Intro to Computer Graphics Free Trial Curriculum

Week 1

Session 1

- **Learning Objective:** Introduction to computer graphics and P5.js
- **Activities:**
    - Introduction to the field of computer graphics.
    - Overview of P5.js, setup, and basic usage.
    - Hands-on: Drawing 2D and 3D shapes in P5.js.
- **Deliverable:** A P5.js sketch with multiple 2D and 3D shapes.

Session 2

- **Learning Objective:** Introduction to Shaders and Vertex Shaders
- **Activities:**
    - Introduction to Shaders and their role in computer graphics.
    - Introduction to vertex shaders.
    - Hands-on: Writing a simple vertex shader in P5.js.
- **Deliverable:** A P5.js sketch with a custom vertex shader.

Week 2

Session 3

- **Learning Objective:** Fragment Shaders
- **Activities:**
    - Introduction to fragment shaders.
    - Hands-on: Writing a simple fragment shader in P5.js.
- **Deliverable:** A P5.js sketch with a custom fragment shader.

Session 4

- **Learning Objective:** Applying shaders to 3D shapes and shader uniforms
- **Activities:**
    - Review of shaders and 3D shapes.
    - Applying a custom vertex and fragment shader to a 3D shape in P5.js.
    - Hands-on: Experimenting with different shader and shape combinations.
- **Deliverable:** A P5.js sketch with a 3D shape and a custom shader that uses a shader uniform.

Week 3

Session 5

- **Learning Objective:** Advanced shader techniques
- **Activities:**
    - Advanced shader techniques: lighting, texture mapping, etc.
    - Hands-on: Enhancing the previous sketch with advanced shader techniques.
- **Deliverable:** A P5.js sketch with advanced shader techniques.

Session 6

- **Learning Objective:** Introduction to Computer Graphics Research
- **Activities:**
    - Overview of current trends and topics in computer graphics research.
    - Discussion of recent research papers.
    - Hands-on: Implementation of a simple concept from a research paper.
- **Deliverable:** A P5.js sketch implementing a concept from a research paper.

Week 4

Session 7

- **Learning Objective:** Final project
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    - Students propose and start work on a final project that incorporates what they've learned.
- **Deliverable:** Final project proposal.

Session 8

- **Activities:**
    - Students will present their projects.
- **Deliverable:** Final project