

Yohannes Tadesse Haile

RESEARCH ASSOCIATE • ROBOTICS ENGINEER

Kigali, Rwanda

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Education

CMU (Carnegie Mellon University Africa)

Kigali, Rwanda

M.Sc. IN ELECTRICAL AND COMPUTER ENGINEERING

Sep. 2022 - May. 2023

Course work: Cognitive Robotics, Introduction to Deep Learning, Applied Computer Vision, AI system Design

AASTU (Addis Ababa Science and Technology University)

Addis Ababa, Ethiopia

M.Sc. IN CONTROL AND INSTRUMENTATION ENGINEERING

Sep. 2019 - June. 2022

Course work: Non-linear Control, Optimal Control, Multi-Variable and Robust Control

Thesis: Object Grasp Detection using CNN

AASTU (Addis Ababa Science and Technology University)

Addis Ababa, Ethiopia

B.Sc. IN ELECTRO-MECHANICAL ENGINEERING

Sep. 2015 - Jan. 2021

Thesis: Design and Implementation of Prosthetic Design with EMG-Control

- Got a Fast-Track scholarship to pursue master degree 5+1 year among 1000+ students (5%)
- Graduated with Great Distinction

Skills

Robotics Framework and Libraries ROS, ROS2, OpenCV, PCL, Gazebo, MoveIt, PyTorch, TensorFlow, Keras

Software Engineering Tools Git, Docker, Linux, CI/CD

Programming C/C++, Python, Javascript, LaTeX

Work Experience

Carnegie Mellon University Africa

Kigali, Rwanda

RESEARCH ASSOCIATE (CULTURALLY SENSITIVE SOCIAL ROBOTICS FOR AFRICA (CSSR4AFRICA)) [PROJECT LINK](#)

May 2023 - Present

- Conducted extensive studies on the limitations of the Pepper Humanoid Robot by developing and executing tests for its actuators and sensors.
- Designed and implemented a custom ROS/ROS2 driver for the Pepper Robot to enhance its functionality.
- Upgraded the Pepper Robot by integrating advanced hardware, including an NVIDIA Jetson, Intel Real-sense Camera, and YDLIDAR 2 for improved perception and navigation capabilities.
- Developed advanced sound detection and localization algorithms utilizing GCC-PHAT for precise auditory processing, leveraging inter-aural time differences to enhance directional accuracy.
- Created a robust face detection and mutual gaze detection system to facilitate human-robot interaction through natural and intuitive communication.

TEACHING ASSISTANT (ROBOTICS PRINCIPLE AND PRACTICE (PROF DAVID VERNON)) [COURSE LINK](#)

Sep 2024 - Present

- Assisted with course grading, including evaluating assignments, tests, and projects related to robot navigation, object manipulation, and vision-based detection.
- Provided constructive feedback to students on their projects and supported their understanding of robotics concepts through engaging instructional activities.
- Supported students through one-on-one and group mentoring, troubleshooting software development challenges, and clarifying theoretical concepts.

Carnegie Mellon University Language Technologies Institute (LTI)

Pittsburgh, USA (Remote)

TEACHING ASSISTANT (CMU'S FLAGSHIP DEEP LEARNING COURSE 11-785 (PROF BHIKSHA RAJ)) [COURSE LINK](#)

May 2023 - Dec 2023

- Guiding over 400 students and mentoring multiple research projects.
- Covered foundational and advanced topics, including MLPs, CNNs, RNNs, Attention Mechanisms, Transformers, Graph Neural Networks (GNNs), and Hopfield Networks, with practical implementation in PyTorch.
- Conducted recitations on Hyperparameter Tuning Methods, Normalizations, and optimization techniques for improving model performance
- Organized and led hackathons and bootcamps for hands-on coding sessions, focusing on key deep learning components like Dataloaders, MLPs, CNNs, and Neural Networks with Attention.
- Delivered a dedicated recitation on Vision Transformers, including theory, applications, and implementation.

Publications

JOURNAL ARTICLES

Culturally Competent Social Robots Target Inclusion in Africa

Adedayo Akinade, Yohannes Haile, Natasha Mutangana, Conrad Tucker, David Vernon

Science Robotics 8.85 (2023) eadm7012. 2023

CONFERENCE PROCEEDINGS

Building a Robust Amharic ASR (Poster)

Yamlak Bogale, Yohannes Haile

Poster presented at NeurIPS, 2024, Vancouver, Canada