

# STARCRAFT II

## AI WORKSHOP

# 2017

PRESENTED BY:



+



DeepMind

**Pysc2** Tips and Tricks to build  
a **SC2** mini-game RL environment

A horizontal white search bar with a thin grey border. On the right side, there is a small, colorful microphone icon, indicating voice search functionality.

Gema Parreño Piqueras



@SoyGema





**CSOYGEMA**

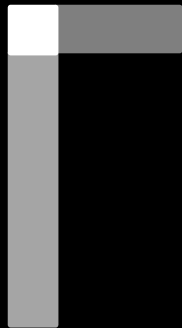
Reinforce Learning environment



Environments rock!



Mini games

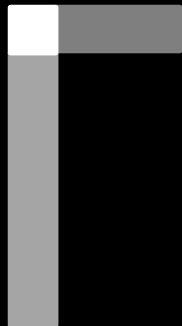


Description  
Initial State  
Rewards  
End Conditions  
Additional Notes

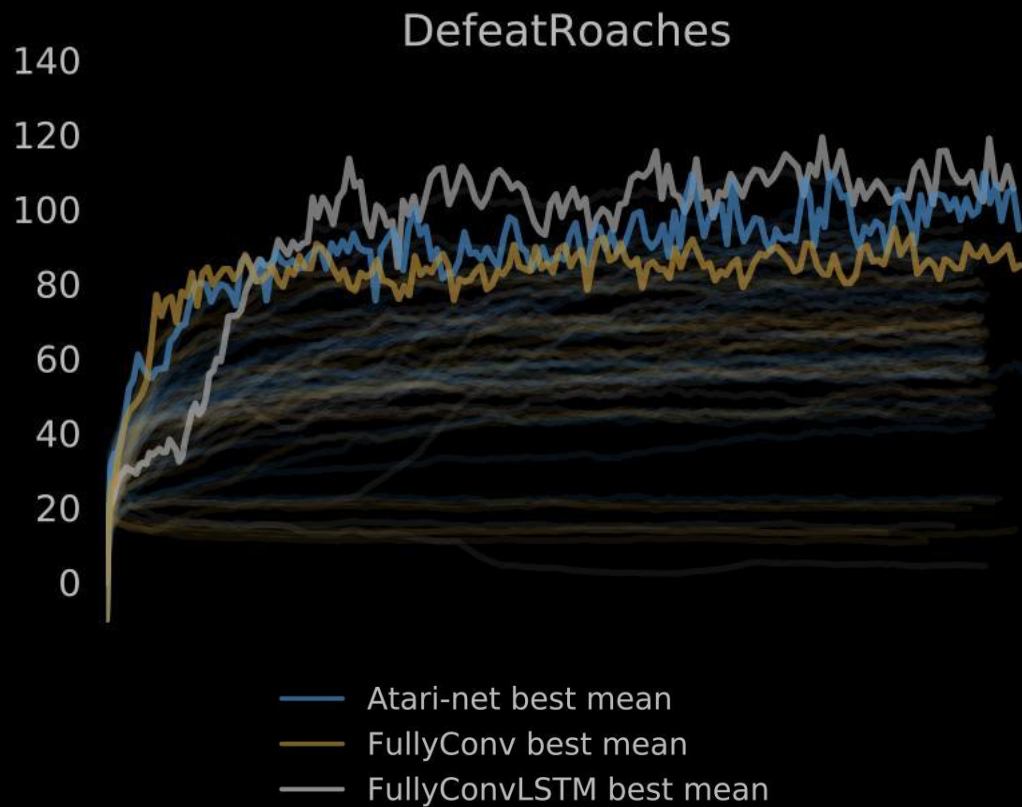
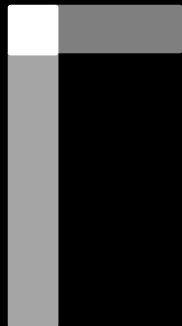


Random Agent



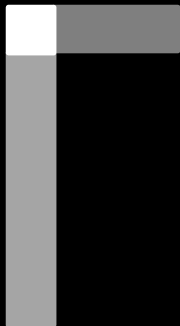


Scripted Agent





Sentry unit



## Hallucination



**Caster:** Sentry



100

**Range:** 0

**Duration:** 43 s



**Hotkey:** **C**

Creates hallucinations of Protoss units at the caster's location, that cannot use active abilities, cannot deal damage, and die more easily. Enemy detectors can reveal hallucinations

## Guardian Shield



**Caster:** Sentry



75

**Duration:** 11 s

**Radius:** 4

**Hotkey:** **G**

Creates a range 4 aura that reduces incoming ranged damage to friendly units by 2. Lasts 11 seconds.

