ID4400 / ID5400 Creative Computing Syllabus

Day / Time: Monday 9.30AM to 1.00PM

Location: TBD

Instructor: Clement Zheng (clement.zheng@nus.edu.sg)

Introduction

Creative Computing introduces students to the use of programming as a medium for creative expression and design inquiry. Through the development of generative and interactive visuals, the course examines how computational methods shape creative practices in areas such as game design, interactive installations, and communication design.

Students will learn to implement classic generative algorithms and explore how procedural and interactive systems can produce emergent visual forms and behaviors. The course is structured in three phases:

1. **Introduction to Creative Computing**: Fundamental concepts and programming structures for creative applications.
2. **Emerging Form**: Exploration of how algorithms can generate diverse visual patterns and forms.
3. **Emerging Behavior**: Development of dynamic systems that exhibit interactivity, agency, and behavior.

This course is designed for students interested in the intersection of design and computation, and who wish to understand how code can serve as both a technical and creative tool.

Learning Outcomes

1. Explain and apply fundamental programming structures used in 2D computer graphics.
2. Design and implement simple algorithms to generate customisable and parametric visuals.
3. Define and apply computational rule sets to control the behaviour of virtual objects.
4. Develop a project that applies the above concepts to creative applications in industry.

Lesson Structure

9.30AM to 10.30AM: Lecture

10.45AM to 11.30AM: Case Study Presentation

11.45AM to 1.00PM: Lab / Coding Demonstrations

Deliverables & Assessment

For ID4400:

1. 5 × weekly individual challenges (10% each)
2. Team mini project (40%)
3. Class participation (10%)

For ID5400:

4. 5 × weekly individual challenges (10% each)
5. Team mini project (30%)
6. Team case study research presentation (20%)

Assignment Descriptions

Weekly Individual Challenges

Solve specific challenges based on remixing and editing the example code used in the coding studies. This assignment will be assessed based on the level of completion of the given challenges.

Team Mini Project

Work in teams of three to four students. Pick a specific application area and develop a creative coding project that tackles that application area. This assignment will be assessed based on the degree of translation between class content and project, relevance of the project to the target area, and creativity of the solution and implementation.

Team Case Study Research Presentation

Work in teams to research, prepare, and deliver a case study in class on a specific area of creative coding and how it is applied in the industry. The presentation will be assessed based on the depth of the research, degree of connection to class themes, and quality of communication.

Schedule

Week 1	Introduction to Creative Computing Getting started with p5.js
Week 2	Computing as a Creative Material Coding study 1: Cellular Automata
Week 3	Emerging Form I Case Study Presentation A Coding study 2: Procedural Graphics
Week 4	Emerging Form II Case Study Presentation B Coding study 3: Simple Animations
Week 5	Creative Applications I Case Study Presentation C Lab Hour
Week 6	Emerging Behavior I Case Study Presentation D Coding study 4: Multi Agent Systems
	Recess
Week 7	Emerging Behavior II Case Study Presentation E Coding study 5: Physics Simulations
Week 8	Creative Applications II Case Study Presentation F Lab Hour
Week 9	Creative Applications III Lab Hour
Week 10	Creative Applications IV Lab Hour
Week 11	Project Playtesting I Lab Hour
Week 12	Project Playtesting II Lab Hour
Week 13	Project Presentation & Demonstration