

EDUCATION

Doctor of Philosophy in Aerospace Engineering

Expected Aug 2028

Chosun University, Gwangju, Republic of Korea

Advisor: Assoc. Prof. Sunghun Jung, Department of Aerospace Engineering, Chosun University

Thesis: Intelligent Swarm Coordination for Next-Generation Autonomous Aerial Robotics

Master of Science in Space Engineering

Mar 2022 – Mar 2025

Addis Ababa Science and Technology University, Ethiopia

Thesis: Deep Learning-Based Maximum Power Point Tracking for CubeSat Electrical Power Systems

Master of Science in Mechatronics Engineering, Coursework

Sep 2021 – Jan 2022

Addis Ababa Science and Technology University, Ethiopia

Bachelor of Technology in Weapons Systems Engineering

Sep 2014 – Jul 2019

Defence University, Ethiopia

RESEARCH INTEREST

- **Autonomous Aerial Robotics and Multi-UAV Systems:** Swarm intelligence and coordination for autonomous drone systems, including experimental validation on the Crazyflie 2.1 platform combining high-fidelity simulation with real-world flight experiments
- **Autonomous Navigation and Motion Planning:** Deep reinforcement learning and Vision-Language-Action (VLA) models for path planning, collision avoidance, and embodied robotic navigation in GPS-denied and unknown environments
- **Distributed Multi-Agent Systems and Human-Swarm Interaction:** Distributed coordination, shared autonomy, and intelligent decision-making for next-generation aerospace applications
- **Simulation-to-Real Robot Learning:** Robotics simulation and sim-to-real transfer using ROS 2, Gazebo, Isaac Sim, Isaac Lab, and PX4

PROFESSIONAL EXPERIENCE

Ethiopian Air Force Academy, Ethiopia, Lecturer and Researcher Sep 2019 – Dec 2022

- Taught Thermodynamics, Fluid Mechanics, Dynamics, Robotics, Automatic Control, and Engineering Mathematics
- Supervised undergraduate research in mathematical modelling, optimization, simulation, and autonomous control systems
- Developed laboratory exercises using MATLAB, SolidWorks, and engineering simulation software
- Mentored student in computational modelling, programming, engineering analysis, and scientific research methodology

PUBLICATIONS (Journal, SCIE)

1. **A. Abagero**, Y. Abebe, A. Tullu, Y. S. Jung, and S. Jung, Deep Learning-Based MPPT Approach to Enhance CubeSat Power Generation, IEEE Access, vol. 13, pp. 40076–40089, 2025. DOI: 10.1109/ACCESS.2025.3546066
2. L. W. Michael, **A. Abagero**, A. Tullu, Y. M. Abebe, and S. Jung, Accelerated Airfoil Optimization via a Geometry-Based Discriminator Within Particle Swarm Optimization, IEEE Access, vol. 14, pp. 59022–59034, 2026. DOI: 10.1109/ACCESS.2026.3683048
3. G. Teklay, **A. Abagero**, M. Yitayih, W. Kim, C.-U. Hyun, A. Tullu, and S. Jung, System-Level Challenges and Technological Enablers of UAV Operations in Polar Regions: A Critical Review, Cold Regions Science and Technology (**Under Review**), 2026.

TECHNICAL SKILLS

- **Programming:** Python, MATLAB, C++
- **Space Systems:** CubeSat Systems, Orbital Mechanics, Mission Analysis, STK, GMAT
- **Artificial Intelligence:** Machine Learning, Deep Reinforcement Learning, PyTorch, TensorFlow
- **Simulation:** Isaac Sim, Isaac Lab, Gazebo, MATLAB/Simulink
- **Computational Methods:** Mathematical Modelling, Numerical Optimization, Computational Simulation, Performance Analysis
- **Robotics:** ROS 2, CrazySwarm2
- **Engineering Software:** CATIA, SolidWorks, ANSYS, Abaqus
- **Others:** Git, GitHub, Linux, Windows, LaTeX

REFEREES

- Dr. Sunghun Jung — Associate Professor, Departemeent of Aerospace Engineering, Chosun University, Republic of Korea Email: jungx148@gmail.com
- Dr. Abera Sh. Tullu — Assistant Professor, Korea Aerospace University, Republic of Korea Email: tuab@kau.ac.kr
- Dr. Yoseph Mokonnen Abebe — Assistant Professor, Addis Ababa Science and Technology University, Ethiopia Email: yoseph.mekonnen@aastu.edu.et

ACADEMIC PAPER REVIEWER

- Reviewer, IEEE Access
- Reviewer, Elsevier Journals (Robotics and Aerospace-related submissions)

LANGUAGE SKILLS

- Afaan Oromo (Native)
- Amharic (Native)
- English (Full Professional)
- Arabic (Limited Working)