5-2024

The Phygital Design Process: Using Emerging Technologies to Create a Phygital Fashion Brand Rooted in Nostalgia

Madeline M. McDaniel
State University of New York College at Buffalo - Buffalo State College, madelinemcdaniel97@gmail.com

Advisor

Dr. Molly Holinger

The Phygital Design Process: Using Emerging Technologies to Create a Phygital Fashion Brand Rooted in Nostalgia

by

Madeline McDaniel

An Abstract of a Project in

Creativity and Change Leadership

Submitted in Partial Fulfillment

of the Requirements

for the Degree of

Master of Science

May 2024

Buffalo State University

State University of New York

Department of Creativity and Change Leadership

ABSTRACT OF PROJECT

The Phygital Design Process

This Master's Project is a comprehensive exploration of the intersection of digital fashion design, nostalgia, and sustainable practices. Its primary objective is to create 'project CYBERBAE,' a phygital fashion collection that draws inspiration from early 2000s video game characters, trends, and aesthetics. The project utilizes advanced digital tools like Clo3D to demonstrate a comprehensive digital fashion design process that emphasizes inclusivity and sustainability. It also pioneers the development of a 3D virtual world, providing users with an immersive environment to interact with and experience digital fashion. This virtual space serves as a platform for a community of fashion, technology, and creativity enthusiasts. The project also underscores the significant role of nostalgia in fashion design, drawing from personal experiences with early MMOs and fashion-focused games. Through the use of innovative design sprints and digital prototyping, the project showcases how digital tools can effectively reduce waste and streamline fashion production. The project's outcomes highlight the potential of digital fashion to revolutionize traditional fashion design, promote sustainable practices and inclusivity. The creation of digital garments, their translation into physical counterparts, and the development of a virtual fashion ecosystem mark significant advancements for the digital fashion community, offering new opportunities for creative expression and sustainable design.

Buffalo State University

State University of New York

Department of Creativity and Change Leadership

The Phygital Design Process: Using Emerging Technologies to Create a Phygital Fashion Brand Rooted in Nostalgia

A Project in

Creativity and Change Leadership

by

Madeline McDaniel

Submitted in Partial Fulfillment

of the Requirements

for the Degree of

Master of Science

May 2024

Buffalo State University
State University of New York
Department of Creativity and Change Leadership

The Phygital Design Process: Using Emerging Technologies to Create a Phygital Fashion Brand Rooted in Nostalgia

A Project in
Creativity and Change Leadership
by
Madeline McDaniel

Submitted in Partial Fulfillment
of the Requirements
for the Degree of

Master of Science

May 2024

Dates of Approval:

5/21/2024 

Dr. Molly Holinger
Associate Professor

5/21/2024 

Madeline McDaniel
Student

Copyright Notice

Dedication/Acknowledgement

I dedicate this project to my 10-year-old self and all the creative dreamers aiming to heal their inner child. Keep your creativity alive and believe in the person your 10-year-old self always imagined you to be. The path to fulfilling your childhood aspirations is within your reach.

I also dedicate this to my family, specifically my four siblings, Michelle, Debbie, and Charley. Your unwavering support and belief in me, even during the challenging times of our childhood, have been instrumental in shaping my personal and academic growth. Thank you for not just being my siblings but also my first friends. I still cherish the memories of us huddled around the small TV Debbie painted light pink, watching her play The Haunted Mansion on the Xbox because we were all too scared to play. These bonding experiences with you all have been the fuel for this project. I also thank my parents, both of whom your skills and passion for creativity have blended to create a child who loves the things you both do.

Next, I dedicate this to my friends and amazing support system: my line sisters, Cayla and Nia, and my significant other, Shaquille. Your support on this entire graduate school journey has motivated me so much, and I couldn't ask for better people in my corner.

