CSYE 7270
Building Virtual Environments
Course Description

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This course examines how to program for virtual environments in Unity 3D. Introduces the different subsystems used to create 2D and 3D worlds, including rendering, animation, collision, physics, audio, trigger systems, shading, game logic, behavior trees, and simple artificial intelligence. Offers students an opportunity to learn the inner workings of game and graphics engines and how to use libraries such as physics and graphics libraries to develop virtual environments. Discusses graphics pipeline, scene graph, level design, behavior scripting, object-oriented game design, world editors, and scripting languages. Includes servers and mobile programming (Android and iPhone) will also be introduced.

- There will be weekly assignments creating small games or tools or virtual environments.
- There will be weekly in-class progress presentations.
- There will be a group project and an individual project.

The first half of the class will primarily involve the mechanics of programming for program for games and virtual environments in Unity 3D by building a series of small projects. Students will be given a simple skeleton and then expected to enhance/extend the skeleton for each assignment.

The second half of the class will primarily involve social/network gaming, virtual reality and augmented reality programming.