



Games AI

Lecture 1.0

Course introduction

- Course introduction
 - Content
 - Assessment

- Content
 - First 1/3: 80% of Games AI
 - Second 1/3: 20% of Games AI
 - Third 1/3: More techniques

- First 1/3: 80% of Games AI:
 - Finite State Machines
 - Utility-based AI
 - A* for Navigation
 - Behaviour Trees

- Second 1/3: 20% of Games AI:
 - PCG
 - Automatic Game Testing
 - Whole-game search
 - Planning

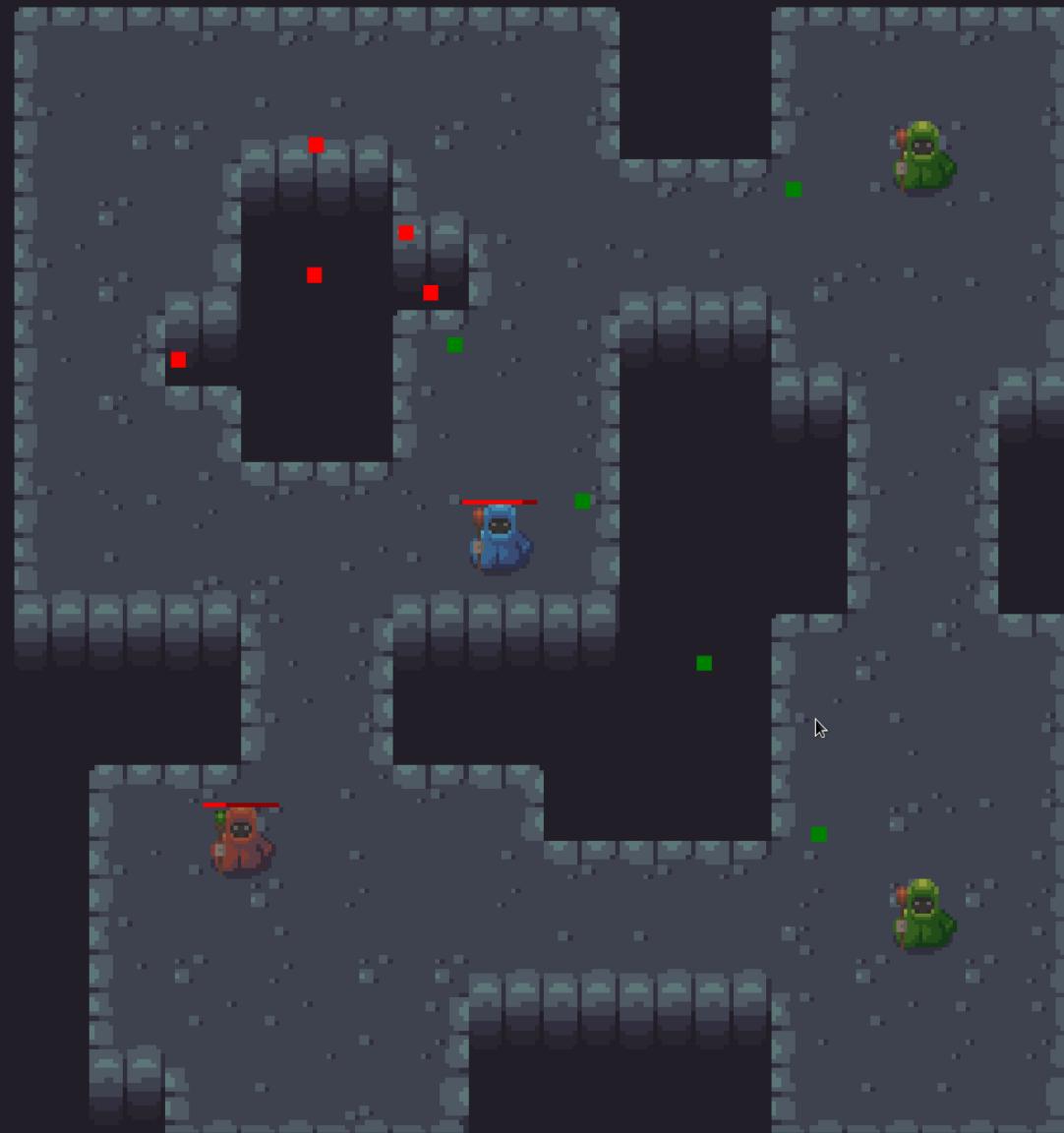
- Third 1/3: More techniques
 - Machine Learning
 - More A*?
 - More planning?
 - More PCG?

