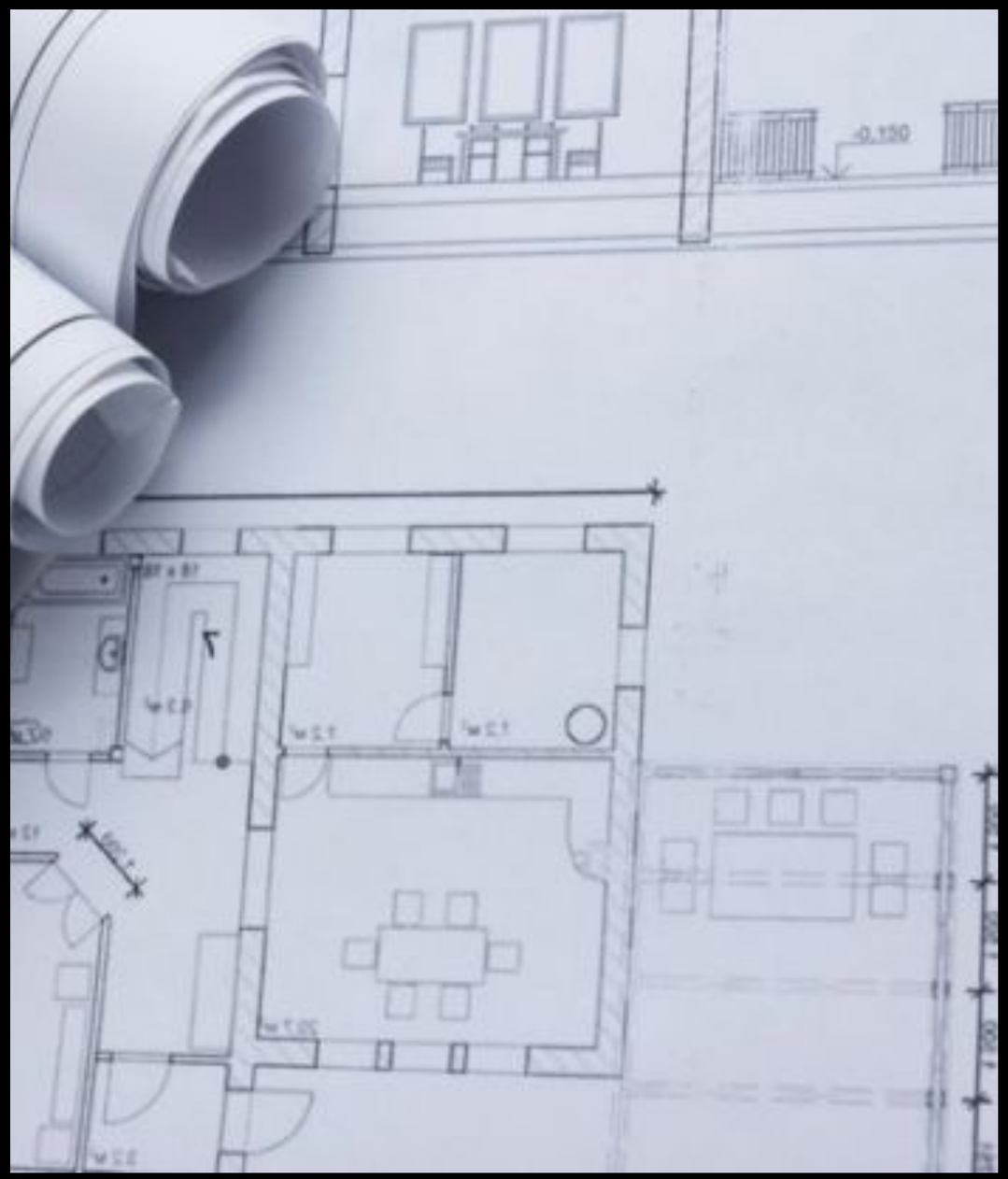
Simulating crowds

Alex Kautz

Architecture

- The design of buildings
- Want to create spaces that are comfortable, even for large groups of people
- Problem: We don't know how well a design will work until after we spend millions creating it