I would also like to thank the amazing Creativity and Change Leadership Department at Buffalo State University. This program has been so transformational for me and because of the amazing professors and faculty, I have become the creative woman I am truly meant to be. Thank you to all my professors, especially Dr. David Yates, Dr. Susan Keller-Mathers, Dr. Molly Holinger, Dr. Jo Yudess, and an especially big thank you to my professor, advisor, and mentor, Dr. Gerard Puccio.

Lastly, I want to thank my mentor, professor, and friend, Erin Habes. I always tell the story of my first time seeing you in the fashion industry fundamental course, wearing a poncho and telling stories about your experience in the industry and how it got you here. From that

moment, I felt like my purpose in fashion was starting. You have given me an amazing perspective on using your talents to help others because you do that daily. Our journey together during my undergraduate and graduate school years has been such a blessing to my life, and I can’t thank you enough for everything you have done for me. I will always remember to stay fluid.

Table of Contents

List of Tables/Figures

SECTION ONE: BACKGROUND TO THE PROJECT

Purpose and Description of Project

The fashion industry constantly changes to adapt to society's needs and wants. Technology has allowed us to evolve in ways we could have never imagined, enhancing our quality of life. Now more than ever, the fashion industry is beginning to utilize emerging technologies like artificial intelligence (AI), virtual reality (VR), augmented reality (AR), 3D design, and the Metaverse to sell more products, build community through reach around the world, and create more sustainable business practices. This project focuses on developing a digital design process model from Fiona Dieffenbacher's Design Cycle in the book Fashion Thinking. The design cycle consists of three stages; Idea, Research, and Design.

I plan to expand on this design cycle by utilizing the technologies that we currently have available to us. This will allow fashion designers to follow a sustainable design process by ideating and researching their concepts using various digital software applications, cutting down on paper and textile waste and allowing them to design using strictly physical or digital methods or combining both methods of design. The process will be called the Digital Fashion Design Process and Toolkit, made accessible to designers through a dedicated website. This innovative approach allows for a seamless transition between the tangible and intangible realms, culminating in the launch of a "phygital" (physical and digital) brand, CYBERBAE. The project transcends traditional design methodologies by embracing a fully digital process until the design stage, where I can pursue either or both pathways. Through the lens of this project, the digital design process model will be refined and applied to the creation of the CYBERBAE collection for the RUNWAY project in the form of a case study similar to the ones in Fashion Thinking, utilizing 3D design techniques. This facilitates the establishment of a distinct brand identity and voice and pioneers the development of a 3D virtual world (MMO), offering an immersive

cyberspace for the brand's narrative to unfold.

The anticipated outcomes include a comprehensive digital design process, a captivating 5-look alumni collection called “project CYBERBAE,” and the establishment of the CYBERBAE brand with a prototype of the 3D virtual world. My four personal goals for this project are:

1. To create a digital process and toolkit that fashion designers can use to promote sustainability and innovation in their design practices
2. To use this digital design process to create my alumni collection for RUNWAY 2024
3. Create a 3D virtual world prototype that the brand CYBERBAE will live in
4. Link creativity and nostalgia to promote diversity and inclusivity within the brand

Rationale for Selection

As a child, I loved fashion and technology and would often see the two in tandem through virtual platforms and video games. Over time, as I began to age, I knew that my love for these things would not subside as they were at the very root of who I am, and they have inspired creativity in me my entire life. I love the fashion industry, and I’ve always wanted to be a fashion designer. Still, I know that the industry has a delay in creative problem-solving, resistance to change, and unrealistic beauty standards through a lack of diversity and inclusion. I also love technology and its ability to improve our quality of life and connect us, which I discovered at a young age through video games and massively multiplayer online games (MMOs). The creativity of story-telling and world-building has always fascinated me, and I’ve always envisioned what it would be like if I created my own fashion-focused 3D virtual world.

