Advantages of Finalizing Undergraduate Creative Projects with a Research Poster

Florida Undergraduate Research Symposium

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• Former USCB faculty in Studio Arts, now Multimedia faculty at FAU.

• MFA in Digital Arts and MSc in Computer Science.

• USCB Digital Imaging course in Media Arts concentration introduced students to practice-based arts research using David Hockney as a model.

• Students wrote process papers with project milestones, and then designed a final research poster.
Practice-based Media Arts Research

Ethan Cain, Callie Davis, Andre Days, Nicholas Hanzlik, Basil Hawk, Shaquilla Holmes, Levi Kinnard, Griffin Painter, Rakeem Perry, Michael Roberts, Hope Sansovich, Bradley Stanley, Chloe Threatt, Alyssa Willey

USCB Fine Arts Department, Media Arts (MART) Faculty Mentor: Topher Maraffi

Practice-based Arts Research

Our poster and demo describe practice-based arts research done for the MART B145 Digital Imaging class. In a series of experimental projects we attempted to extend Hockney’s Cubist “joiner” photo-collage technique using new media.

Practice-based arts research is defined as:
- A “create and critique” process that explores an aesthetic problem by “thinking in a medium” through experimentation and analysis.

David Hockney as a Model

The British artist David Hockney was used as a practice-based research model because of his scholarly engagement with technical and aesthetic issues at the intersection of painting and photography:

Innovative
- Hockney’s photo-collage work questioned the photographic process and anticipated digital composting techniques.

Controversial
- The Hockney-Falco thesis challenged how art historians viewed the relationship painters had with optical technology.

Interdisciplinary
- Hockney’s work and theories developed from technical observations across the boundaries of painting and photography.

Hockney’s Joiner Technique

In the 1980s, Hockney developed joiners from a critique of the technical limitations of traditional photography:

- He inserted the hand of the artist in the photographic process through collage.
- Instead of a fraction of a second, he composited many moments of time.
- He composed multiple close-up points of view, rather than a camera’s single point of perspective.

Experimental Design

We explored Hockney’s technique through increasing dimensions of new media:

2D Digitally Composed Joiner in Photoshop
- Would the original 2D joiner technique change in digital media?

3D Modeled Joiner and 4D Animated Joiner in Blender and Premiere
- How would you expand space in a 3D joiner, and compress time in a moving joiner? How could you get many moving points of view?

5D Interactive Joiner in Unity Game Engine
- What would a player experience when interacting with a joiner environment in a video game?

Research Questions

By abstracting Hockney’s work into research questions, we can apply his methodology to new media:

- Can we use digital imaging technology to better represent how people perceive the world, so things are always close and in focus?
- How can we create multiple changing points of view with overlapping moments and perspectives?
- Can we visually represent a scene in an engaging non-linear narrative that is not constrained by photographic realism?

Crowd-sourcing Imagery

First we staged a group scene in a painting studio using digital cameras and iPhones to crowd-source imagery for the joiner projects.

Initial Joiner Results

2D digital joiners composited in Photoshop by Chloe Threatt and Basil Hawk:

3D Joiners animated in Blender and Adobe Premiere by Chloe Threatt, Levi Kinnard, and Hope Sansovich:

References


MART B145 Info: Topher Maraffi, cmaraffi@uscb.edu
Exploring Cubist Concepts using Digital and Physical Media

Samantha Clark, Itzel Guedea, Clarissa Ibarra, Bradley Lamb, Luke Miller, Bryant Vandross, Eva Zygmuntowicz. USCB Fine Arts Department Faculty Mentor: Topher Maraffi

Digital Imaging Projects
We used the Cubist concepts from David Hockney’s “joiner” photo-collage technique, as well as other Hockney ideas on art and technology, in several MART B145 Digital Imaging projects:
- Digital collages printed and enhanced with physical media.
- 3D animation that features animated collage elements.
- Interactive photo-collage game environment.

Exploring Cubist Concepts
David Hockney (1937-) developed his “joiner” technique in the early 1980s. He also developed a theory called Secret Knowledge (2006) that proposed that artists had been using photographic aesthetics since the Renaissance. We studied his technique, and used the following concepts in our projects:
- Cubist Ideas on Perception
  - How our eyes see from multiple points of view and perceive things closer.
- Representing 3D Motion in a 2D Plane
  - Repeated and compressed a figure moving at different points in time on the picture plane.
- Fusing Painting and Photography
  - Used software to “paint” with photos and filters to create a painterly aesthetic.

