School of Computing, Clemson University
CpSc 481/681 – Sensor Enabled Game Development
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Course Description
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This course combines two strongly motivating topics of immediate industrial import: 3D game design and embedded sensor systems. The course targets junior- and senior-level undergraduate students and Digital Production Arts (DPA) students. Recruiting from two different academic programs creates a population with a unique combination of talents. Computer Science Students excel in software design, implementation and analysis tasks, while DPA students excel in thematic planning, model construction and scene rendering. The synergy of this combination has tremendous potential for creative development of an exciting and novel 3D computer game.

The curriculum for the course draws on a range of topics, requiring students to synthesize their knowledge, culminating in a significant project. There are three tracks through the curriculum. The first track is focused on using a game API to build a 3D game; this first track forms the core of the curriculum. The approach is "ground up," with accelerated coverage of development environment, language, and framework fundamentals. Content will include presentations about how to use the language vehicle chosen for the project, how to use the API, as well as topics important in game development.

The second track is devoted to basic embedded system design, with an emphasis on sensing and actuation. The goal is to guide students through the development of a wireless sensor-actuator extension to the Xbox 360 controller.

The third track is devoted to reinforcing independent research, discovery, and implementation. The course will exploit student presentations and in-class discussion on game control and development designs.

The deliverables for the course consist of a 3D game and a website describing the development life cycle of the game.