## Force Field



**Caster:** Sentry



50

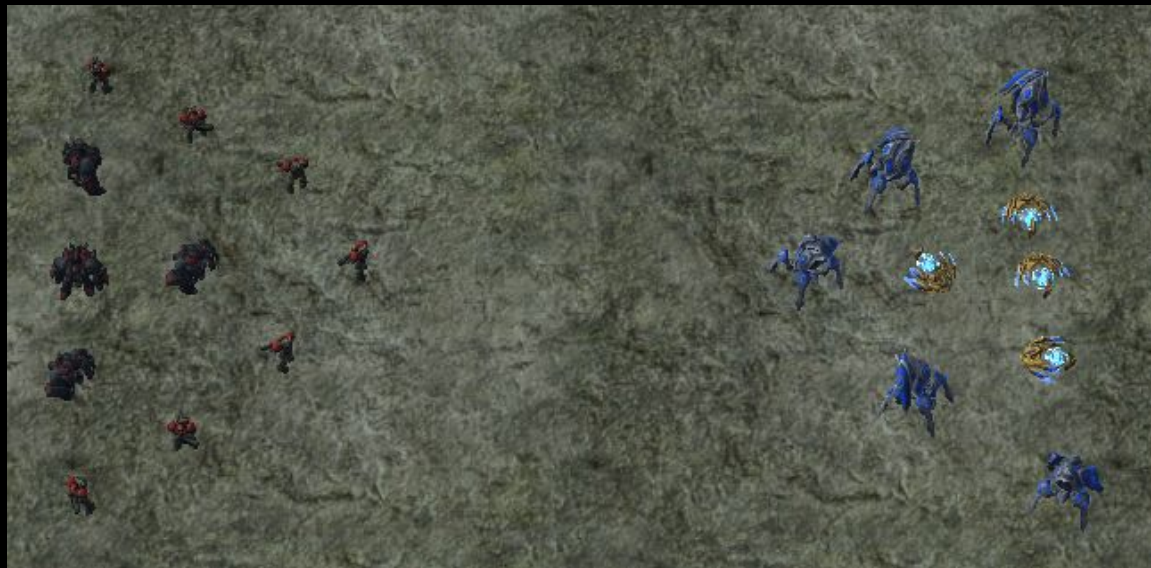
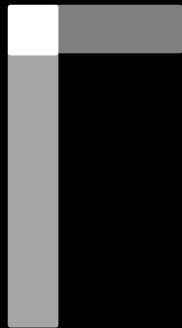
**Range:** 9

**Duration:** 11

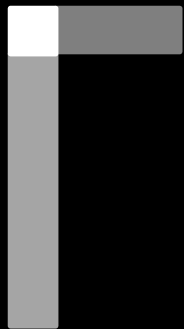
**Radius:** 1.7

**Hotkey:** **F**

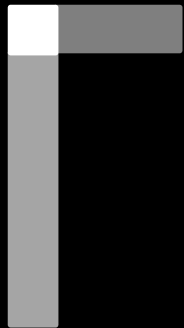
Barrier that lasts 11 seconds and impedes movement of ground units. Massive units will shatter Force Fields on contact. Hallucinated Massive units cannot shatter **Force Fields**.



