CHI PLAY 2020

MarioMix: Creating Aligned Playstyles for Bots with Interactive Reinforcement Learning

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Introduction

Motivation

To bring Together Academic and Game Industry artificial intelligence (AI) trough human-computer interaction (HCI).

Academics aim to create automatic AI techniques for *general purposes*.

Game designers prefer *robust* techniques that perform in *particular games*.

HCI

What are we doing?

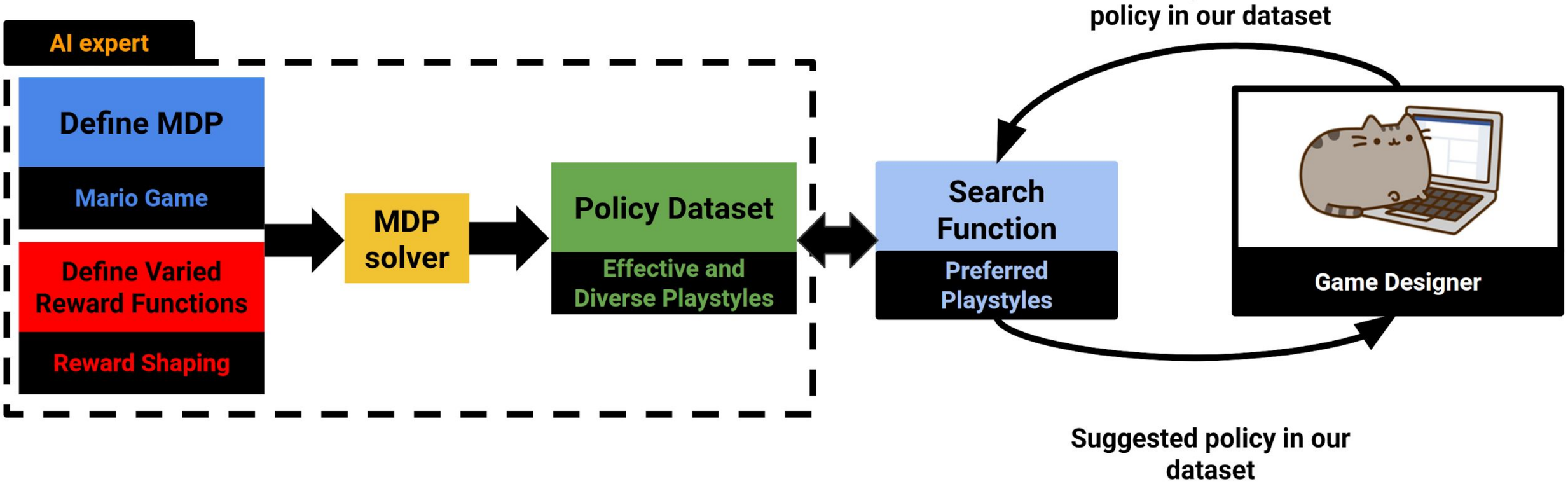
Creating interactive reinforcement learning (RL) usable in high-dimension environments since most interactive RL-based applications require up to millions of human feedback samples to get good results.

How are we doing it?

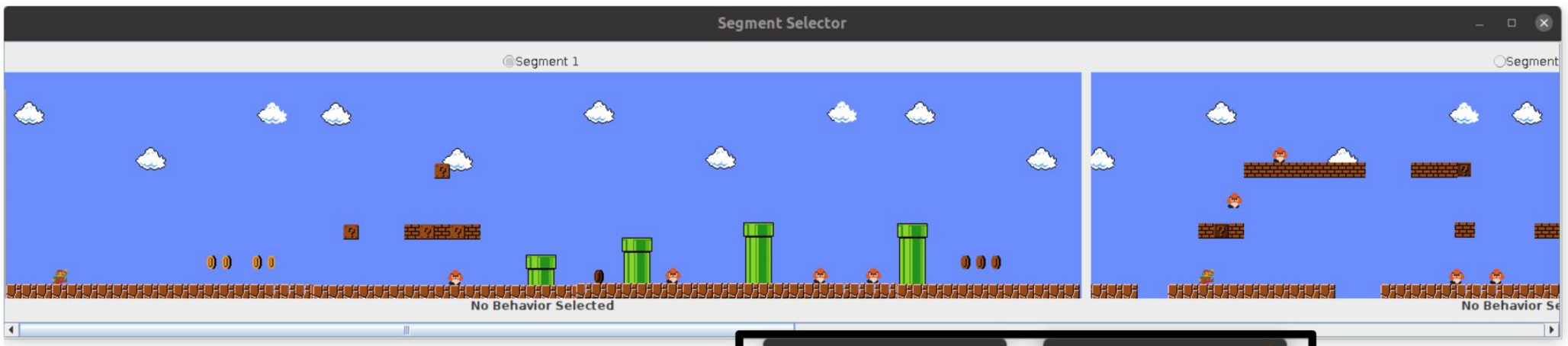
We are proposing a novel interaction procedure that consists of mixing pre-computed policies and a search method to find playstyles that fit the end-users' preferences.

