. **Nguyen, K.**, Ha, G.H., Park, H.C., [Design and fabrication of high-thrust tail-beating mechanism for fish-inspired swimming robot](#), Int'l Conf. of Intelligent Unmanned System (ICIUS), Bandung, *Indonesia*, Aug. 20-24, 2024. **(Presenter)**
2. **Nguyen, K.**, Park, H.C., [Analytical and experimental performance verifications of a fast-swimming robotic fish](#), Int'l Conf. of Intelligent Unmanned System (ICIUS), Bandung, *Indonesia*, Aug. 20-24, 2024. **(Presenter)**
3. **Nguyen, K.**, Kang, T.S., Park, H.C., [Hovering characteristics of an insect-like flapping-wing robot on Mars](#), Proceedings of Korean Society for Aeronautical and Space Sciences (KSAS), *Korea*, Nov. 16, 2023. **(Presenter)**
4. **Nguyen, K.**, Ha, G.H., Park, H.C., [Preliminary design of a fish-like fast robot by scaling of the KUFish](#), Int'l Conf. of Intelligent Unmanned System (ICIUS), Adelaide, *Australia*, July 5-7, 2023.
5. **Nguyen, K.**, Park, H.C., [Roles of hydrodynamic forces generated by tail-beating motion in gliding flight of flying-fish-mimicking robot](#), Int'l Conf. of Intelligent Unmanned System (ICIUS), Adelaide, *Australia*, July 5-7, 2023. **(Presenter)**
6. Ha, G.H., **Nguyen, K.**, Park, H.C., [Thrust generation by flapping-wings under the low-air density condition](#), Int'l Conf. of Intelligent Unmanned System (ICIUS), Adelaide, *Australia*, July 5-7, 2023.
7. Le, T.H.H., **Nguyen, K.**, Tran, M.H., [Numerical analysis for aerodynamic characteristics of the unmanned aerial vehicle \(UAV\) in forward flight](#), Southeast Asia Workshop on Aerospace Engineering (SAWAE), *Thailand*, 2023.
8. **Nguyen, K.**, Pham, T.H., Park, H.C., [Numerical investigation of hydrodynamics for a fish-like robot under undulatory forward swimming](#), Proceedings of the Korean Society of Mechanical Engineers Annual Meeting, Jeju, *Korea*, 2022. **(Presenter)**
9. Ha, G.H., **Nguyen, K.**, Park, H.C., [Prediction of flapping wing characteristics in ultra-low air-density condition using a dynamic model](#), Int'l Conf. of Intelligent Unmanned System (ICIUS), Tokushima, *Japan*, Aug. 9-12, 2022.
10. Pham, T.H., **Nguyen, K.**, Park, H.C., [Leaping out of water of the KUFish: Prediction and demonstration](#), ICIUS, Tokushima, *Japan*, Aug. 9-12, 2022. (Selected best paper award)
11. **Nguyen, K.**, Pham, T.H., Park, H.C., [Numerical estimation of hydrodynamic thrust using the measured tail-beating kinematics of a fish-like robot](#), ICIUS, Tokushima, *Japan*, Aug. 9-12, 2022. **(Presenter)**
12. **Nguyen, K.**, Au, L.T.K., Phan, Hoang Vu and Park, H.C., [Wing kinematics modulation in an insect-like tailless flapping wing micro air vehicle \(FW-MAV\) for higher aerodynamic efficiency](#), ICIUS, *Vietnam*, Aug. 25-27, 2021. **(Presenter)**
13. Dao, T.T., **Nguyen, K.**, and Park, H.C., [CFD and FSI-based parametric study on tail fin for high-speed underwater locomotion](#), ICIUS, *Vietnam*, Aug. 25-27, 2021.
14. **Nguyen, K.**, Au, L.T.K., and Park, H.C., [Three-dimensional wing kinematics for improved aerodynamic performance of insect-like flapping-wing micro air vehicle](#), KSAS, *Korea*, 2020. **(Presenter)**
15. Au, L.T.K., **Nguyen, K.**, Park, H.C., [Effect of wing corrugation on aerodynamic performance in 3D flapping wings](#), Proceedings of Korean Society for Aeronautical and Space Sciences (KSAS), *Korea*, 2019. **(Presenter)**
16. Tran, D.K.K., **Nguyen, K.**, Le, T.H.H., [Numerical simulation for the forward flight of the tri-copter using Virtual Blade Model](#), Southeast Asia workshop on Aerospace Engineering (SAWAE), *Malaysia*, 2019.
17. **Nguyen, K.**, Nguyen, N.H., Le, T.H.H., [Numerical approach for the vertical take-off and landing UAVs using the virtual blade model](#), Southeast Asia workshop on Aerospace Engineering (SAWAE), *Thailand*, 2018. **(Presenter)**