1<sup>st</sup> Iteration



2<sup>nd</sup> Iteration

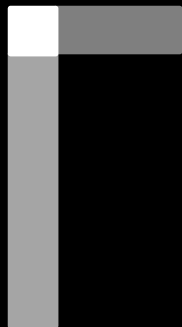


3<sup>th</sup> Iteration

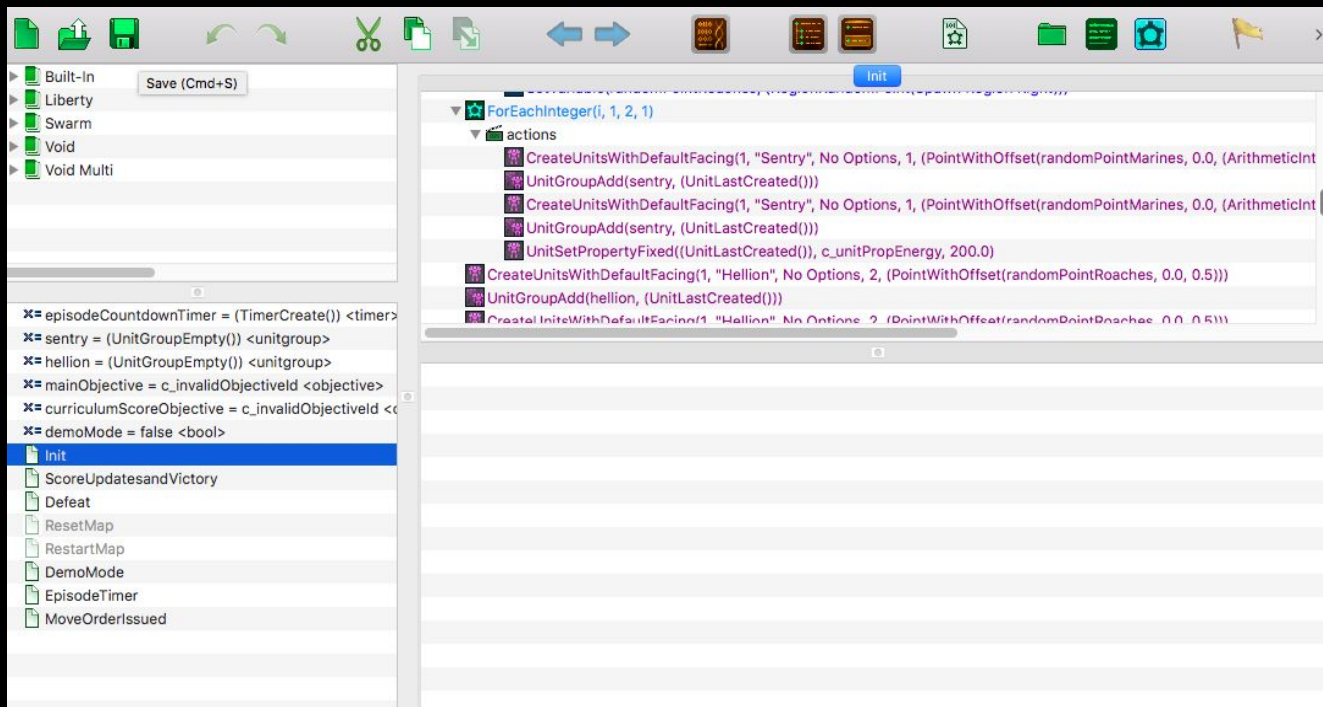
# StarCraft II Editor







Terrain



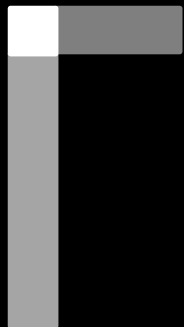
# Triggers

# Results





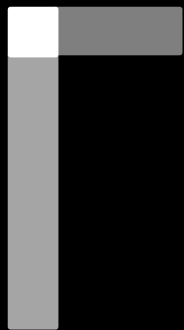
On random agent



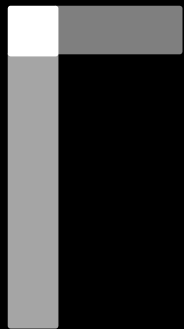
Tips and tricks

A decorative L-shaped bar composed of two segments. The vertical segment on the left is light gray with a small white square at the top. The horizontal segment at the bottom is dark gray, starting from the base of the vertical segment and extending to the right.

# Tips and tricks

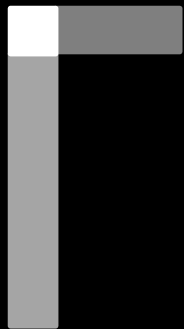


Design  
towards a  
**GOAL**

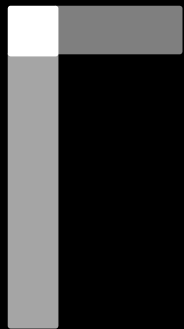


# References





# Triggers



# Test Agent

A decorative L-shaped bar composed of two segments: a vertical grey bar on the left and a horizontal grey bar at the bottom, both with a thin white top/bottom edge.

# Thanks!

Deep Reinforced Learning



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