

# Kayden Knapik

Robotics Engineer



## About me

Hands-on TU/e Robotics student skilled in end-to-end robot development. Proven ability to design, build, and deploy reinforcement learning policies for complex robots using Isaac Sim & Lab.

## Contact

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## Skills

### Programming:

Python, C++, PyTorch

### Robotics & AI:

Isaac Sim, Isaac Lab, mjlabv, RL, ROS2

### Software & Tools:

CAD, Git, Linux, Blender

### Hardware:

3D Printing, Jetson, Raspberry Pi, Sensor Integration, QDD Actuators

## Honors & Awards

### Tech United Student Team:

2024 World Champion, RoboCup MSL Eindhoven

2023 World Champion, RoboCup MSL Bordeaux

### First Tech Challenge

2022 First Place, Island Robotics Tournament

2021 First Place, Island Robotics Tournament

## Languages

### English:

Native Proficiency

### Dutch:

Intermediate (B1)

## Interests

Walking Robots, Reinforcement Learning, Ice Hockey

## PROJECTS

2025

### Reinforcement Learning for Bipedal Locomotion

BACHELOR'S END PROJECT (BEP) · TU Eindhoven

- Built a bipedal robot using 3D printing and affordable hardware inspired by Disney's BDx robot.
- Developed a RL policy in Isaac Lab to achieve stable standing.
- Bridged the sim-to-real gap by deploying the trained standing policy on the physical robot.
- Awarded a 9/10
- **Technologies used:** Isaac Sim, Isaac Lab, Python, PyTorch, Reinforcement Learning, 3D Printing

2024

### Low-Cost MSL RoboCup Platform

CONTRIBUTION TO TECH UNITED · TU Eindhoven

- Designed and engineered an open-source, omni-wheeled robot platform for under €1000.
- Created to lower the barrier of entry for new teams into the RoboCup Middle Size League (MSL).
- Managed the full development cycle: from CAD design to assembly and programming.
- **Technologies used:** CAD, 3D Printing, Python, VESC, Raspberry Pi, Inverse Kinematics.

2023

### Smart Foldable Bicycle Helmet (HelMIT)

ENGINEERING DESIGN GROUP PROJECT · TU Eindhoven

- Engineered the 3D CAD model for a smart bike helmet, folds to 50% of its original size.
- 3D Printed & Assembled the design
- Led the design and integration of electronics
- Created product visualizations and animations in Blender for project presentations.
- **Technologies used:** CAD, 3D Printing, Blender, Microcontrollers.

## EDUCATION

2025-PRESENT

### Masters Mechanical Engineering - Robotics

TECHNICAL UNIVERSITY EINDHOVEN · Eindhoven, Netherlands

Projected Relevant Coursework: Control Engineering, Software Engineering for AI, System Theory for Control, Multibody and Non-Linear Dynamics, Robot Motion Planning & Control, Optimal Control & Reinforcement Learning, Mobile Robot Control, Machine Learning for Systems & Control

2022-2025

### Bachelor Mechanical Engineering

TECHNICAL UNIVERSITY EINDHOVEN · Eindhoven, Netherlands

Relevant Coursework: Dynamics & Control, Mechatronic Design, Multiped Robot, Autonomous Vehicles, Engineering Challenge for Venus, Robot-arm, Dynamics & Control of Robotic Systems

2020-2022

### International Baccalaureate

CAYMAN INTERNATIONAL SCHOOL · Cayman Islands

Higher Level Courses: Physics, Math, Geography

## EXPERIENCE

2025

### Social Media Manager

TU/E ROBOTICS DEPARTMENT · Eindhoven, Netherlands

Managing the official LinkedIn page, creating content to promote departmental research and student projects.

2021

### Robotics Intern

CYBERDYNE ROBOTICS, BROOKS REHAB · Florida, USA

Assisted therapists with the setup and operation of HAL exoskeletons for patient rehabilitation.

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