MICHEALE HAILESLASSIE GEBREZGIHER

GoogleScholar: ◇ LinkedIn:
Phone: +82 10-7580-8833 ◇ Email: micheale512@jnu.ac.kr ◇ Location: Gwangju, South Korea

EDUCATION

Chonnam National University (CNU) *Mar 2022 – Feb 2026 (Expected)*
B.Sc. in Mechanical Engineering
Microdegrees: Convergence Mechanical Materials, Convergence Mechanical System Design
GPA: 4.18/4.5
Relevant Courses: Kinematics, Advanced Microrobotics, Robotics Engineering, Control Engineering, Machine Learning, Basic AI, C Programming, Dynamics, Calculus I&II, Engineering Mathematics I&II

Dongseo University *Feb 2021 – Dec 2021*
Korean Language Program (TOPIK Level 5)

San José State University, Winter School *Jan 2023*
Silicon Valley Innovation & Startup Program
Activities: Participated in innovation workshops, virtual startup visits, and team-based startup challenge projects.

RESEARCH INTERESTS

Human-Robot Interaction, Collaborative Robotics, Reinforcement Learning for Control, Mobile Manipulators, Robot Perception

RESEARCH EXPERIENCE

Autonomous Intelligent Robotics Lab, CNU Jun 2023 – Present
Undergraduate Research Assistant | Advisor: Prof. Ayoung Hong

- Developed a real-time color-marker-based 3D tracking system for DLOs using stereo vision.
- Designed and implemented PPO-based control policy for UR5e ball balancing while following reference trajectories; achieved successful sim-to-real transfer from PyBullet.
- Built a YOLOv8-based object detection pipeline integrated with nonlinear-compensated PID control for ball balancing on a 2D plate.
- Created a linear regression model for predicting reservoir water levels and a decision support system for floodgate control.
- Developed stereo vision tracking algorithms, data collection pipelines, and bi-LSTM model integration for MPC-based DLO manipulation.

PUBLICATIONS

1. J. Choi, **M. H. Gebrezgiher**, A. Hong, "Evaluation of a Data-Driven Model for Deformable Linear Objects Manipulated by Two Robot Manipulators," *ICCAS 2024*. (Co-author) (Link)
2. J. Choi, **M. H. Gebrezgiher**, A. Hong, 가변형 선형 객체의 동적 모델링을 위한 시계열 딥러닝 모델 성능 비교, 대한기계학회 춘추학술대회 2025. (Co-author) (Link)
3. **M. H. Gebrezgiher**, J. Choi, A. Hong, Stereo-camera를 이용한 가변형 선형 객체의 실시간 3차원 추정 방법, 제어로봇시스템학회 국내학술대회 2024. (First Author) (Link)
4. **M. H. Gebrezgiher**, J. Choi, A. Hong, "Experimental Comparison of Spline-Based Interpolation Methods for Marker-Based DLO Tracking," *KSME 2025*. (First Author) (Link)
5. **M. H. Gebrezgiher**, A. Hong, "Tracking DLOs under Occlusion Using Cubic Spline Interpolation and UKF," *IFAC Joint Mechatronics & Robotics Symposium 2025*. (First Author) (Link)

6. J. Choi, **M. H. Gebrezgiher**, A. Hong, "Time-series Data-driven 3D Shape Control of DLOs using a Dual-arm Robot," *IEEE RAL*, Under Review. (Co-author)
7. **M. H. Gebrezgiher**, J. Choi, "Reinforcement Learning-Based Real-Time Ball Balancing with a 6-DoF Robot," *ICCAS 2025*. (First Author, Accepted)

PROJECTS

Yakgwa Korean Cookie Classification (Completed) – Built ML model for quality classification of traditional Korean cookies (Yakgwa) using image datasets (96% accuracy, scikit-learn only).

Deepfake Image and Video Detection (Completed) – Developed CNN-based deepfake detector, achieving over 90% accuracy on UADFV and Celeb-DF datasets.

Humanoid Robot for 3D DLO Manipulation (Ongoing) – Control strategies for humanoid robot to manipulate deformable linear objects (DLOs) in 3D space while avoiding obstacles.

3D DLO Shape Manipulation under Occlusion (Ongoing, Target: ICRA 2026 – Austria) – Neural network + Unscented Kalman Filter (UKF) for real-time 3D shape control of DLOs under occluded visual conditions.

CONFERENCES

KSME 2025, Jeju, South Korea – Presented poster.
ICROS 2024, Daejeon, South Korea – Presented poster.
ICCAS 2024, Jeju, South Korea – Presented poster.
14th IFAC Joint Mechatronics & Robotics Symposium 2025, Paris, France – Delivered oral presentation.

AWARDS

ICROS 2024 Undergraduate Paper Award – Institute of Control, Robotics and Systems (Jul 2024)
SE Scholarship – Chonnam National University (Dec 2024)
Challenge Scholarship – Chonnam National University (Dec 2023)
Energy+ AI Scholarship – Chonnam National University (Dec 2023)
Entrepreneurship Award – San Jose State University (Jan 2023)
Global Korean Scholarship – National Institute for International Education (Feb 2021-Feb 2026)

SKILLS

Programming Languages: Python, C++, C, MATLAB
Machine Learning & Deep Learning Libraries: PyTorch, PyTorch3D, TensorFlow, Scikit-learn, Keras
Robotics Tools: ROS2, PyBullet, CoppeliaSim, URSim, YOLOv8
Data Visualization: Excel, Matplotlib
Other: Control Theory, SLAM, Computer Vision
Languages: English (Full professional proficiency), Korean (TOPIK 5), Amharic (Bilingual), Tigrinya (Native)

REFERENCES

Prof. Ayoung Hong
School of Mechanical Engineering
Chonnam National University, Gwangju, Korea
Email: ahong@jnu.ac.kr

Prof. Soonwook Hong
School of Mechanical Engineering
Chonnam National University, Gwangju, Korea
Email: shong@jnu.ac.kr