Crowd-Sourced Photography
Our class photographed a simple scene to share source imagery for all our joiner projects:

Digital Composites
We first created joiners in Adobe Photoshop that unwrap space and time:

Experimental 3D Animation
To explore Hockney’s concepts in 3D space and time, we mapped our joiner imagery onto 3D models in Blender animation software:

Mixed-Media Prints
Then we printed our digital joiners on matte paper and used physical media such as ink and colored pencils, as well as techniques like collage, to explore the fusion of virtual and physical media:

References
Expanding on Hockney’s Cubist Ideas and Joiner Technique by Using Digital Software

Jennifer Ford
USCB Fine Arts Department, Faculty Mentor: Topher Maraffi

Digital Imaging Projects
In this class, we are expanding on the ideas of Hockney in his cubist ideas as well as in his joiner technique. We are showing multiple points of view in one shot, like Hockney had wanted in photography through different projects:

- A photographic joiner using Photoshop as a tool.
- A 360 Panorama formed into a circular world.
- A stop motion animation on the circular world using Premiere.

Hockney Paving The Way For These Innovative Ideas
It all started with Hockney’s joiner technique. We looked at what ways we could use technology to further enhance a joiner in ways that Hockney couldn’t.

Blend
- With the use of layers, erasers, blending tools, clone stamp and more, we can blend the edges of our pictures together, almost making it impossible to tell that multiple pictures were made into the new singular image.

Adjust
- Not only can we make the images blend together by erasing the lines of each picture, but with Photoshop we can adjust the lighting, contrast, and any levels of our pictures, something Hockney could never accomplish.

Filter
- Finally, we can use filters to take away the photographic aspect of the joiner. We can add a paint or pencil filter to completely change the look of the images.

Capturing More Than One Point Of View In Time
Hockney had a problem with the way that photography could only capture on instance in time, so he created the joiner. His joiners showed time passing. Through 360 Panoramas, we showed not time, but all points of view.

Capturing Space
- In order to capture all the space and points of view, you need to physically take pictures of every view. Once in a chosen area, you need to take 12-16 pictures in a circle (making sure to capture the ground and sky). Once you have acquired those pictures, you can combine them.

Creating a Panorama
- Even though many phones nowadays have a panorama feature, they can not cover a full 360. Instead we use a tool called Photo Merge on Photoshop. It all the pictures are taken correctly and in almost perfect alignment with each other, a panorama will form.

Full Circle
- Once the panorama is created, a distortion tool called “polar coordinates” can make a circle for you. First, you turn your panoramic image into a square, 10000 x 10000 is a good size. Then you just have to decide if you want the inside of the circle to be the ground or the sky and flip the picture accordingly; Photoshop will do the rest.

Combining Space and Time
Now that we have compressed space into one image, we can add the change in time. We used Premiere to create a stop motion animation to put with our 360 panorama, putting both time and space into the image.

Videos
- Once you have taken all the pictures for a panoramic picture, you need to record a video of whatever you need to be moving. In my instance, it was my boyfriend walking while changing clothes. I took multiple videos of him walking in different outfits so that I could edit him onto my panorama.

Screenshots
- The next step is to screenshot key frames from your videos, so for me the key parts of a walk. Once the screenshot is taken, you can edit the person that is moving out of the screenshot and into your panorama. This is one frame.

Animation
- Finally, you put all of your frames into premiere. From here you can set the duration of each frame, as well as some basic editing like zoom, position, and rotation. Once they are in place, you simply press play.

Frame By Frame
You can not see the video here, but these are the screenshots and then the frame they were created into.

From Flat To Circular
Here are some example images before turning into a panorama, then turning into a full circle.

References
David Hockney’s Influence on Digital Imaging
Williams (Matt) Bryan
USCB Fine Arts Department, Faculty Mentor: Topher Maraffi

Digital Imaging
Overview of the project and design goals or research questions...
- Applying David Hockney’s Secret Knowledge to create a David Hockney Inspired Piece
- 360 Panoramic Imagery- Process Based Research Project applying David Hockney’s philosophies
- 360 Degree animation using information learned from the prior projects

Project 1 Design Goals
Our first project was to create several collages inspired by the works of David Hockney. I took numerous photos of several locations and stitched them together to create a “joiner” photograph that would give a better representation of the environment and it’s movement where the photographs were taken.

