Press any key to start..

CSCI 599:
Applied Machine Learning for Games

Team - BotAlmighty

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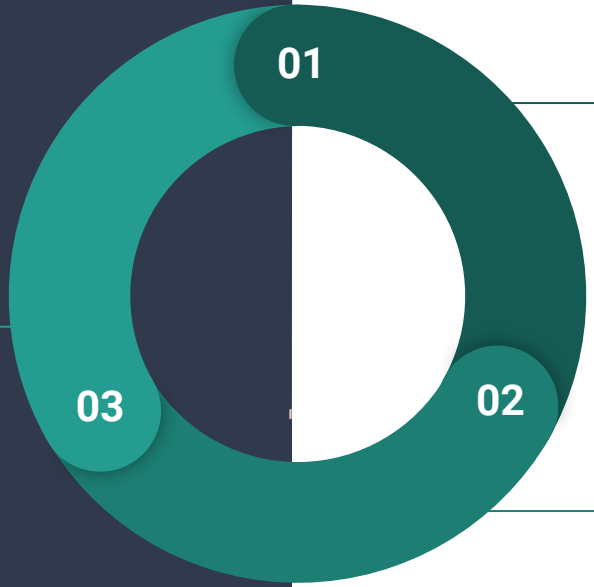
Overview



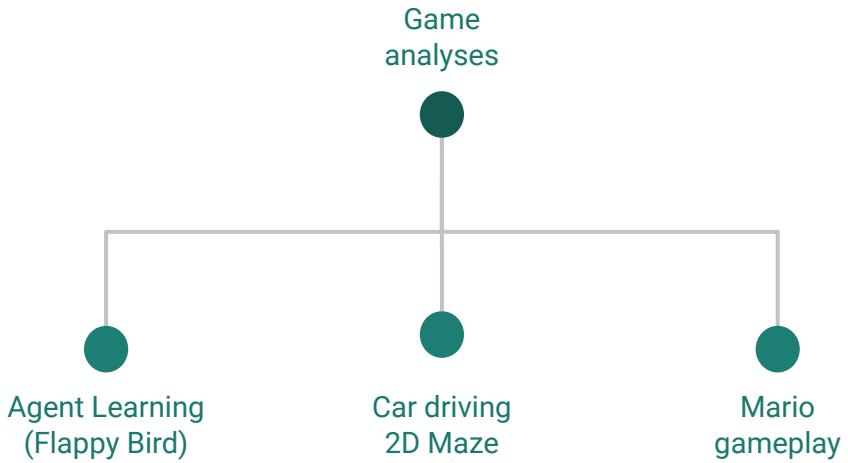
01 Car Driving 2D maze using Procedural Content Generation (PCG)

02 Mario Level Generation using Recurrent Neural Network (RNN)

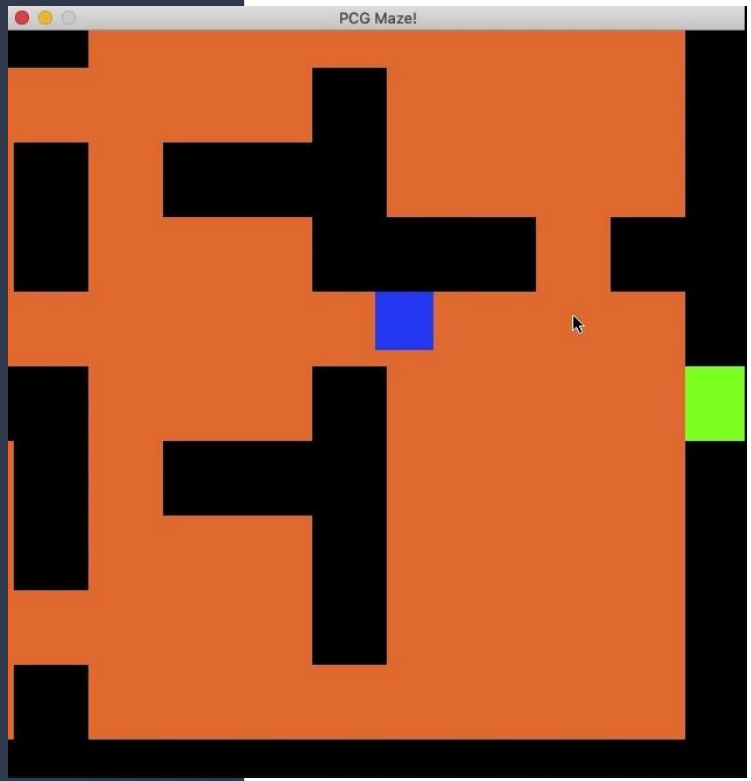
03 Flappy Bird Agent Demo using Reinforcement Learning

