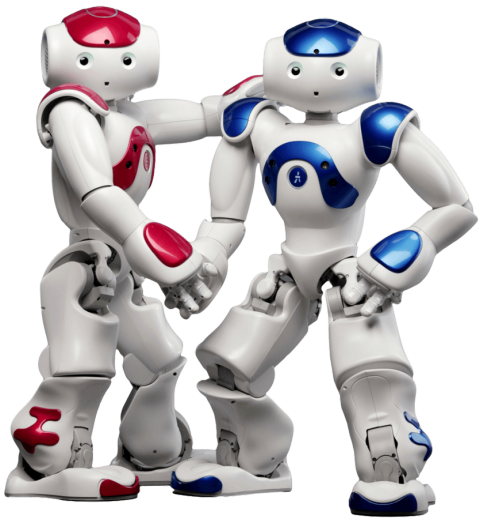
CENTER FOR
PROJECT-BASED
LEARNING

RoboCup In-Game Data Minimization Challenge

Introduction

RoboCup is an annual international robotics competition founded in 1996 to promote robotics and artificial intelligence research. The main focus of RoboCup is the soccer game between autonomous robots. Among the five different leagues, RoboCup Standard Platform League (SPL) is for standard humanoid robots called Nao from Softbank Robotics. Besides the main league, RoboCup SPL also hosts minor leagues called technical challenges. The objective of the technical challenges is to solve specific technical problems regarding the gameplay within the league.



This project aims to tackle the In-Game Data Minimization 2023 challenge. Your task consists in designing and developing a speech-based algorithm to maximize robots' interaction without relying on wireless communications. The main goal of this project is to develop a solution that simulates as much as possible the actual human-based interaction, for example, speech-based communications.

Expected Workload

- 10% Literature survey on data minimization techniques
- 50% Development of an alternative algorithm that does not rely on wireless communication
- 40% In-field testing of the human-based communication alternative
- 10% Report and documentation writing

Requirements / Knowledge in...

- Practical experience with Python and/or C++
- Knowledge of machine learning to train and recognize speech
- Basic knowledge of wireless communication algorithms
- Basic knowledge of git and GitHub, Unix Shell

Thesis Type

The workload will be discussed and adapted to Bachelor, Semester, and Master theses

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