



# Rethinking Game Architecture with Immutability

JACOB DUFAULT

SPONSER: DR. BERNHARD

# Milestone 4 Progress Summary

- ▶ New title! Pivot senior design to current successes
  - ▶ Change project from a game to an entity framework, where academically interesting development is occurring
- ▶ Update milestone goals for new project focus
- ▶ Continued to work on the entity framework
- ▶ Next slides contain more information

# New Milestone Goals

- ▶ Milestone 5
  - ▶ Create poster
  - ▶ Implement automatic synchronization error detection
    - ▶ Hash game state, compare hashes
    - ▶ Validate that data instances are being used correctly
  - ▶ Continue working on Unity integration
  - ▶ Create runtime bindings for XNA and MonoGame
    - ▶ Content creation bindings are only planned for Unity

# New Milestone Goals

- ▶ Milestone 6
  - ▶ Demo a simple game running in both XNA and Unity
  - ▶ Work on XNA bindings
    - ▶ Much simpler than the Unity bindings; no inspection bindings needed, only runtime
    - ▶ Full control of the game loop
  - ▶ Write user manual and documentation

# Continued work on Forge

- ▶ Begin work on a spatial module
  - ▶ Optimized spatial queries via a quadtree
  - ▶ Optimized monitoring of a region on the map
  - ▶ Provide locomotion, velocity based movement integration, etc
- ▶ Continue work on Unity integration
  - ▶ Pull it into a separate library
- ▶ Bug fixes



# Demo

- ▶ <https://github.com/jacobdufault/forge-sample/blob/master/README.md#running-in-unity>

# Questions?

Open source framework available at:

- ▶ [github.com/jacobdufault/forge](https://github.com/jacobdufault/forge)
- ▶ [github.com/jacobdufault/forge-unity](https://github.com/jacobdufault/forge-unity)
- ▶ [github.com/jacobdufault/forge-sample](https://github.com/jacobdufault/forge-sample)