*FALL 2015*

## LMC 6650: Seeing Like a Bike

Office: TSRB 316A
Office Hours: TBD
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Class Meetings: Monday, 2:05–4:55PM
Location: TSRB 323

### COURSE DESCRIPTION

This fall I am running a project studio I'm calling "Seeing Like a Bike." We will start by disassembling and repairing a bicycle. We will then rebuild it and along the way we will design, engineer, and instrument the bicycle with multiple sensors and computing capabilities so that we can begin to "see" what the it sees. This studio should be great fun and will mix old-fashioned wrenching and repair with digital making and hacking to create a bike-based sensor platform. The purpose of the studio is to materially explore the intersection of making, repair, physical computing and the Internet of Things—by the end of the term we will have a working bike and a working computational platform to sense the physical environment (e.g. road quality, geography, air quality, noise), the social environment (e.g. traffic conditions, proximity to objects), and the rider (e.g. rider position and interaction with the bike).

Students from any discipline are welcome and encouraged to enroll.

### M.S. OBJECTIVES

**Primary Objectives**
• Demonstrate knowledge, comprehension, and application of the tools and formal design elements of digital media design.

**Secondary Objectives**
*Comprehension*
Ability to explain, give examples of, and defend one's use of formal digital media design terminology

*Synthesis*
• Can design and create digital artifacts that create the experience of agency for the interactor.
• Can communicate, coordinate, and work productively as a team member.

*Application*
• Demonstrate use of digital media to create prototypes
• Demonstrate good time management skills
• Demonstrate ability to set realistic goals

### PH.D. OBJECTIVES

**Primary Objectives**
• Students can identify, analyze, and effectively write about a domain within the field digital media and identify areas for original contribution as well as methods to pursue these contributions.
• Students can formulate original interpretations and design original prototypes that reflect an understanding of the humanistic context of digital media.

**Secondary Objectives**
*Application*

• Apply theoretical concepts to specific digital media works

*Synthesis*
• Identify and define a suitable research problem in digital media design and apply appropriate disciplinary or interdisciplinary research methods to address it.
• Demonstrate ability to conduct original research in support of designing new genres and forms of digital media

### GRADING

The total grade for the class will be based upon the following factors and weights:

| | |
|---|---|
| Participation | 20% |
| Sensor Design/Build | 60% |
| Project Write-up/Term Paper | 20% |

### PARTICIPATION & ATTENDANCE

Studio attendance and participation is mandatory. Participation in discussion is imperative because it allows you to explore the readings and themes collaboratively, and in the process, discover meanings and issues that you probably would not discover on your own. Participation in class also challenges you to continuously question, refine, and articulate your own ideas and interpretations.

Missing more than 2 classes will result in a loss of 1 letter grade.

### READINGS & TEXTS

There are no required texts for this course, all readings will either be accessible via T-Square or online.

### DESIGN PROJECT

The design project will be in pairs or small groups. Each group will focus on a part of the bicycle and be responsible for designing a working sensor. It must work in the conditions in which a bike is ridden; it must produce usable data; it must be part of a larger system, i.e. the groups will need to coordinate with each other.

The final deliverable will include comprehensive documentation of each project.

### RESEARCH PAPER

Ph.D. students will participate in the design project and will additionally need to write a 10-page research paper (in the CHI format). More details about the research paper will be discussed in class.

### COURSE SCHEDULE

The course schedule will remain flexible with roughly 4 milestones: disassembly, design/prototype, iteration, and final deliverable. This studio is setup so that we have one long block of time together each week but I expect you will need to spend significant time outside of class prototyping, testing, and finalizing the build out. To help facilitate this, you will all have access to the lab to use as needed

### INFORMATION FOR STUDENTS WITH DISABILITIES

Please notify the instructor if you have any disabilities with which you need special assistance or consideration. The campus disability

assistance program can be contacted through **ADAPTS**.

*HONOR CODE STATEMENT*

Students are expected to adhere to the **Georgia Tech Honor Code**.