Design Goal #1- Represent the Space of the Environment
- By stitching together the photographs, I was better able to represent the environment by having multiple angles and sides of an object shown, this would allow the viewer to view more of the environment as a whole than if it was just one standard image.

Design Goal #2- Represent the Motion of the Environment
- By using multiple photographs and stitching them together, I created a sense of motion by replicating parts of the same objects and showing the object in several stages of motion.

Project 1 Examples
A scene inspired by the work of David Hockney. This is the courtyard area shown through multiple angles at once.

Project 2 Design Goals
Our second project was to use Photoshop to automatically stitch together photos into a large 360 degree panoramic, then use the Polar Coordinate filter to create a globe-like effect. This effect allowed each view of the location to be seen at one time and create it’s own unique visual aesthetic. We created multiple artworks in this fashion that created a visually appealing piece that showed off every angle at once.

Design Goal #1- Represent all Angles of a Vantage Point at Once
- By using the Polar Coordinates filter, I was able to show off every angle from the vantage point at once. The viewer is aware what was to the left, right, front, and back of the photographer and it shows the entire scene at one time.

Design Goal #2- Create an HDR Quality Image
- Modified the images in order to create a realistic High Dynamic Range (HDR) quality image, and used other methods of post production in order to achieve the best image possible.

Design Goal #3- Further Inspired by David Hockney
- The Polar Coordinate images are further inspired by the work of David Hockney by being collages that represent a location better than a traditional photograph.

Project 2 Examples
This example shows Hockney’s principles of multiple viewpoints and angles and combines them with the new visual aesthetic of the Polar Coordinate style.

Final Project Design Goals
Our final project was to evolve the concept of the second project. Taking the concept of a 360 degree Polar Coordinate style image, next we created an animation out of it. I took several different shots of one location, did them all as completely separate polar coordinate images, then placed those together in an animation to create the illusion of walking down the path in a 360 degree view.

Design Goal #3- Create an Animation out of the Polar Coordinate Aesthetic
- Instead of super-imposing one smaller area of animation onto my image, I instead chose to make the whole thing animate by doing the polar coordinate shots over and over and over again to create a more seamless travel animation.

Design Goal #2- Going Beyond Hockney
- While Hockney did a great deal of experimentation, the new aesthetic of the polar coordinate shot combined with the stop motion like animation creates a whole new design that takes Hockney’s principles of multiple angles to create multiple viewpoints and a sense of motion, and goes beyond that.

Final Project Examples
This is a still frame from the animation that shows the polar coordinate style, but now taken farther with the added element of animation.

References

Course Info: Topher Maraffi cmaraffi@uscb.edu
• Frames creative work for an academic audience.

• Promotes STEAM (Art+STEM).

• Makes students think analytically and critically about their art.

• Prepares students for talking about their creative process.

• Gives students exposure to academic conferences and interdisciplinary grad research.
Challenges

• Academic silos that isolate creative work as intuitive, and not subject to logical methods.

• Magical attitude that creative work should not be systematically structured, or the artist may be constrained and somehow the process will break.

• The belief that designers and artists cannot do “real” research as part of their creative process.
USCB Golf Video Game Design
Brian Bartholf, Ethan Cain, James Cheatham, Erin Cline, Megan Gilbert
USCB Fine Arts Department, Media Arts (MART) Faculty Mentor: Topher Maraffi

Applied Design Project
We created a USCB golf video game as an applied design project for MART B281/381 Interactive Media 1 & 2. Creating a playable game involved:
- MDA (Mechanics, Dynamics, and Aesthetics) player-centric design.
- Art Assets created in Blender, Photoshop, Audacity, and Unity.
- Golf game operational logistics developed in Unity with C# code.

Creating a 3D Video Game
We took our concept through the video game design process that included:
- Pre-Production Designs and Planning
  - Golf course designs and GUI (Graphic User Interface) in Photoshop.
- Prototype Research and Development
  - Lowcountry golf terrain in Unity.
- Event-based coding for core golf mechanics in MonoDevelop.
- Production of Art Assets and Game Development
  - Sculpting custom models in Blender to import into Unity with texture and normal maps.
- Sound effects processed in Audacity.

