

COMP250 Artificial Intelligence

## **8: MicroRTS**

**MicroRTS**

# MicroRTS competition

- ▶ This should be your main focus (for COMP250) from now on
- ▶ Fork the repository at <https://github.com/falmouth-games-academy/comp250-bot> and follow the instructions
- ▶ Look at the example bots in the `microrts` project
  - ▶ Start with the “rush” bots in `ai.abstraction`
  - ▶ Move on to search-based AI:  
`ai.minimax.RTMiniMax.RTMiniMax,`  
`ai.mcts.naivemcts.NaiveMCTS, ...`
  - ▶ Use these samples as a basis to create your own AI

# Playing the game

The screenshot shows a game grid with various units and buildings. Annotations include:

- Player 0 units have a blue outline**: Points to a group of units in the top-left.
- Selected unit is highlighted in green**: Points to a green square with the number 2.
- Barracks**: train attack units
- Heavy**: high power but slow melee unit
- Light**: low power but fast melee unit. Heavy and Light units are very effective when micromanaged properly. Stay away from these units if you are not familiar with microRTS though.
- Ranged**: long range attack unit. Try to use this unit, as it is the most effective for human use.
- Bases**: accumulate resources and train workers
- Workers**: can harvest minerals and construct buildings
- Minerals**: harvest them with workers
- 998**: Resource count at the bottom left.
- Player 1 units have a red outline**: Points to a group of units in the bottom-right.
- Light**, **Heavy**, **Ranged**: Buttons at the bottom for unit selection.
- Select the unit to train/construct with mouse, or using the highlighted quick key.**: Instruction pointing to the unit type buttons.

- **Select** units by left-clicking on them
- **Move** units by right-clicking on a destination
- **Attack** enemies by right-clicking on them
- **Harvest** minerals by right-clicking on them
- **Train** units by selecting them at the bottom of the screen
- **Construct** buildings by selecting the type of building at the bottom, and then right-clicking on the destination

# MicroRTS

- ▶ **Workers** can harvest **minerals** and build **bases** and **barracks**
- ▶ **Bases** can train **workers**
- ▶ **Barracks** can train **attack units**
- ▶ **Attack units**: light, heavy, ranged (workers can also attack)

# MicroRTS bot

- ▶ `getAction` is called every game tick
- ▶ Assign **actions** to each of the player's units (including buildings)

# Example bots