HTWK Robots RoboCup 2025 Qualification Document

HTWK Robots

HTWK Leipzig
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https://htwk.bot/

1 Team Information

Team Name	HTWK Robots
Team Leaders	Rico Tilgner
Team Contact Email Address	naohtwk@googlemail.com
Team Website URL	https://htwk.bot/
Country of Origin	Germany

1.1 University Affiliations of the Team

All team members are affiliated with HTWK Leipzig (Leipzig University of Applied Sciences).

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Karl-Liebknecht-Straße 132
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1.2 Team Members

- Rico Tilgner
- Thomas Reinhardt
- Stefan Seering
- Tobias Kalbitz
- Michael Wünsch
- Florian Mewes
- Tobias Jagla
- Marvin Jenkel
- Felix Loos
- Eric Behrendt
- Max Polter
- Lea Kunz
- David Schulte
- Max Liebing
- Johann Straube
- Lennard Peters
- Freijdis Jurkat
- Johannes Walter

1.3 Supervising Professors

- Oliver Crönertz
- Jens Wagner

2 Code Usage

Since 2021 we adopted the base image build process published by team Nao Devils.
We don't anticipate to use any code from other teams in 2025.

3 Own Contribution

We are reworking our team strategy and are developing an acoustic communication protocol to enable partial real-time collective reasoning. Working off of key perspectives from linguistics and harmony theory such as impoverishment (information encoding) and sequential co-articulation redundancy (message sequencing) we try to layer safe-guarding strategies against intra-protocol interference and general signal disruption. The overall goal is signal integration and dynamic world model building and targeted active and passive updating. We intended to use our acoustic communication protocol at RoboCup 2024, but were not able to use it in competition games as the development is still ongoing. We intend to continue development of our acoustic communication protocol and use it during competition games at RoboCup 2025.

We also started development on the topic dribbling and passing. We aim to replace our current dribble matrix which was designed based on manually selected positions and paths relative to the ball. The goal is to find a dribble matrix without the need of manually designing positions and paths relative to the ball. Based on improved dribbling, new dynamic passing behavior is being developed. We intent to use our new developments in dribble matrixes and passing behavior during competition games at RoboCup 2025.

4 Past History

Team HTWK Robots plans to compete in RoboCup 2025 and RoboCup German Open 2025.

All competition results of Team HTWK Robots from 2024 are already pulbished on the SPL website.

5 Impact

Team HTWK Robots is involved in several activities with the goal of connecting our university with local school graduates. Schoolchildren are invited to visit and get to know our robots. We support the Roberta initiative [1] for improved

MINT education. Exhibition matches are held at events like Lange Nacht der Computerspiele [2] and modell-hobby-spiel [3] to wake interest for RoboCup in young visitors.

6 Other

In the past, we competed under the name Nao-Team HTWK in RoboCup competitions.

References

1. https://www.roberta-home.de/
2. https://computerspielenacht.htwk-leipzig.de/computerspielenacht-start
3. https://www.instagram.com/reel/CjsEJCroUQM/?igshid=YmMyMTA2M2Y%3D