

# RoboCup Small Size League Lab

## The RoboCup

Small Size League (SSL) lab is aimed at students from computer science who are interested in autonomous systems, robot learning, and intelligent multi-agent collaboration. In this course, students will have the opportunity to apply theoretical knowledge from lectures in a hands-on environment, working in small teams to solve challenging robotics tasks. Under the scientific supervision of instructors, students will develop and implement their own ideas for learning-based solutions to real-time control and coordination problems.



## Course Format

The lab takes place during the Winter Semester 2025/26 and is organized as a project-based course. Early in the semester, students will focus on algorithm development using simulation. As the semester progresses, the developed software modules will be deployed and tested on physical RoboCup SSL robots, with the course ending in a final competition where teams showcase their autonomous systems.

## Goals

The main task covers areas such as multi-agent coordination, reinforcement learning, and real-time decision making. Through regular project meetings and presentations, students not only strengthen their technical knowledge, but also develop essential soft skills such as teamwork and presentation competence.

If you have any questions, feel free to contact us.

We're looking forward to an exciting semester with you!

## Quick Info

**Semester:**  
WS 2025/26

**Organizers:**  
Prof. Dr. Joschka Bödecker  
Lisa Graf  
Erfan Azad  
Raghu Rajan  
Shengchao Yan  
Daniel Jost  
Anna Rothenhäusler

**Tools:**  
Python, PyTorch

**Requirements:**

- The RL and DL lecture must have been visited before
- Programming skills
- Excitement about trying out new ideas in practice

**Language:**  
English