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“Computer Vision Assignment: "Image Processing Adventure Quest”

A04 "Image Processing Adventure Quest"

Realms and Challenges

Realm of Pixels and Color Models

Challenge 1: Visual Poster

Title: The Magic of Pixels and Color Models

Design Elements:

1. Central Image:

A large, pixelated image (like a colorful landscape) made up of small squares, representing individual pixels.

2. Sections:

- What is a Pixel?
  - Definition: The smallest unit of a digital image.
  - Diagram: Show a zoomed-in view of an image, highlighting individual pixels.

Color Models:

- RGB (Red, Green, Blue)
  - Explanation: Additive color model where colors are created by combining red, green, and blue light.
  - Visual: Display a color wheel or gradient that shifts through RGB values.
- HSV (Hue, Saturation, Value):

Explanation:

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Represents colors in terms of their hue, saturation, and brightness.

- Visual: A triangular diagram illustrating how hues shift with saturation and value.

3. Connection Between Pixels and Color Models:

- Infographic showing how each pixel uses RGB values to create the colors seen in an image.

4. Fun Facts:

- Interesting trivia about pixels and color models (e.g., how many pixels are in a typical HD image).

Challenge 2: Short Story / Comic Strip

Title: Pixel's Adventure in Color land

Plot Overview:

Introduction:

Meet Pix, a curious pixel living in the vibrant world of Color land.

- Adventure Begins: One day, Pix hears about a magical place called RGB Valley, where colors are born. Excited, Pix sets off on a journey.

Encountering RGB:

- In RGB Valley, Pix meets Red, Green, and Blue, who teach Pix how they blend together to create all the colors. A visual illustration shows Pix watching them mix.

Exploring HSV:

- Next, Pix visits HSV Heights, where the hues dance around. Pix learns how saturation and value affect their brightness and vividness. Illustrate Pix interacting with different hues, seeing how they change.

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Realization:

Through these adventures, Pix discovers that every pixel has a story to tell, shaped by the colors and models surrounding them.

Conclusion:

Pix returns home, enlightened and ready to share the magic of colors with other pixels, illustrating the importance of collaboration and creativity.

Deliverables

Creative Presentation Storybook:

- Combine the visual poster and comic strip into an engaging storybook format.
- Use colorful illustrations, captions, and clear explanations.

Visual Aids/Props:

- Props such as colored filters to demonstrate RGB mixing.
- Interactive pixel board where audience members can arrange colored squares to create their own images.

Reflection Format Example

Learning Experience:

We learned that pixels are the fundamental building blocks of digital images, functioning as tiny squares of color that come together to create the visuals we see on screens. Each pixel can display millions of distinct colors, but its ability to do so depends heavily on the color model used. For instance, the RGB model relies on the additive combination of red, green, and blue light to create various hues, while the HSV model offers a unique perspective by representing colors based on their hue, saturation, and value.

This exploration made us realize how color models not only affect digital imagery but also influence how we perceive the world around us. We gained insight into how different media,

from photographs to digital art, utilize these models to evoke emotions and convey messages. Understanding the relationship between pixels and color models helped us appreciate the intricacies of digital design and the technological processes behind our everyday visual experiences.

Furthermore, we discovered practical applications of these concepts in fields such as graphic design, animation, and even web development, where mastering color theory is essential. Overall, this experience deepened our understanding of the digital landscape and highlighted the importance of creativity and technical knowledge in producing effective visual content.

Feel free to modify any parts to better match your group's experience!

Changed Understanding:

Before this project, we did not realize how much goes into the colors we see on screens. Understanding the role of each pixel in forming images was eye-opening.

Favorite Part:

My favorite part was creating the comic strip. It was fun to think creatively about how to represent complex concepts in an effortless way.

Challenges Faced:

One challenge was deciding how to visually represent the technical information without making it too complicated. I learned to balance fun visuals with clear explanations.

Group: 2

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