Lowcountry Golf Aesthetics
Player-centric design requires starting with the player experience:
- Designing a 3D Golf Experience
  - Golf-specific 3D game objects like clubs, ball, tee, flag, hazards, etc.
  - Golfing sounds and GUI imagery for the score, etc.
- Locating the 3D Environment in the Lowcountry
  - Sea Islands terrain with palm trees and oak trees.
  - Cultural landmarks like lighthouses and buildings.
- USCB and Other Special Aesthetic Themes
  - USCB sand shark and mini-game themes.

Golfer Game Dynamics
Interaction design is the second step in our design process:
- Golfing Affordances
  - Core game play includes aiming the ball, walking the course, etc.
- Shooter-Platformer-Adventure Game Hybrid
  - While primarily a shooter, there are secondary interactions like jumping on platforms and scavenging for shark juice power-ups.
- Special Hazards
  - Tertiary hazards include obstacles that make golfing harder and mini-games that must be completed to continue golf play.

MDA Design Framework
We used a player-centric design based on an expanded MDA game design framework (p. Mechanics
- The core logics that afford game play.
- Dynamics
- The events that drive player interaction.
- Aesthetics
- The look and feel of the game experience.

Golf Shot Mechanics
The last step is to develop the C# code to support game interaction:
- Player Ball Collision Detection
  - A trigger condition places the player in a "canHit" state based on their proximity to the ball.
  - Club Switching Based on Ball Location
  - The current club selected is triggered by where the ball lands on the course.
  - Aiming, Shooting, and Score Mechanics
  - Scripts display an aim GUI, change ball trajectory based on selected club, and increment a score variable.

Playable Unity Prototype
- Golf club sculpted in Blender by Brian Bartolf and Unity terrain designed by Ethan Hawk.

Game Design as Research
The goal of our MDA approach is to design an interactive experience that is perceived as "fun" by the player. The fun factor of video games has been related to psychology of flow where the player becomes so engaged with game play that they lose track of time. (p. Player-centric design, therefore, can be viewed as applied arts research on aesthetic techniques for eliciting a specific psychological response.

References

MART B281/381 Info: Topher Maraffi, cmaraffi@uscb.edu
Real-world SCETV Project
This poster shows visual effects and motion graphics that our MART B250 Broadcast Design class created for the SCETV documentary Climate Change: A Local Focus. Project work included:

- Photography of landmarks in Beaufort and other coastal locations.
- 2.5D parallax effects produced in Blender animation software.
- Motion graphics using Google Earth and Adobe Premiere.

Ken Burns Effect
Ken Burns (1953-) is a popular documentary filmmaker who’s style became known as the Ken Burns Effect, where he employs camera moves to make still photographs come alive. Originally created with a real film camera, we learned to simulate this effect using Adobe Premiere video editing software:

Style Elements of the Ken Burns Effect
- Simple camera movements, such as a zoom or pan, over a still photograph.
- Narration of some historical quotation or document.
- Time-period music or sound effects.

* Filmmaker Ken Burns shoots still photographs to create his effect.

Shooting for Depth Coverage
Source photography was optimized for separating shots into depth layers:

- We took shots of notable landmarks in downtown Beaufort and Charleston.
- To create a 2.5D effect we needed three types of shots: foreground, midground, and background layers.
- For some locations we had video provided from SCETV that we had to extract the images from to create the required layers.

**Example Images:**
- Foreground, midground, and background shots of downtown Charleston.

Flooding Google Earth
We added a 6 meter flood layer to Google Earth for each location to visualize sea level rise, and captured a fly-over camera move using Quicktime media player:

* Example Images:
- Aerial images of Beaufort, SC with flood layer.

Animating Layers for Parallax
To create the illusion of a 2.5D parallax effect on the source photography we separated shots into layers in Adobe Photoshop, and then mapped the depth layers with a flood layer onto 3D models in Blender for animation:

Create Layers of Planes in 3D Space
- Creating and separating layers of planes in Blender 3D software allows us to map the image layers in 3D to create depth.

UV Texture Map Image Layers
- Once the images and layers are imported to Blender from Photoshop, we can apply them as UV textures to the planes.