As a fashion designer, it is vital to be forward-thinking and create responsibly, seeing as the fashion industry makes millions of waste annually. According to Earth.org, 92 million tons of textile waste is produced yearly (Igini, 2023). Sustainability within the designing process is

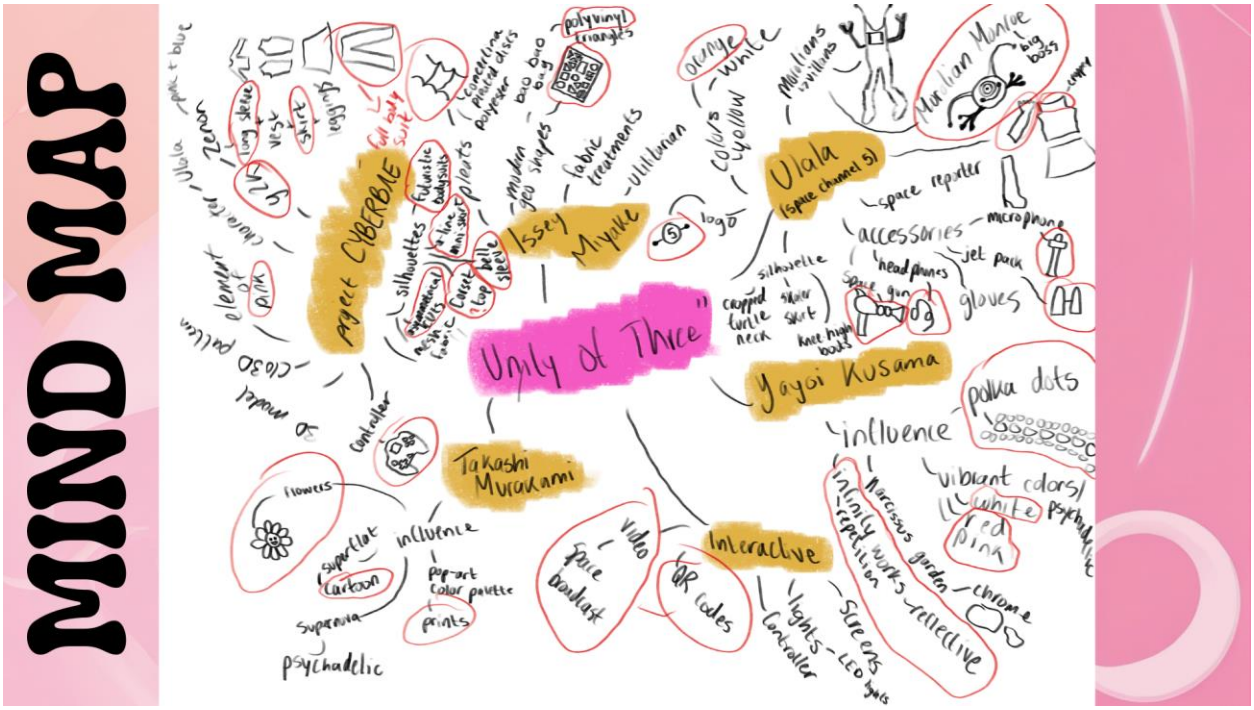
important to me because having sustainability at the forefront of a fashion brand positively contributes to the fashion industry and can gain brand loyalty amongst potential customers looking to be more intentional and responsible in their clothing purchases. With a digital design process, fashion designers can create using technology that produces less waste and allows designers to find more creative ideas by using an unlimited knowledge and image database that the internet provides. With the development of this process, more fashion designers and fashion brands can intentionally decide to create less waste. It'll also allow designers to use these emerging technologies to build a "digital twin" of their business that can live on social media platforms within the tech space, like virtual reality apps like Meta's Horizon Worlds, VR Chat, and Roblox, as well as gaming platforms like Fortnite and Minecraft.