Crowd Simulation

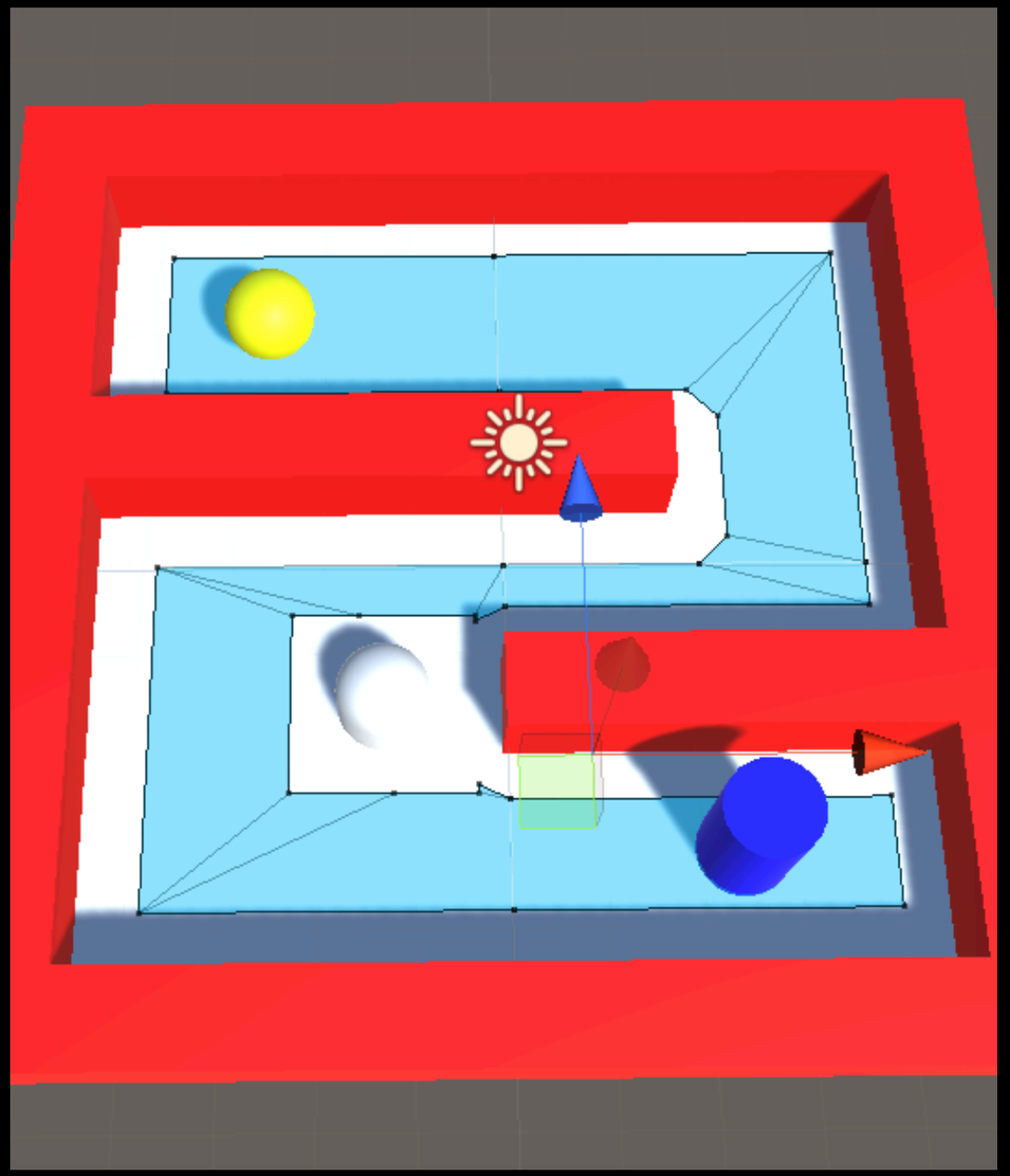
- Problem: We don't know how well a design will work until after we spend millions creating it
- Solution: Simulate how a crowd of people would interact in this space virtually.

