Course Proposal v1.0 - Karl Toby Rosenberg

(Working Title) Creative Human-Computer Interaction for Interactive Media and Games Design

Description

A cross-disciplinary, student-driven course that brings technical, art (and in-between) students together to collaborate on the design and prototyping of their own original interactive experience projects, such as 2D games and animations, creative tools or user interfaces, or applications of emerging technologies. The course takes students through the prototyping process from initial ideas, through an actual working project. Two main themes: human-computer interaction (HCI) for experience design; programming of interactive systems to achieve a fine-level of understanding. Students take-away transferable design- and problem-solving skills beyond coding, cross-disciplinary collaborative project experience, familiarity with techniques for real-time systems, and their own creative portfolio pieces.

Listings, Prerequisites, Prior Experience

- Data Structures or equivalent, preferably CS.Org and Algorithms (or elements).
- Experience with C or C++; Or with permission of the instructor based on compatible experience.
- Design-oriented students share a portfolio and benefit from experience with creative coding.

Selection of Topics and Outcomes

Ideas

- User Interface Systems Human-Computer Interaction (HCI) & Creativity-Support Tools (CST)s
- Understanding prototyping mindset (when to care and prioritize or not)
- Flexibility to share real-world advancements and outlets in HCI (esp. for systems, creativity-support, creative coding) in research and industry
- Elements of user experience design; design and prototyping iteration process
- Brainstorming, articulating, presenting and prototype an idea (for interface, game, or experience)
- Cross-disciplinary collaborative project experience on a personal project

Programming & Design Topics for Interactive Experiences

- Techniques for interactive-time scenarios; e.g. Interface design, Entity and scene systems, Event systems, Scenario scripting, Data-oriented programming, Performance trade-offs
- 2D Animation, Sprites, Graphics & VFX, Music, SFX, Art and visual aesthetics
- Game feel & controls, Storytelling, Consider mobile devices and/or multi-user

Outcomes and Next Steps

- A personal portfolio piece (examples may include in general a 2D game, interactive art-piece/experience, creative tools application, or free-choice with instructor's approval); imaginative projects might enter a showcase, game-jam or equivalent, or be used towards research publications.
- Confidence working through an open-ended creative-problem-solving and prototyping process using HCI techniques; applicable to projects in other domains (engineering or artistically-motivated), with or without coding.
- Gateway to research and development or deeper exploration of HCI, emerging technologies, 3D graphics and games, interactive tech, lower-level systems.
- Experience working on a cross-disciplinary team akin to real-world teamwork.
- Introduction to research and industry practices for real-time applications.