I've slightly experimented with a similar process on a smaller scale. In the semester of Fall 2023, the Buffalo Art Movement announced their annual fashion show theme called "Unity of Three", celebrating Japanese artists Issey Miyake, Yayoi Kusama, and Takashi Murakami. I also wanted to take an original spin and relate it to CYBERBAE by linking my design to a female video game character from the 2000s era, Ulala from Space Channel 5 for the SEGA Dreamcast. I decided to create a garment for this show but restricted myself to only using digital tools and clothing from the thrift store. I started this digital process by ideating using the Creative Thinking Skills model applied to a ChatGPT I created using resources from CRS 670 called "Creative Problem-Solving Catalyst", mind mapping (Figure 1.1), and mood boarding by creating a collage (Figure 1.2). I then used my online resources to research each designer and recorded all of my findings using Google Jam board and AI image generators like Midjourney and DALL-E to visualize my concept (Figure 1.3). After my research, I incubated the design to pinpoint exactly what I wanted to do, utilizing Pinterest to continue looking for inspiration and images that could speak to what I wanted to create. Finally, I began the design process by sketching many looks through an activity I created called "FashionDrawing", inspired by Brain

Writing (Figure 1.4). I then chose a design to recreate using Clo3D to digitally drape and sew clothing (Figure 1.5). I took this process further in sustainability by shopping for materials at Goodwill and creating something similar to my 3D mockup (Figure 1.6). Doing this process on a smaller scale allowed me to imagine what it could look like if I did it on a bigger scale while also cutting down on waste by doing everything digitally and using materials already available. Finally, I presented this design on the RUNWAY: True Delusion stage (Figure 1.7), showcasing my intent on diversity while making this process sustainable. This inspired me to create a digital process that designers can use.

Figure 1.1

"Unity of Three" mind map



Note. Mind map for "Unity of Three" fashion show created using Procreate.