Unity Game Engine

- Navigation Meshes
- Behavior trees

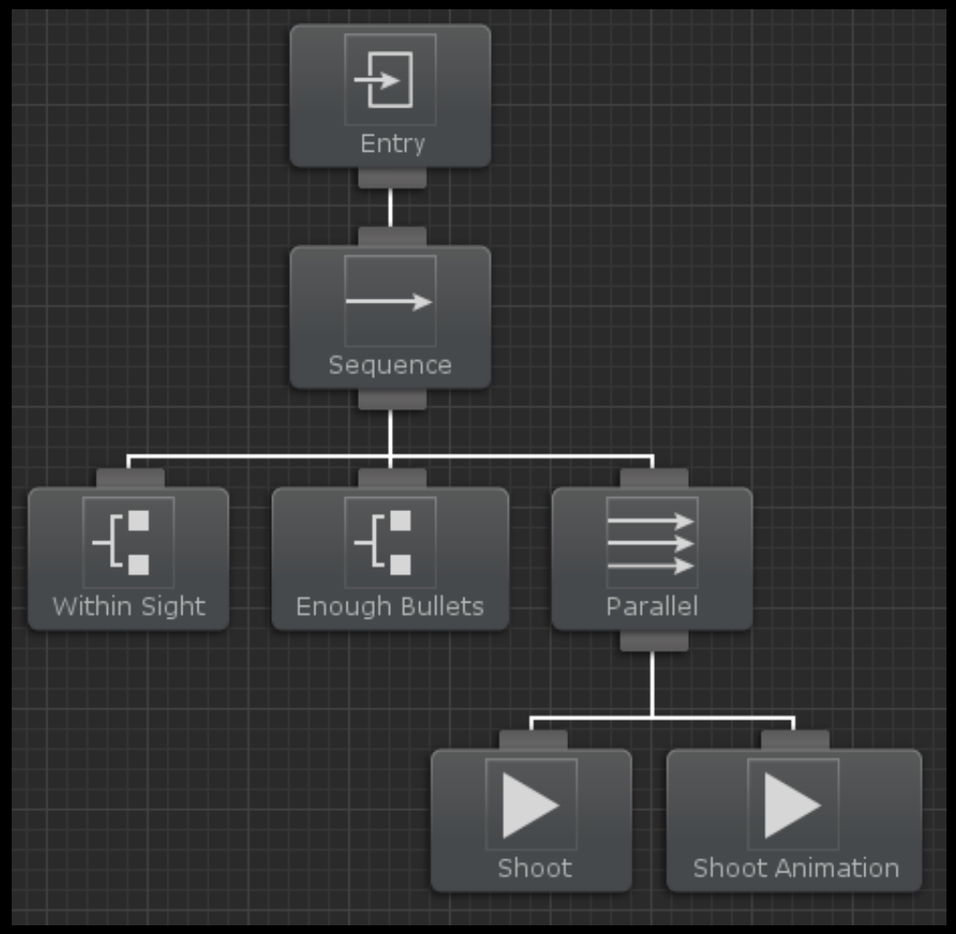
Navigation Meshes

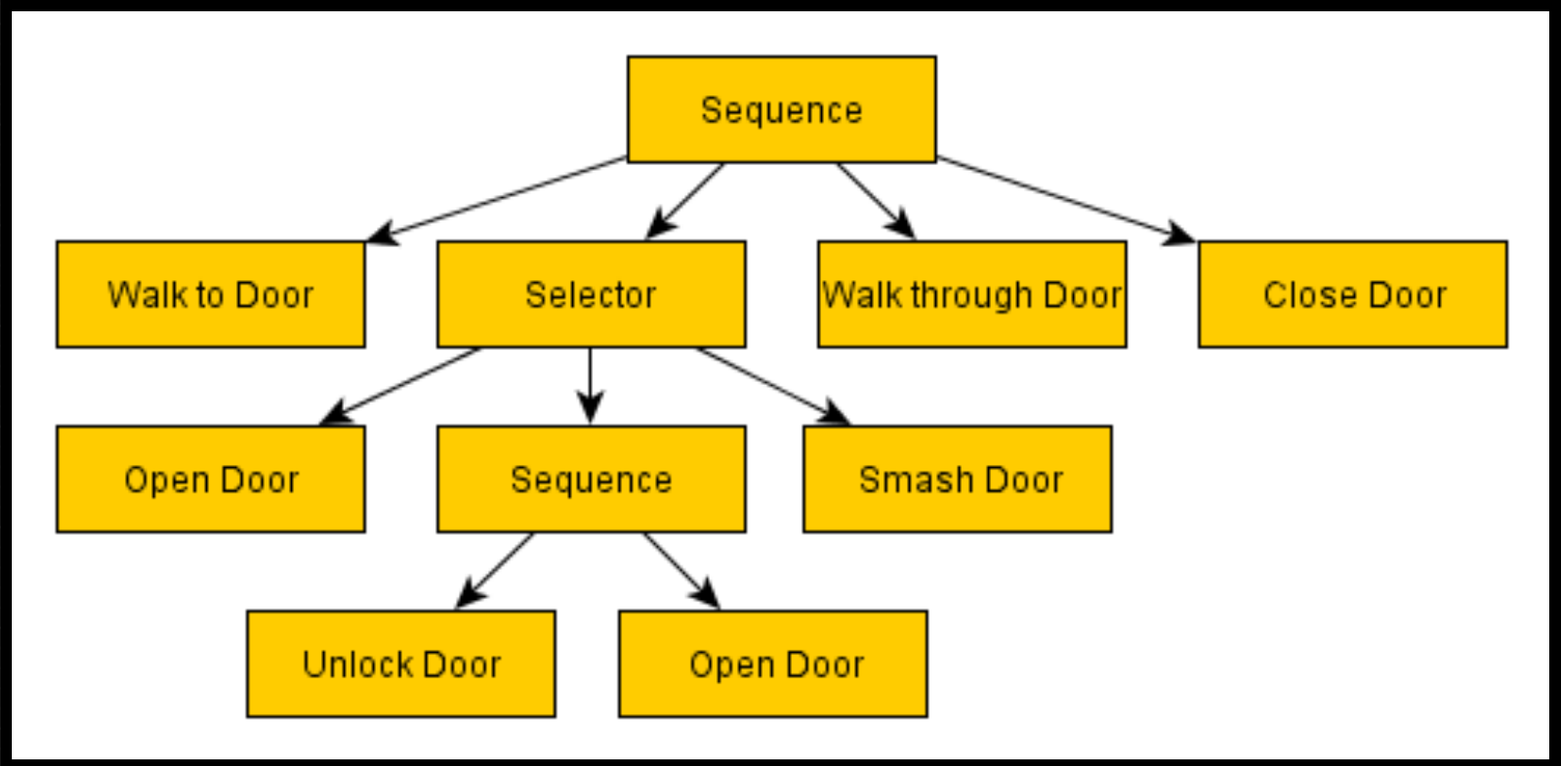
- Allow unity to find efficient paths in a complex space
- Unity handles all the routing, we just call “SetDestination”
- Each “person” becomes a NavMesh agent.



