

Arch 498B / 598B - responsive digital systems for architecture

Winter 2021 - Tu and Th 9 – 10:20 am

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Great architecture has often been referred to as being "timeless" -an enduring monument that resists the forces that threaten to degrade it. But most buildings need to be much more responsive to their users needs and their changing environmental conditions. Windows opened or closed, shades drawn or open, lighting adjusted, privacy moderated. In short the most **performative** architecture is that which is the most "time-full" - **able to adapt responsively over time**. Most building systems can be adequately adjusted manually, but **with the addition of sensors, motors and computer controls, architectural elements, systems and entire buildings can start to engage autonomous operation or adaptive responsiveness**. What are the possibilities for digitally responsive architecture? How can such systems be designed? programmed? prototyped? This course is an INTRODUCTION to the questions, current practices and future possibilities for digitally responsive architectural systems.

The format of this course will consist of in-class presentations, discussions and workshops along with a final prototype project developed by each student or in a 2 student team. Work from teams will be more complex and in-depth. Graduate students in Arch 598b will also write a short research paper / manifesto on the topic. There will be three distinct types of work produced during the course. These are:

Arduino Workshops: Students will complete most of the exercises in the **Arduino Starter Kit** (skill level beginner) Completion of each workshop will be documented in a PDF and uploaded once completed.

Precedent Sharing: Each student (or a 2 student pair) will research and present a significant precedent -an example of a digitally responsive architectural system. This report will be presented and discussed in class, and the PDF will be uploaded and shared.

Prototype Project: Each student (or a 2 student pair) will develop a concept for their own digitally responsive architectural system. This prototype will be researched, diagrammed and represented. Last, students will construct a working scaled model of their system -or a key part of it.