



Takneek PS - On Spot



ShaderCraft

Problem Statement:

Your challenge is to create **two standalone 2D GLSL** shaders based on a given reference picture (*to be provided at the beginning of the session*). The first shader should closely resemble the reference image, replicating its visual structure and lighting effects. This shader must faithfully reproduce the colors, textures, and overall appearance of the reference picture without any dynamic alterations. The goal is to match the reference image as closely as possible in terms of static visual details.

The second shader should build upon the first by incorporating dynamic, time-based changes. This shader must introduce random and non-repeating visual effects, such as fluctuating colors, evolving textures, or varying lighting, that evolve over time. Despite these dynamic changes, the shader must maintain the fundamental resemblance to the reference picture, ensuring that the core visual structure remains consistent. Both shaders should be designed for smooth real-time performance and accurate visual representation.

You are not allowed to use OpenGL/Vulkan/DirectX or any other graphics library. The Deliverables are STANDALONE GLSL files.

Requirements:

1. Structural Resemblance:

- a. The fundamental structure and appearance of the shader must remain true to the reference picture at all times.
- b. While visual elements change, the overall look and feel should not deviate from the reference image.

2. Dynamic Time-Based Changes:

- Implement changes in color, texture, or lighting effects that evolve over time.
- The changes should be random and non-repeating, avoiding predictable patterns.
- Examples include fluctuating light intensities, shifting color gradients, or evolving textures.

3. Performance Optimization:

- Ensure that the shader performs efficiently in real time and handles dynamic changes smoothly.
- Avoid excessive computational load that could impact performance.



Takneek PS - On Spot



Evaluation Criteria:

1. Resemblance Shader (50%):

- **Visual Accuracy (40%):** The degree to which the shader replicates the reference picture's colors, textures, and lighting effects. The shader should closely match the reference image in static visual details.
- **Performance (10%):** Efficiency and smoothness of the shader in real-time rendering. The shader should perform well without causing performance issues.

2. Dynamic Effects Shader (50%):

- **Visual Quality (25%):** The overall visual appeal of the dynamic changes. The effects should be aesthetically pleasing, adding to the shader's visual interest without being disruptive or inconsistent with the reference image.
- **Resemblance Maintenance (10%):** The extent to which the shader maintains structural resemblance to the reference picture despite the dynamic changes. The core visual aspects of the reference image should remain recognizable.
- **Performance (15%):** Efficiency and smoothness of the shader with dynamic changes. The shader should handle real-time updates effectively without causing significant computational load or performance issues.

Deliverables:

2 standalone GLSL Shader Files:

- **Resemblance Shader:** A GLSL shader file that replicates the static visual structure and lighting effects of the reference picture.
- **Dynamic Effects Shader:** A GLSL shader file that incorporates time-based, random changes while preserving the core resemblance to the reference picture.
- **Note:** Both shader files must be functional and capable of running independently. Non-functional shaders will result in a score of zero.

Time Duration: 3hrs