Ahmed Yesuf **Nurye**

Gdansk, Poland

(+48) 664 425 567 | anurye.yesuf@gmail.com | anurye.github.io | anurye | anurye

Research Interest

With the growing presence of robots in human environments, ensuring safe and intuitive interactions becomes increasingly critical. My research focuses on developing models that require minimal user data to predict human behavior in dynamic, real-world environments. I aim to create frameworks that enable autonomous agents to respond proactively to subtle behavioral cues and adapt seamlessly across diverse scenarios, ensuring both safety and natural engagement in human-centered settings.

Education

Warsaw University of Technology
Warsaw, Poland

M.Sc. in Robotics and Automatic Control | GPA: 4.81/5.0 — *Oct. 2022 - Oct. 2024*

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

Addis Ababa Science and Technology University
Addis Ababa, Ethiopia

B.Sc. in Electrical Engineering | GPA: 3.96/4.0 — *Oct. 2016 - Sep. 2021*

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

Experience

Northvolt
Gdańsk, Poland

Systems Engineer | Model-Based Design and Function Development — *Apr. 2024 - Present*

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

Warsaw University of Technology
Warsaw, Poland

Graduate Research Assistant | M.Sc. Thesis — *Mar. 2024 - Oct. 2024*

- Applied deep reinforcement learning to improve robot navigation in dynamic environments.
- Gained $\sim 10\%$ performance improvement in navigation success rate compared to a baseline method.

Addis Ababa Science and Technology University
Addis Ababa, Ethiopia

Teaching Assistant — *Sep. 2021 - Jul. 2022*

- Assisted in teaching an undergraduate course on control systems.
- Held regular office hours, graded lab reports, and contributed to course material preparation.
- Provided support to students by clarifying concepts and guiding them through assignments.

New Era Research and Development Center
Addis Ababa, Ethiopia

Research Intern — *Apr. 2021 - Jun. 2021*

- Worked on the design and implementation of a differential-drive robot.
- Implemented path-planning algorithms for the robot.

Projects

Mobile Robot Navigation Using Deep Reinforcement Learning [🌐][]
Warsaw, Poland

Warsaw University of Technology | M.Sc. Thesis | Advisor: Prof. Elżbieta Jarzębowska — *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 and Gazebo, adaptable to any mobile robot with minimal modifications.

Development of Kinematic Analysis Tool Using Absolute Coordinates [🌐][]
Warsaw, Poland

Warsaw University of Technology | Advisors: Prof. Janusz Frączek & D.Sc. Marek Wojtyra — *Oct. 2024 - Jan. 2024*

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

Six Degree of Freedom Serial Manipulator [🌐][GitHub] *Warsaw, Poland*

Warsaw University of Technology | Advisor: Dr inż. Paweł Maciąg *Feb. 2022 - Jun. 2022*

- Worked on the design and implementation of a six-degree-of-freedom serial manipulator with a spherical wrist configuration.
- Derived an analytical solution to the inverse kinematics problem, eliminating the computational overhead of optimization-based methods.
- Enabled precise and time-sensitive trajectory planning in both task-space (interpolation) and joint-space (LSPB and quintic polynomial).

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 its performance, and designed a compensator.
- Designed and implemented prototypes 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

Awards and Volunteer Work

2024	**Summa Cum Laude [🏅],** Graduated with highest honors, M.Sc. in Robotics & Automatic Control.	*Warsaw, Poland*
2024	**Mr Tomaka's Scholarship,** Warsaw University of Technology.	*Warsaw, Poland*
2022	**Banach Scholarship,** NAWA - Polish National Agency for Academic Exchange.	*Warsaw, Poland*
2021	**Summa Cum Laude [🏅],** Graduated with highest honors, B.Sc. in Electrical Engineering.	*Addis Ababa, Ethiopia*
2019	**Charity Affairs Committee,** Served as coordinator of AASTU students union charity affairs committee.	*Addis Ababa, Ethiopia*