Work done so far

- Level generation using TorchRNN
- Testing levels using GANs
- Procedural Content Generation (PCG)
- Reinforcement Learning (RNN)
- Dynamic Difficulty Adjustment (DDA)



2D Maze Demo (PCG)



Mario Level Generation (RNN)

High Level Overview:

- Broken level(s) to text files
- Fed files to torch-rnn and created a model
- Asked model to generate a sample level

Torch-RNN

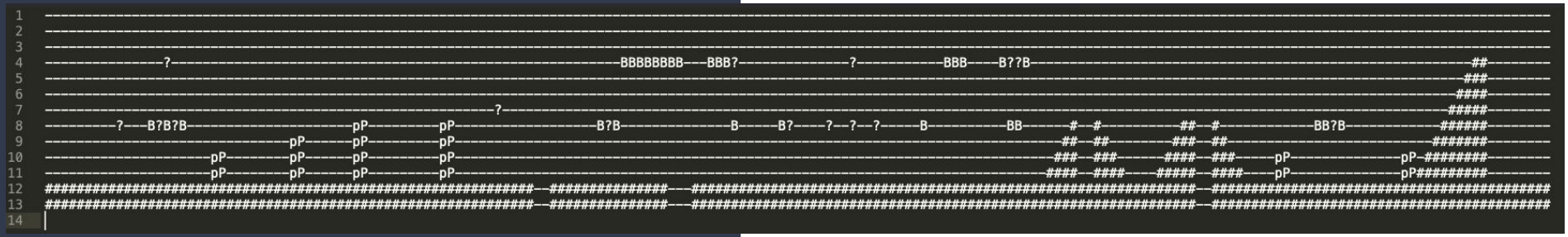
Efficient, reusable RNNs and LSTMs for torch

Advantages:

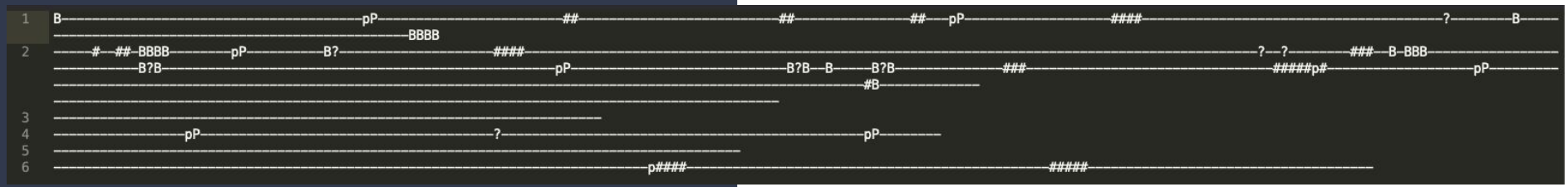
torch-rnn is up to 1.9x faster and uses up to 7x less memory as compared to other models

Mario Level Generation (RNN)