- Assessment
 - You are given a bare-bones game*
 - You each develop an AI System
 - You each submit:
 - Written report
 - Source code
 - Playable version

* You can use another game if you wish, but speak to me first

FPS: 60
Begin: 0.61
Draw: 1.80
Update: 0.29
(Steps: 0.99)

End: 0.00
Loop: 2.73
(Calculated FPS: 366)
(Rate (-/+): 100%)
(Game Speed ([/]): 100%)



FPS: 60

Begin: 0.61

Draw: 1.80

Update: 0.29

Assessment

(Steps: 0.99)

End: 0.00

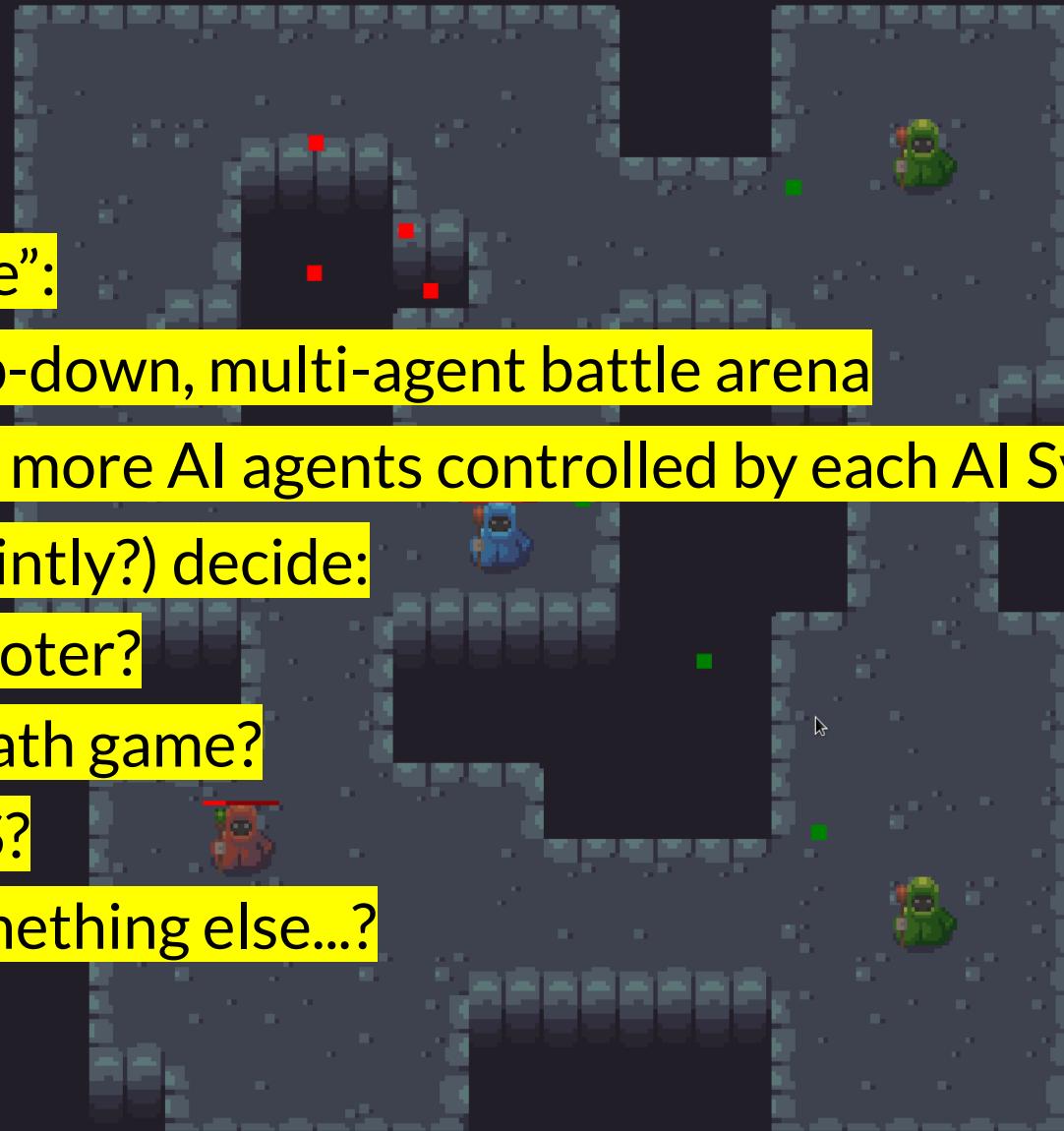
Loop: 2.73

(Calculated FPS: 366)

(Rate (-/+): 100%)

(Game Speed ([/]): 100%)

- “Fuseblade”:
 - 2D, top-down, multi-agent battle arena
 - One or more AI agents controlled by each AI System
 - You (jointly?) decide:
 - Shooter?
 - Stealth game?
 - RTS?
 - Something else...?



- Your AI System:
 - Support the game experience (i.e. not monetisation optimisation!)
 - You decide:
 - NPC AI?
 - Enemy AI?
 - Companion AI?
 - Something else...?

- Evaluation
 - Written report:
 - Describe
 - Justify
 - Evaluate
 - Demonstrates clear evidence of significant and complex artificial intelligence coding and development work
 - Shows that you understand of the techniques you used and the ones you didn't use (and why!)

- Save your code!
 - Use the lecture practicals to test out new techniques
 - Combine and reuse the code (appropriately!) for your assessment
- Don't write the whole thing after one lecture!
 - You'll need to combine multiple techniques
 - (or do something clever from the later parts of the course)
- Use the supplied game!
 - I will handle the non-AI coding for you (within reason!)
 - Using another game (or creating your own) may be a lot of work. Check with me first!

- Keep a design diary
 - You'll need to talk about the decisions you made during the development of your AI system

Coming up

- Coming up:
 - **What is Games AI?**
 - Get Fuseblade running
 - Break
 - **Finite State Machines**
 - What kind of game do you want to make?

