

RIS components

This is a python project for RIS(reconfigurable intelligent surface) simulations.

related works

1. My first paper [Link to my paper](#):

X. Guo, Y. Chen and Y. Wang, "Learning-based Robust and Secure Transmission for Reconfigurable Intelligent Surface Aided Millimeter Wave UAV Communications," in IEEE Wireless Communications Letters, doi: 10.1109/LWC.2021.3081464.

2. DDPG structure

Refer to the following code on github:

- a. [tf-agent](#) this is the easiest way to use the official RL(reinforcement learning) api.
- b. open source RL api using tensorflow:

What this project aims ?

This project aims to redo the simulations shown in the paper below [Link to this paper](#):

Zhang, Zijian, et al. "Active RIS vs. Passive RIS: Which Will Prevail in 6G?." arXiv preprint arXiv:2103.15154 (2021).

Specifically, in this project we will simulate the active RIS. And to maximum the universality, this project will provide modular simulation tool for RIS-aided system.

File structure

./cite

The cited paper for this project

./learning

The code to initialize the agents

./learning/official

The official RL agents api ([tf-agent](#))

./learning/custom

The third party open source RL agent api

Others

coding platform: Win10 pro, anaconda3

nvidia driver: 466.47

cuda version: cuda_11.1.1_456.81_win10

cudnn version: cudnn-11.2-windows-x64-v8.1.1.33

tensorflow version: 2.5.0

python version: 3.8.10