

Ahmed Yesuf Nurye

SYSTEMS ENGINEER @ NORTHVOLT

Gdansk, Poland

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Research Interest

With the growing presence of robots in human environments, ensuring safe and natural interaction is critical. My research will focus on developing generalizable frameworks for modeling and predicting human behavior in dynamic, everyday environments. I aim to address challenges in safe human-robot interaction, especially in scenarios where training data is limited. Additionally, I will investigate techniques like inverse reinforcement learning to improve robots' ability to anticipate human actions and respond to subtle behavioral cues.

Education

Warsaw University of Technology

M.Sc. IN ROBOTICS AND AUTOMATIC CONTROL | GPA: 4.81/5.0

Warsaw, Poland

Oct. 2022 - Oct. 2024

- Advisor: prof. dr hab.inż. Elżbieta Jarzębowska.
- Thesis: Mobile Robot Navigation in Dynamic Environments [PDF] [GitHub]

Addis Ababa Science and Technology University

B.Sc. IN ELECTRICAL ENGINEERING | GPA: 3.96/4.0

Addis Ababa, Ethiopia

Oct. 2016 - Sep. 2021

- Advisors: Biruk Tadesse and Mebaye Belete.
- B.Sc. Project: Smart Irrigation System Powered by Dual Axis Solar Tracker.

Professional Experience

Northvolt

SYSTEMS ENGINEER | MODEL-BASED DESIGN AND FUNCTION DEVELOPMENT

Gdansk, Poland

Apr. 2024 - Present

- Developing algorithms for battery management system (BMS).
- Created an automated code generation tool to streamline the integration of my team's work with the overall system.
- Generating production code and conducting unit and back-to-back testing for BMS functionalities.

New Era Research and Development Center

RESEARCH INTERN

Addis Ababa, Ethiopia

Apr. 2021 - Jun. 2021

- Developed and implemented path planning algorithms for wheeled mobile robots.
- Validated algorithm performance through simulation and testing.

Teaching

ADDIS ABABA SCIENCE AND TECHNOLOGY UNIVERSITY

2022 **Introduction to Control System (EEEG4155)**, Teaching and lab assistant

2021 **Electrical Measurement & Instrumentation (EEEG3153)**, Teaching assistant

Research Experience

Mobile Robot Navigation Using Deep Reinforcement Learning [PDF]

WARSAW UNIVERSITY OF TECHNOLOGY | M.Sc. THESIS | ADVISOR: PROF. ELŻBIETA JARZĘBOWSKA

Warsaw, Poland

Mar. 2024 - Oct. 2024

- Developed a deep reinforcement learning-based framework for mobile robot navigation in dynamic environments.
- Created a training environment interface between ROS & Gazebo that is adaptable to any mobile robot with minimal modifications.

Development of Kinematic Analysis Tool Using Absolute Coordinates [PDF]

WARSAW UNIVERSITY OF TECHNOLOGY | ADVISORS: PROF. JANUSZ FRĄCZEK & D.Sc. MAREK WOJTYRA

Warsaw, Poland

Oct. 2024 - Jan. 2024

- Developed a kinematic analysis tool using absolute coordinates for general-case planar multi-body systems.
- Validated the implementation against results from MSC Adams simulation software.

Six Degree of Freedom Serial Manipulator [PDF]

WARSAW UNIVERSITY OF TECHNOLOGY | ADVISOR: DR INŻ. PAWEŁ MACIĄG

Warsaw, Poland

Feb. 2022 - Jun. 2022

- Derived an analytical solution for the inverse kinematics of a six-degree-of-freedom robot arm, for real-time performance.
- Performed both task-space (using interpolation) and joint-space (LSPB and quintic polynomial) trajectory planning.
- Tested the implementation on hardware for a pick-and-place task.

Smart Irrigation System Powered by Dual-Axis Solar Tracker

Addis Ababa, Ethiopia

ADDIS ABABA SCIENCE AND TECHNOLOGY UNIVERSITY | ADVISORS: BIRUK TADESSE & MEBAYE BELETE

Jun. 2021 - Sep. 2021

- Derived the mathematical model of the system, analyzed performance, and designed a compensator.
- Designed and implemented a prototype for both the dual-axis solar tracker and the irrigation system it powers.

Skills

Programming	Python, C++, MATLAB/Simulink
Frameworks	ROS2, PyTorch, Gazebo, CoppeliaSim
Other Tools	Linux, Shell scripting(bash&sh), Git, \LaTeX
Languages	English, Amharic

Achievements & Volunteer Work

2024	Summa Cum Laude , Graduated with highest honor, M.Sc. in Robotics, Warsaw University of Technology	<i>Warsaw, Poland</i>
2024	Mr Tomaka's Scholarship , Warsaw University of Technology	<i>Warsaw, Poland</i>
2022	Banach Scholarship , NAWA - Polish National Agency for Academic Exchange	<i>Warsaw, Poland</i>
2021	Gold Medal , Graduated with very great distinction, B.Sc. in Electrical Engineering, AASTU.	<i>Addis Ababa, Ethiopia</i>
2019	Charity Affairs Committee , Served as core member of AASTU students union charity affairs committee	<i>Addis Ababa, Ethiopia</i>