Animate Camera for a 2.5D Effect
- Animating the camera allows us to create a smooth camera move like the Ken Burns Effect, while the 3D layered planes produce the parallax simulation.

2.5D Parallax Effect
We extended the Ken Burns Effect to animate a 2.5D Parallax Effect:

2.5D Parallax Effect
- Parallax is when background objects appear to move less than foreground objects.
- Disney’s Multi-plane Camera
- Disney pioneered the animation effect in the 1930s.

The Illusion of Depth
- Animating layers at different speeds adds depth to a photo.

* In the 1930s Disney invented a special multi-plane camera with planes of glass that could be moved.

**Example Images:**
- Diagram of multi-plane camera.
- Example images showing parallax effect.

Motion Graphics Editing
Post-production editing was done in Premiere to composite the 2.5D shots with the Google Earth background, as well as to add motion graphics and sound. The final Beaufort shots can be seen on our demo:

* Example Images:
- Opening title sequence.
- Scene of Beaufort with motion graphics.

References
2. Walt Disney’s Multi-Plane Camera (1957):
https://www.youtube.com/watch?v=NWViyw

MART B250 Broadcast Design 1 Info: Topher Maraffi, cmaraffi@uscb.edu
Real-World Design Project
This poster shows real-world Graphic Design projects to brand USCB’s Film & Digital Media Symposium, an educational component of the Beaufort International Film Festival (BIFF). Projects include:
- Create BIFF and movie star themed poster illustrations.
- Design a 2D logo that can be used for print, video, and the web.
- Animate a 3D logo to use on a website or show reel.

FDM Symposium Branding
We researched the following themes to brand imagery for the symposium:

Classic Movie Stars
- We researched classic film stills and movie quotes from stars like John Wayne, Hedy Lamarr, Marlon Brando, and Eartha Kitt.

Movies that were Shot in Beaufort
- We chose movies shot in Beaufort, such as Forrest Gump, The Great Santini, The Big Chill, and Gi Jana.

Beaufort International Film Festival (BIFF)
- USC Fine students hosted a film festival that draws over 13,000 people every February!
- BIFF sounds like someone’s name, so it works in movie quotes as a tagline.

Illustrations in Photoshop
We researched movie poster illustrators like Drew Struzen and Richard Davies, and we applied design principles and typography in Adobe Photoshop to create digital composites of movie stars and Beaufort.

Beaufort Movie Poster Theme
As our final illustration project in Photoshop, we created symposium posters around the theme of movies that were shot in Beaufort:

Logo Designs in Illustrator
We designed black and white logos for the Film & Digital Media Symposium in Photoshop, and then converted them to vector curves in Adobe Illustrator to add color. Our logo designs contain visual elements of both “film” and “digital media”, and are resolution independent for a variety of applications:

Web Design Final Project
The final step in our branding process is to create a web page design in Photoshop and Adobe Dreamweaver that incorporates all our elements.

References
The Colorful World of Disney

Eva Zygmuntowicz
USCB Fine Arts Department, MART/ARTH B201 Faculty Mentor: Topher Maraffi

Disney and Color

Disney started using color in his cartoon animations before anyone else did. This set him up to be the innovator and success story he is today. Even today, Disney has strong associations to color. From the Mickey’s red shorts and yellow shoes, to Elsa’s shimmering blue dress, people still strongly associate certain colors with Disney’s animations.

Color Symbolism

There has always been a strong connection between color and symbolism. There is strong color symbolism in Disney animations. Some of these colors represent different things between different movies. However, there are also overarching color associations among many movies.

Color symbolism across cultures

- Colors can mean different things in different cultures
- Within Disney films color is used to symbolically represent different themes within the movies

Beginning to Use Color

In 1932, the first full color cartoon, Flowers and Trees, was produced. This short film forever changed the landscape of American cartoons. Received amazingly well by audiences, it paved the way for animated classics like Snow White, Dumbo, and many others.

Innovative
- Found creative and challenging ways to use color in the short
- Just using color was not enough, color had to be used in a creative, effective way

Every Villain is Lime

Color symbolism is especially prevalent in the Disney princess movies. Many villains in Disney movies, especially the Princess classics have lime green in their color scheme. From Lady Tremaine and Lucifer’s matching lime green eyes in Cinderella to Rapunzel’s Mother Gothel carrying a lime green light.

How was it made?

