Introduction

This course is about building new tools for designers. Architecture education focuses on the development of design skills: representation, creative processes, and analysis. While it is necessary for these skills to feature prominently in professional training, there are other areas such as theory and history that we also value enough to include. If we can assume that the tools we use in our processes influence the design outcomes, should we not also devote some critical attention to those tools?

As a way into thinking about tool building, we will turn to video games. This may seem like an unlikely starting point, but the video game industry has a surprising number of commonalities with architecture. Both industries use similar tools (3d modeling, 2d composition), both are concerned with spacial issues (such as navigation), and both work on projects of similar scale and complexity (one virtually, one physically). While these similarities are strong, we will be exploring two strengths of video games that are underdeveloped in architectural design tools: engaging play and simple interface.

Our goal is to build a new type of tool called a design game. A design game is useful like existing design software, since it assists in the production of design solutions. It is different than existing software because it combines this productivity with the engaging qualities of a video game. The ideal design game, for the purposes of this course, is one that is engaging enough for a non-designer to enjoy, but has the ability to extend the creative or productive capacity of a designer with respect to a specific design task. In the simplest terms a design game is a software tool that is both fun and productive.
Actions and Products

In order to establish a pool of ideas for the course, students will research a video game and give a brief presentation about it. The focus of this exercise is to gather innovative play and interface strategies that have been developed in video gaming that may have applications in design tools.

Products: Brief presentation and supporting documentation on a video game.

As an initial foray into the creation of a design game, students will assemble into development teams and sketch out their ideas. These sketches should communicate the basic play, interface, and products of the proposed design game.

Products: Design game sketch and brief presentation.

The creation of the design game itself will be a collaborative effort between student teams and the instructor. Throughout the course there will be short tutorials on the use the open source Processing development platform. These lessons will be geared toward students with no prior programming experience. Each class period will function as a workshop in which design game functionality is refined and next steps are identified. The course will end with a collective exhibition – an arcade – of the design games produced.

Products: Incremental prototypes and final design game.

Tools

The primary tool used in the course will be Processing, an open source software development platform. Processing was created specifically for beginning programmers in the art and design fields. It is especially well-suited for this course because of the amount of instructional documentation and an active user community.

References

The Processing website (http://www.processing.org/) will serve as the primary course reference; especially the learning, reference, and forum sections.

While there is no required text for this course, there are several excellent books useful in learning Processing:


Evaluation

Student performance will be evaluated according to depth of exploration and the degree to which acquired knowledge is implemented in coursework. Students will not be graded on programming ability, but learning the programming tools will be an integral step in realizing proposed design games. Specific evaluation criteria will be given for each assignment. It is each student’s responsibility to read and understand the criteria for each assignment. For the design game building assignment, evaluation criteria will be determined for each team in an iterative fashion. Each class period will function as a workshop in which progress is evaluated, questions answered, and requirements will be set for the next meeting. It is the combined responsibility of the instructor and the students to ensure that clear criteria are defined at each session. If there are any questions about the criteria for each session, students should be sure to resolve them in class or via email with the instructor.

Assignment of grades will follow these criteria:

- **A** Research or work has led to an exceptionally insightful implementation or multiple implementations beyond the minimum requirements.
- **B** Research or work has led to an implementation above the minimum requirements.
- **C** All requirements have been minimally met.
- **D** One or more requirements have not been met.
- **F** No, or very few, requirements have been met.

Late assignments will not be accepted except by prior arrangement with the instructor.

The majority of this course consists of group work. If, at any time, a student has any concerns about the contributions of their teammates to group work, they should communicate these concerns to the instructor. These concerns should be communicated as immediately as possible to avoid complications.
## Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Day</th>
<th>Activities</th>
<th>Assignment Due (weight)</th>
</tr>
</thead>
</table>
| 1    | Wed, Oct 28, 2009 | • Course Introduction  
• Game Play and Architecture  
Software Discussion  
• Game Research Assignment  
• Group Formation |                              |
| 2    | Mon, Nov 2, 2009 | • Game Research Presentations | • Game Research (10%)          |
| 2    | Wed, Nov 4, 2009 | • Design Game Project Intro  
• Design Game Sketch Assignment  
• Introduction to Processing |                              |
| 3    | Mon, Nov 9, 2009 | • Design Game Sketch Presentations and Critique | • Design Game Sketch (10%)    |
| 3    | Wed, Nov 11, 2009 | • Using Objects and Libraries in Processing |                              |
| 4    | Mon, Nov 16, 2009 | • Collaborative Programming Workshop | • Stage 1 Prototype (10%)    |
| 4    | Wed, Nov 18, 2009 | • Collaborative Programming Workshop |                              |
| 5    | Mon, Nov 23, 2009 | • Collaborative Programming Workshop | • Stage 2 Prototype (10%)    |
| 5    | Wed, Nov 25, 2009 | • Collaborative Programming Workshop |                              |
| 6    | Mon, Nov 30, 2009 | • Collaborative Programming Workshop | • Stage 3 Prototype (10%)    |
| 6    | Wed, Dec 2, 2009 | • Collaborative Programming Workshop |                              |
| 7    | Mon, Dec 7, 2009 | • Collaborative Programming Workshop | • Stage 4 Prototype (10%)    |
| 7    | Wed, Dec 9, 2009 | • Troubleshooting and Finishing Touches |                              |
| 8    | Mon, Dec 14, 2009 | • Troubleshooting and Finishing Touches |                              |
| 8    | Wed, Dec 16, 2009 | • Arcade Presentation | • Final Design Game (40%) |