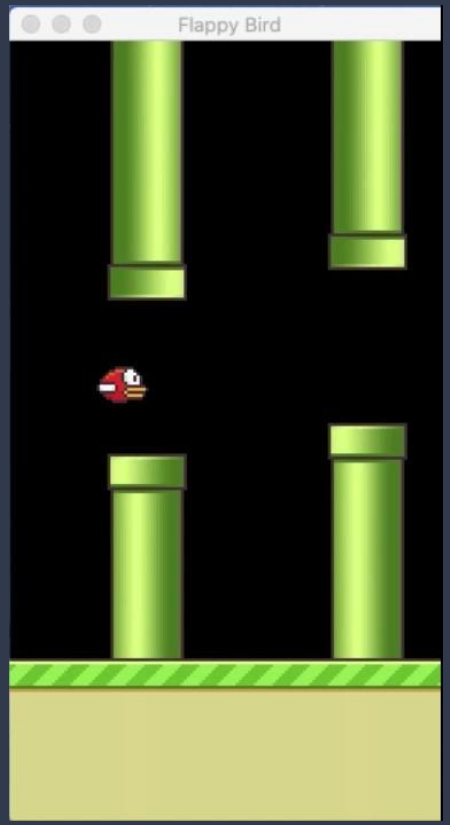
Input level(s)

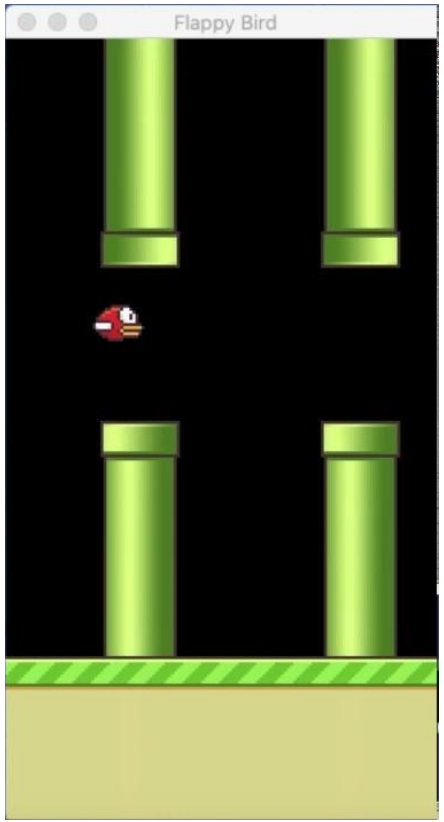


Output level from model

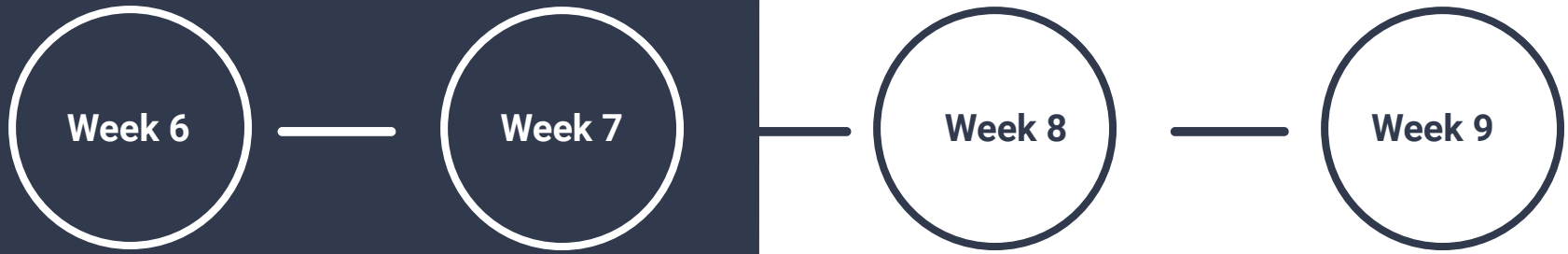


Flappy Bird Demo (Reinforcement Learning)





Aim for the future weeks



Convert Symbolic representation of sample level(s) into playable ones

Evaluate the levels by creating a bot to play it

Use video segments of player to map future levels for further efficiency

Evolving Level Based

- Agent Performance
- Static Features

Thank You