

DECO3801 - The WaveScape

By Sticklen, Chia (Nigel) Yunhan, Luke Pierce, Yiqing (Samson) Zhang, Miles Gardiner, William Redmond

How to Run the Software

For your convenience, an AppLauncher.exe has been provided. This launcher is coded with the .NET framework, in which you may be prompted to install it. Afterwards, the app should run, otherwise attempt a manual (python) launch.

After starting the app, use Escape or the Bottom-Right button to open up the menu, and calibration the system.

Requirements

Run all of the following commands to install the requirements IN ORDER

```
python -m pip install opencv-python==4.8.0.76
python -m pip install pygame
python -m pip install pygame-ce --upgrade
python -m pip install -r https://raw.githubusercontent.com/ultralytics/ultralytics/main/requirements.txt
python -m pip install numpy numba scipy
python -m pip install pyserial
```

In order for all functionality, you must

- Have a working webcam
- Have the original board developed with the app (Board Error might occur otherwise)
- Have a suitable surface to project on, and a suitable mount for both projector and camera
- You may require a camera setting app, such as Logitech Camera Settings to adjust settings for the camera to make the detection more compatible.

App Options

Flag	Description
-np	No plus is required to be placed on a checkbox for sound, but not ideal for arrangement.
-feed	Displays a semi-transparent view of what the model sees (non-toggleable). Applicable with -test
-test	Adds the test control, which allows for placement of objects, keys z for undo, b for button.
-nodark	Removes the black and white filter, which may work better for some environments.
-nocameraerror	Removes the status display for the camera error
-nomodelerror	Removes the status display for the model error
-noboarderror	Removes the status display for the board error

Issues that may occur

Cannot find serial.Serial

- Uninstall pyserial and serial, and reinstall pyserial on the correct python.

Cannot find 'assets/...'

- you must run app.py using the app folder as the current working directory.

Model error

- Ensure the correct model.pt exists in the assets folder.

Camera error

- Ensure the camera / board is connected properly.

Wrong camera

- Use the swap camera button in the menu (Escape / bottom-right button) to swap camera.

Board error

- Use the reconnect button in the menu (Escape / bottom-right button) to swap camera.