Spring 2021

Brains at Play

Designing the Future of the Mind

Instructor: Garrett Flynn

Class Location: Online

Time: 12-1:20 PST

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Course Overview

> **Design Fiction: "**An approach to design that speculates about new ideas through prototyping and storytelling" (Sterling, 2012).

Play, games, and the principles that underlie them have an essential role in building critical skills like systems thinking, creative problem solving, collaboration, empathy, and innovation. In this course, prepare to put your thinking caps on (both literal and metaphorical) and envision multiplayer games controlled by the human brain! Through weekly design exercises, students will become acquainted with emerging issues at the intersection of neuroscience, ethics, and society—as well as develop submissions to the Brains and Games International Design Fiction Competition on March 20th, 2021. The only requirement for this course is, naturally, an open mind.

Objectives

- To embolden creative thinking and problem-solving
- To critically reflect on legal, ethical, and social implications of emerging technologies—and our role in their emergence.
- To engage in open discussion and collaborate effectively with peers
- To dream big and have fun!

Format

This course is composed of 8 modules. Each module will apply a different lens to the design of the mind through the use of (1) introductory lecture materials, (2) large-group discussions, (3) small group activities, and (4) group project work (described below).

Project Summary

During the first few weeks of the course, you will develop teams of 2-4 students and collaborate on a submission to the Brains and Games International Design Fiction Competition. **No entry fee or required knowledge programming experience is required.**

The deadline for submission is March 10th, 2021.

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Project

Brains and Games Submissions

Brains and Games is an international design fiction competition seeking creative ideas for brain-responsive multiplayer games. **As part of this class, each student will form a team with 1-3 other students, conceptualize and design a future multiplayer game that uses brain-to-brain interaction (BBI) technologies, and submit this idea to Brains and Games.** No entry fee or programming experience is required to participate in the Competition.

Student teams must submit the following items to the Brain Games category of the competition website before the **March 10th deadline**:

1. A design document (provided in class) that describes key aspects of the game enriched with sketches and images
2. A cover image
3. A video, up to 3 minutes, that presents and explains the game.

Additionally, students will need to return a signed parent/guardian consent form (provided in class) to participate in Brains and Games.

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Course Schedule

Module 1: Designing the Mind
Saturday, January 30th

This module introduces the course goals, the Brains and Games International Design Fiction Competition, and the history of neurotechnology devices in academic research, clinical practice, industry, and the arts.

Module 2: Designing the Future(s)
Saturday, February 6th

This module introduces Design Fiction as a method for exploring and critically analyzing possible futures through designed artifacts. Students start generating ideas for their Brains and Games submissions and form teams.

Module 3: Designing Experiences
Saturday, February 20th

This module introduces the basics of User Experience Design and, in particular, Game Design. Student teams begin deliberating over the details of their Brains and Games submissions.

Module 4: Designing Pitches
Saturday, February 27th

This module introduces best practices for multimedia presentations, pitch design, and prototype development. Student teams plan out how they will include multimedia content in their submissions.

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Module 5: Designing (with) Ethics
Saturday, March 6th

This module introduces Neuroethics and elaborates on emerging ethical, legal, and social issues in research, clinical, and commercial neurotechnology. Teams brainstorm the ethical implications and potential safeguards to implement for their game.

Module 6: Designing Value
Saturday, March 20th

This module introduces the Neurotechnology Industry and the many disciplinary backgrounds supporting it. Students reflect on the Brains and Games public showcase and look forward to the SI Fair.

Module 7: Designing Our Minds
Saturday, March 27th

This module encourages students to synthesize what they've learned in Brains at Play to express their perspective on how neurotechnology should be designed in the future. Students collaboratively design a presentation for the SI Fair.

Module 8: Beyond Design
Saturday, April 3rd

This module provides an open-ended opportunity for students to envision how what they've learned in Brains at Play can be transferred beyond the class. Students present at the SI Fair.

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About the Instructor

Garrett Flynn is a fourth-year progressive degree student in the Computational Neuroscience and Media Arts, Games, and Health programs. Working at the intersection of neuroscience, ethics, and interactive media, he manages several interdisciplinary projects out of the USC Neural Modeling and Interface Lab. He is also the co-founder and project coordinator for The Brains@Play Initiative: an international research collective seeking to enable the responsible development of brain-responsive multiplayer experiences through the production of public design workshops, educational resources, and open-source software tools. To this end, Garrett currently develops innovative experiences for the general public—and, of course, Shaukat Initiative students—to participate in emerging discussions on neurotechnology.

About the Shaukat Initiative

The Shaukat Initiative aims to create a space where children of USC staff members and other local high school students can further develop their intellectual interests and explore new disciplines in an intimate academic setting. We empower enthusiastic undergraduates and graduates at USC with the freedom to design their own courses that create a learning environment which is geared towards communicating the subject matter in an engaging and intellectually stimulating fashion in order to help students discover their passions. Our team is dedicated to adopting a pedagogy that shifts focus from grades and test performance to developing intellectual curiosity, tools for critical thinking, and a greater understanding of the ethical and social implications of knowledge we acquire. We encourage instructors and students alike to foster these skills in small, discussion-based learning communities. Given the increasing socioeconomic inequality and the astronomical rise of competition in the education sector, the Shaukat Initiative aspires to show appreciation for underserved members of the extended Trojan family and surrounding communities, who play an integral role in making our university one of the finest higher education institutions in the world. By providing our students with academic opportunities and resources that may not be available in their schools, we hope to increase their competitiveness on the national stage, while simultaneously redefining the classroom experience.

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