Disney used the new three color process to Technicolor to get truer colors and helped control costs by making the animation in black and white first to get approval from United Artists, which was helping fund the color cartoon.

Technicolor

This method of producing the film itself produced true color film, unlike the earlier 2 dye process, which made it hard to get both true reds and blues. Understanding the importance of this process, Disney agreed to a contract with the owner of the process for exclusive rights to the process that ended up being a full year long.

Pretty in... Blue

Blue is used very often in the color schemes of the Disney princesses. This goes against what culture now views as the feminine color, pink. However, this association was not always common, in fact, blue used to be the color associated with femininity.

Cinderella, Aurora, Ariel, Tiana, Merida, Jasmine, and Elsa all wear blue dresses. Mulan and Snow White have blue bodices on their dresses, Belle and Anna have blue skirts. Even Pocahontas’ necklace is blue, and is a focal point in her outfit.

The Importance of Color

Color has always been important for Disney characters since the start of its use. Noticeably lacking from Disney princesses in large quantities, is the color white. This is due to the fact that although white is considered a pure, delicate color; it is also sterile and clinical, and thus hard to relate to. Having the Disney princesses dressed in color makes them more relatable and adds to the personality of the character. This is even done retroactively, for example. In early versions of her movie, Cinderella’s ballroom dress is a silverly white color. This was later changed to blue to make her more relatable.

References

The Making of “Goal?” Animation
Nicholas Bell
USCB Fine Arts Department, Media Arts (MART) Faculty Mentor: Topher Maraffi

Introduction
Digital Animation Project: Goal?
This semester we constructed life into 3-Dimensional characters, a box, flour sack and a humanoid figure. Learned about the principles of animation and applied them in our project. My project is about a box character who attempts to kick a ball into a soccer goal.

3D Animation Process
Preproduction
• Constructing characters. Planning out the anamtic. Creating basic key frame movements.
Animation Production
• Start the development of a full environment. Set keys frames and texture maps on characters. Place point lights to give the environment its proper lighting.
Postproduction
• Downloading sound effects and creating a title/credits. Making sure the audio is in sync with the animation.

Preparation
• After animating my box kicking a ball across a platform inspired me to make a soccer themed animation.
• I drew a few sketches of two soccer players. One of them having an intense facial expression as he prepares to kick a goal.
• The box and flour sack replaced my original intent to have humanoid characters. One was eventually added later on in the process.

Production
• After creating the environment I gave each object their needed textures.
• A panoramic photo was used to map a background on a spherical surface.
• The most difficult objects to texture map were the soccer ball background.

Character Rigging
Step #1 Construct a body. Give it a resting pose. Humanoid figures placed in the T-pose.
Step #2 Make a base bone. Title it spine. Drag and pull out bones from the spine. Place them were the represent arms and legs.
Step #3 Parent the additional bones to the spine. Parent the skin to the bone structure.

References
Current Approach at FAU

• Designing “Making of…” media production posters in my Preproduction Design and 3D Game Design courses with their final projects.

• Practice-based research within a design framework (MDA), or applied research to explore traditional design techniques in a new technological medium.

• Consider the historical and cultural context of their creative work.

• Develop research questions to solve a visual or aesthetic problem related to their concept.
MDA Game Design Framework (Modified)

Adapted from the slides of Noah Wardrip-Fruin (2011), from Malcolm Ryan’s original slides, based on the concept by Robin Hunicke, Marc LeBlanc, and Robert Zubek (2004).
Game Design Research Questions

- How do you best design a 3D video game in the style of an Alfred Hitchcock thriller set in 1960s Miami Beach?

- What are the design features of Hitchcock’s signature style as displayed in his most successful films?

- In a game, what would a player experience if they were the protagonist in an interactive scene directed by Alfred Hitchcock?

- What interaction events could be designed to support Hitchcock-style aesthetics, and what technical problems would need to be solved in a game engine?
• Solve a Specific Aesthetic Design Problem.

• Aesthetics focus on the experience of a multimedia production (visuals, sound, interaction, etc), and how it makes you feel.

• Therefore one way to think about your project is how best to design the media experience for a viewer (film/animation) or player (game).

• Your aesthetic goals will indicate which techniques and technology may be needed to solve the design problem (Aesthetics > Techniques > Technology).
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Thanks!

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