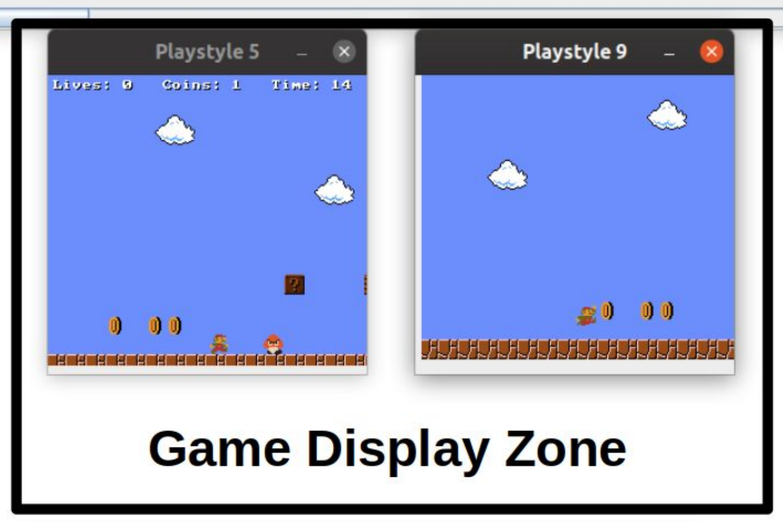
Our Approach

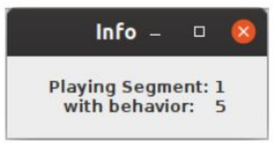
System

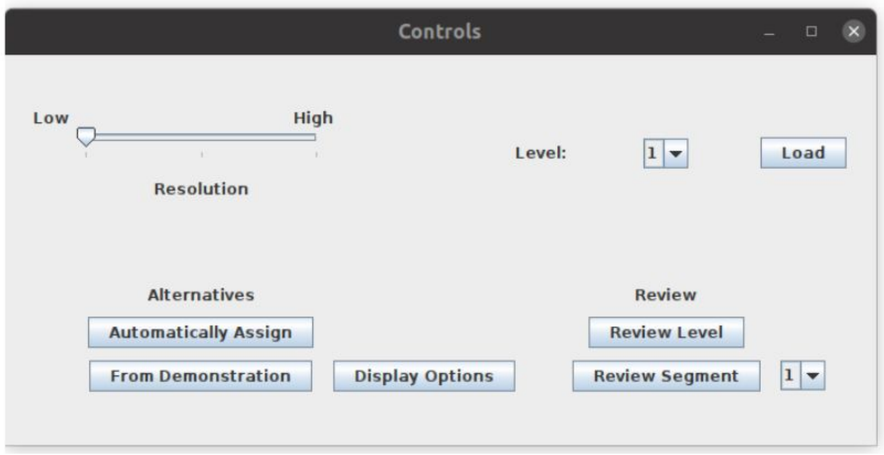


Interface









Results

The game designers that tested our system responded positively to the MarioMix interaction method of creating bot behavior. From the user study, we can conclude that the top-down method of our generic framework for tackling the agent alignment problem is effective; the participants consider that the behaviors they created for synthetic testers are close enough to their intentions to be useful in a real-world scenario. Nevertheless, they would like to be able to create more precise behaviors for certain events in the game.

MarioMix is available at:
arzate-christian.github.io/linklinklink

Related publication DOI:
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