Behavior trees

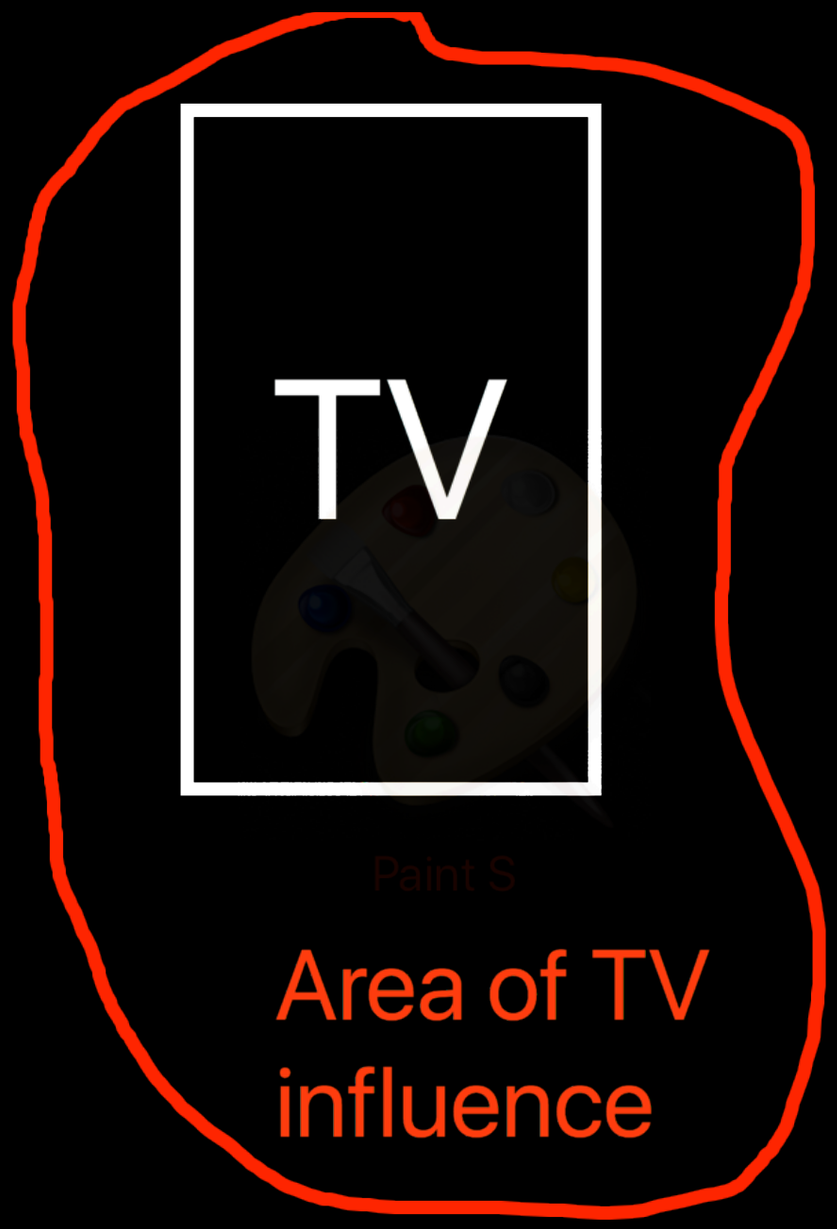
- Recursively define a behavior as a set of behaviors to be performed in some manner, or as a unitary action.
- Forms a Tree





Future techniques

- Area of influence
- Virtual reality simulation



In summary

- We will use unity 3-D to simulate how crowds react to different environments

- We will take into account not only the effect the space has on individuals, but the effect of different objects using influence areas

- We will use VR to obtain data to help design more accurate simulations

Thank you’s

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Sources

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