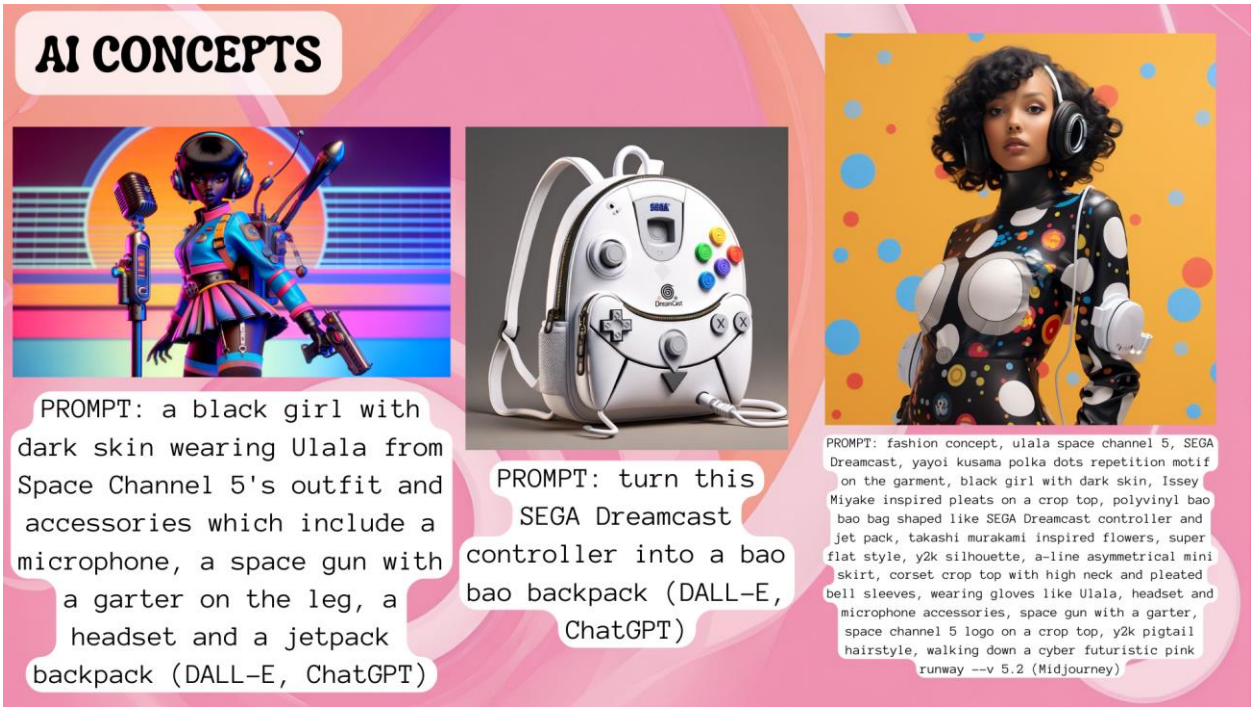
Figure 1.2

Digital mood board

Note. Digital mood board collage for garment titled “Channel 5 Couture” created using Paper by WeTransfer.

Figure 1.3

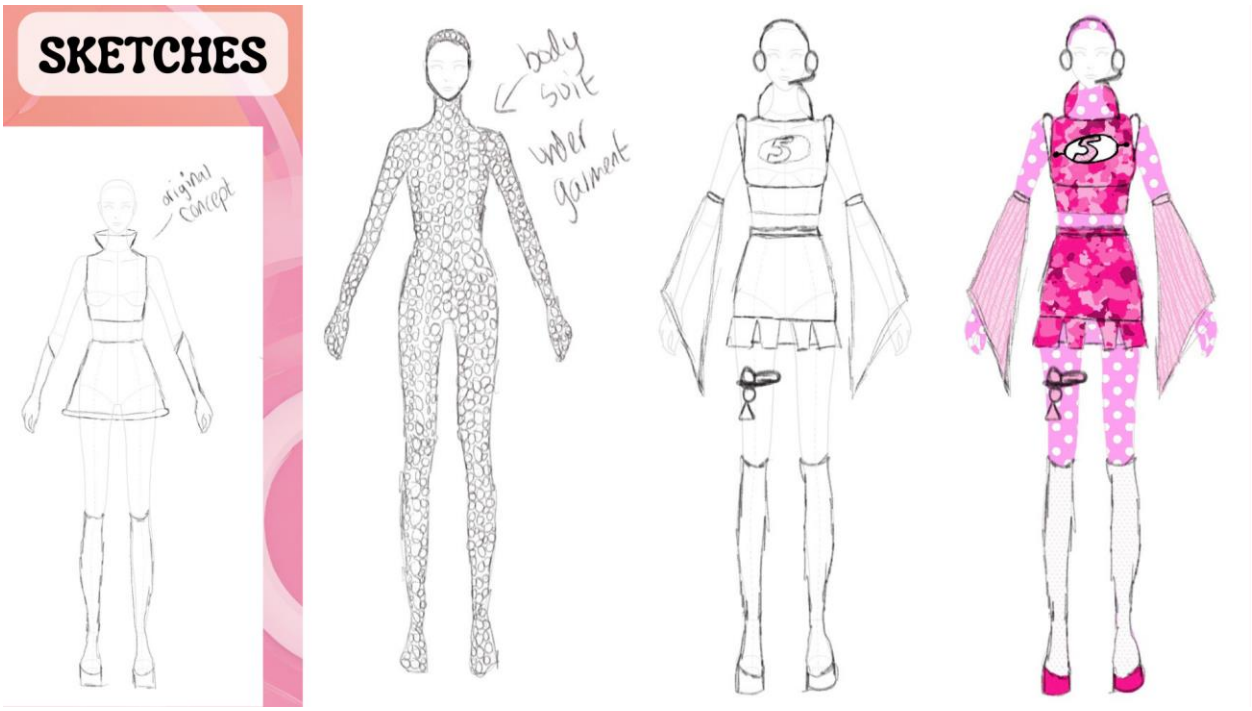
“Channel 5 Couture” AI Concept Art



Note. AI concept art for “Channel 5 Couture”. Created using DALL-E (ChatGPT) and Midjourney.

Figure 1.4

”Channel 5 Couture” digital fashion sketches



Note. Digital fashion illustration for “Channel 5 Couture” created using FashionDraw by Fashionary.

Figure 1.5

“Channel 5 Couture” 3D mockup

Note. 3D mockup of “Channel 5 Couture” created using Clo3D.

Figure 1.6

“Channel 5 Couture” on mannequin

Note. Final physical reworked design of “Channel 5 Couture” thrifted from Goodwill.

Figure 1.7

“Channel 5 Couture" on the runway

Note. The final “Channel 5 Couture” design at Buffalo State University’s RUNWAY 2024: True Delusion worn by Ajaynae Davis.

SECTION TWO: PERTINENT LITERATURE

Pertinent Literature

Firstly, I would like to explore Fiona Dieffenbacher's book Fashion Thinking: Creative Approaches to the Design Process by explaining the implications of the design cycle, its different stages, and how it will benefit current and future fashion designers. This exploration will also explore what we can expect from digital fashion and how it links to sustainability.

As I use my project to develop and expand on ideas linking back to my adolescence, I would like to know if my recent journey in exploring and engaging with my inner child through nostalgia has heightened my sense of creativity. In adulthood, we often lose sight of the child-like wonder we carried with us in our youth, often losing practice with skills in creativity like play, openness, divergent thinking, and problem-solving. Media, toys, art, and technology are merged and combined to provide us with memories of our youth through everyday creativity and the indulgence of these products. As an adult, indulging in the same products you engaged with in adolescence will help you engage with the same creativity and creative skills you had in your youth and bring these skills out in adulthood.

I am also interested in exploring my research from my big question in creativity paper from the CRS 625 course, Current Issues in Creative Studies, where I discussed the positives of utilizing emerging technologies in the fashion industry by breaking down what the Metaverse is and the benefits of using this platform on fashion and creativity.

The Design Cycle, Digital Fashion, & Sustainability

In *Fashion Thinking: Creative Approaches to the Design Process* by Fiona Dieffenbacher, she breaks down the process of the design cycle, showing its three stages consisting of Idea, Research, and Design (Dieffenbacher, 2021). This cycle can either follow a straightforward, linear process or a random process where every stage is not followed in

consequential order. Within each stage, there are nine steps that a designer usually follows to follow their creation to completion. They are as follows:

- Idea
    - Context: where did the idea come from?
    - Explore: moving ideas forward
    - Interpret: idea to concept
- Research
    - Questions: how, what, when, where, and why?
    - Reinvent: allow your unique perspective and research to generate creative outcomes
    - Own it: avoid reiterating existing concepts or directly translating from your source
- Design
    - Recognize: emerging themes within your work
    - Finalize: design outcomes
    - Establish: your voice and design identity

The design cycle shows that knowing it or not, every designer has a process, and it is important to develop your own system in order to make your designs resonate with their audience, show authenticity, and address a need within the market that is untapped to improve on what has already been done (Dieffenbacher, 2021). In this digital design process, it is important to show examples of various approaches to emerging designers so they can discover their methods, especially if their interest in digital fashion and design is apparent. Digital fashion design is a way to challenge the status quo and be a leader within an industry that is always changing yet resistant to change outside the traditional norm. Consumers and participants in the fashion industry are now pushing fashion designers to create more sustainably and inclusively, which is where digital fashion comes into play.

Digital fashion, catalyzed by the pandemic which presented a challenge the industry needed to adapt to, is a newer concept within the fashion industry. Breaking down digital fashion into categories, there is 1. Digital design & e-prototyping 2. Digital business and promotion 3. Digital human and metaverse, and 4. Digital apparel and smart e-technology (Sayem, 2022). These categories distinguish the difference between digital fashion and digital fashion design. The fashion industry is no different when looking at the history of technology and how it has helped various industries improve their quality of life. Technology shapes fashion through phygital spaces, computing tools, personalization, localization, Internet of Things, and digitalization (Nobile et al., 2021). When talking about digital fashion, sustainability is the main topic of discussion. With zero or low-waste fashion, digital technologies help the design process become easier and faster for designers (Rissanen & McQuillan, 2023). This means that digital tools can assist designers with their design cycle.

Digital tools can support the development of alternative methods for making fashion without creating waste (Rissanen & McQuillan, 2023). These tools can also improve business and customer relationships through communication and marketing of tangible and intangible products, improve sustainable manufacturing, decision-making processes, and Human Resource Management systems, and also influence the overall culture and society, making waves in fashion education and everyday life (Nobile et al., 2021). Often, fashion brands will prioritize sustainability during the production stage, focusing on the materials used instead of the waste created through pattern-making and cutting (Claxton & Kent, 2018). Utilizing digital tools in the design process is the main focus of this project, as it will create a vast amount of resources designers can choose from, causing them to be more intentional and creative with their designs.

Creativity & Nostalgia

Nostalgia often gets a bad reputation and, in the past, was treated as a mental disorder (Tilburg et al., 2015). Nostalgia, as defined by the Oxford Dictionary, is a sentimental longing or wistful affection for the past, typically for a period or place with happy personal associations. Nostalgia consists of a range of emotions, is self-relevant, and involves reflection on the past (Ye et al., 2013). The connection between nostalgia and creativity is one that emphasizes openness, a trait of creativity. Because nostalgia is often linked to positive emotion, it can promote self-regulation through social connectedness and self-esteem, creating an optimistic outlook on life and increasing psychological well-being (Tilburg et al., 2015; Ye et al., 2013). By indulging in the state of nostalgia, we can allow ourselves to adapt features from our past selves into our present selves to provide a sense of self-continuity while also using it to connect with others through social connectedness (Tilburg et al., 2015; Cheung et al., 2013). This perspective on nostalgia is important to this project as it is the driving force for creating the alumni fashion collection, recreating female video game characters from my past into funky fashion designs, combining a sense of past, present, and future.

Emerging Technologies

In this evolutionary era of the fashion industry, emerging technologies have ushered in a new generation of innovation and transformation. These technologies are redefining the boundaries of creativity, leadership, and consumer engagement at the intersection of digital and physical realms. Emerging technologies hold the potential to change fashion, enhance creative processes, and foster inclusive environments that go beyond traditional barriers through digital virtual worlds. In the Metaverse, the democratization of fashion is increasingly evident as it allows anyone with a computer and specific software to exhibit their ideas, designs, and collections (Dugal, 2023). It is noted that virtual worlds and the Metaverse offer "a compelling alternative realm for human sociocultural interaction" (Dionisio et al., 2013). This environment

encourages unique, creative designs, fostering an atmosphere where digital-only garment creation thrives. This technological evolution is propelling the fashion industry forward, with Web 3.0 revenue opportunities estimated to reach $50 billion by 2030, primarily driven by NFTs and social gaming (Dugal, 2023).

Emerging technologies don’t just stop there. The use of 3D design tools is rising as more designers seek more creative ways to design sustainably. 3D software is a useful tool for design objectives, allowing designers to visualize the 3D form, create 2D patterns, and simulate different fabric yields with a click of a button (Rissanen & McQuillan, 2023). These 3D software tools also allow users to experiment freely, eliminating risks that can paralyze a creative. The use of emerging technologies is important to my project because it is a big part of my digital fashion design toolkit and a big proponent for how I will be creating my fashion collection and creating a digital space my brand can live in to better interact with my audience in a technologically creative way.

SECTION THREE: PROCESS PLAN

Plan to Achieve Your Goals and Outcomes

My plan to achieve my goals will be heavily journey-focused, curating as many visual aids as possible to show the process of my project. While ensuring I have visual aids, I will also use the creative thinking skills model to help me diverge and converge my ideas and thought processes for all my goals. By exploring each step through different stages, I'll be able to create the digital design process, use the process to develop my collection, brainstorm components and designs for the 3d virtual world prototype, and establish a brand identity for CYBERBAE, the phygital brand rooted in nostalgia. I have outlined a list of actionable steps for each goal of the project:

- Create a digital fashion design process model and toolkit for fashion designers to promote sustainability and innovation in their design practices.
    - Research current digital design process applications in fashion.
    - Envision the digital model's impact on sustainability.
    - Identify obstacles to sustainable practices.
    - Generate ideas for the model's features promoting sustainability.
    - Develop, test, and refine the digital process model prototype.
- Utilize this digital design process to create my alum collection for RUNWAY 2024
    - Apply the digital design process to the alumni collection's design and production.
    - Visualize the collection's sustainable practices.
    - Tackle design and production challenges using the digital model.
    - Ideate on designs, materials, and methods.
    - Create and evaluate the collection using the model.
- Create a 3D virtual world prototype that the brand CYBERBAE will live in
    - Define the concept and purpose of CYBERBAE's 3D world.

    - Imagine the immersive brand identity experience.
    - Identify technical and creative development challenges.
    - Generate ideas for features, aesthetics, and interaction.
    - Build and iterate the 3D world prototype based on feedback.
- Link creativity and nostalgia to promote diversity and inclusivity within the brand.
    - Explore the intersection of these values in the fashion industry.
    - Define CYBERBAE's unique embodiment of these values.
    - Identify challenges in promoting these values.
    - Ideate strategies to highlight creativity, nostalgia, diversity, and inclusivity.
    - Implement and measure the impact of these strategies.

Project Timeline

February

- **Week 1-2:**
    - Conduct initial research on sustainable practices in fashion.
    - Begin envisioning the digital model's impact and the 3D world concept.
- **By February 18:** Complete and submit the Concept Paper.

March

- **Week 1:**
    - Identify obstacles to sustainable practices and technical challenges for the 3D world.
    - Start generating ideas for the digital design model's features and the 3D world's design.
- **Week 2-3:**

    - Develop the prototype of the digital design process model.
    - Apply the digital model to preliminary designs for the alum collection.
- **By March 12:** Submit the rough draft of Sections 1-3, focusing on project planning, initial research, and early concept development.
- **Week 4:**
    - Refine the digital design process model based on initial feedback.
    - Finalize designs and start production of the alum collection to ensure sustainability practices are integrated.
- **By March 24:** Finalize and submit Sections 1-3, detailing the developed digital process model, application to the alumni collection, and initial 3D world creation.

April

- **Week 1:**
    - Begin creating the 3D virtual world prototype.
- **Week 2:**
    - Complete the alum collection for RUNWAY 2024.
- **By April 13:** Ensure the collection is ready for the RUNWAY fashion show.
- **April 20:** RUNWAY fashion show.
- **Week 3-4:**
    - Continue developing, testing, and refining the 3D virtual world prototype.
    - Ideate and implement strategies for promoting creativity, nostalgia, diversity, and inclusivity within CYBERBAE.
- **By April 21:** Complete Sections 4-6, which now also reflect the execution and outcomes of the RUNWAY fashion show.

May

- **Week 1:**

    - Compile key learnings, reflections, and next steps, mainly focusing on the RUNWAY show's impact.
    - Incorporate all feedback and finalize the Master's Project Write-Up.
- **By May 2:** Finalize the entire Master's Project Write-Up, ensuring all sections are thoroughly polished and integrate the RUNWAY experience.
- **Week 2:**
    - Prepare for submission to Digital Commons, ensuring the project is preserved in a standard format.
- **By May 11:** Submit the completed project to Digital Commons.

Other Tasks to Incorporate if Time Permits

- Focus intensively on learning 3D design skills and applying them to CYBERBAE's development.
    - Complete 1-2 3D design projects per month during the project

Evaluation Plan

Evaluation of Outcomes

- Defining specific, measurable objectives for each project component (digital process model, alum collection, 3D virtual world, learning goals, and brand development).

Verifying Learning Goals

- