

## Milestone 2 Plan

### Overall Project Goals

- ~~Authored navmesh creation and implementation~~
- ~~Implement navigation through navmesh~~
  - ~~A\*~~
  - Funnel Algorithm
  - Steering algorithm
  - Greedy search
- ~~Navigation to navmesh from outside of it~~
- **Connect authored navmesh system to navigational system**
- **Static obstacle avoidance**
- **Dynamic obstacle avoidance**
- **Visualization**
- Procedural navmesh generation
  - Metal Mapping
  - Voronoi Tessellation
  - Quake III Arena Area Awareness System (AAS)
  - Recast and Detour
- Dynamic NPC behavior
  - Signals
  - Behavior states
- Ant colony optimization scavenging behavior
- Different cell conditions

### Milestone 2: Last two weeks

- Connect the maya navmesh model to the navigational system
  - On their own, the maya models and the navigational system are each working, I just need to debug the python / lua code connecting them to make truly authored navmesh creation
- Add static / dynamic obstacle avoidance
  - The navigational system has a very easy and quick way to mark a nav cell as 'blocked'. I just need to hook this up to some kind of dynamic collision system (probably reusing some code from my physics collider project), so that the navmesh will block and unblock cells as necessary.
- Visualization

- I'd like to add more debugging information and anything that can make the mechanics of the underlying system more apparent
  - Ideas are highlighting the start / destination cells, highlighting the next cell destination, showing how quickly A\* searches the graph, etc.
- More?
  - As evident by the overall goals timeline above, there's a lot of ideas I have for this project. Unfortunately, I'm under a massive time crunch between the end of the semester and a very early final from my other class.
  - If I finish the three goals mentioned here with time to spare, I'll start working on other features, starting with dynamic npc behavior and cell states
  - This is a project I'd like to continue working on in the future. With that in mind, Artem, what would you really like to see in somebody's navmesh demo? I think some of the ideas here are pretty cool, but I don't know exactly what would really stand out to a recruiter or an engineer looking it over.