CS 4770, 6770 - Mixed reality Experience Design  (3-0-3)

**Prerequisites:** CS 1301, 1315, 1331, or permission of instructor

**Corequisites:** none

**Catalog Description:** Design of experiences for education, entertainment, or personal expression using mobile Mixed or Augmented Reality (MR or AR) technology. Affordances and constraints of mobile MR technology. Focus on development of real-world prototypes and applications.

**Textbook(s):** no textbook, papers in AR technology and experience design available on site.

**Course Description**
MR refers to a broad range of technologies and techniques that present computer-generated text, images, video and audio to the user based on their physical environment. This includes location-based experiences that present content to the user based on where they are in the world as well as augmented reality (AR) experiences that use see-through displays to merge graphics and audio with the viewer’s perception of the world.) As background for the main project, the class will read and discuss articles on MR technology, HCI, location-based experience design, social computing, and new media design. Lectures and discussions in the early weeks of the course will introduce students to the principles and history of Augmented and Mixed Reality technology and design techniques.

**Course Objectives and Outcomes**
In this project-based course, students will
1. explore about the potential of MR, particularly for mobile, location-based experiences.
2. practice appropriate skills in interaction design and experience design.
3. learn how to work in teams on project design and implementation
Course Assignments

Assignments will include technology and design exercises leading up to the main project, in which students will work in groups to create a social or narrative experience, game, or informal educational application. They will implement their design using a technology developed at the Augmented Environments Lab at Georgia Tech in Atlanta: the AR Browser, which enables a wide range of location-based and augmented experiences and is programmed using a modified version of kml (the markup language for Google Earth), html, and Javascript.

Note: Programming skills required for this course are limited to scripting; no expertise in C++ or other low-level languages is needed. Students with design skills and content production skills (audio, video, 3D) or skills in web design and server-side processing (php, SQL, etc.) will be able to participate fully in project design and implementation.

List of topics

Introduction to Mixed and Augmented Reality technology (3 weeks)
  AR Technology
  Mobile Technology and AR
Introduction to Interaction and Experience Design (4 weeks)
  Techniques of Experience Design
  Storyboarding and brainstorming
  Informal Design
  Designing for social media
History of media forms (2 weeks)
  Interactive Drama
  Liveness and aura in media
  Alternate reality games
Project pitches and preliminary presentations (1 week)
Project design and implementation (5 weeks, distributed through semester)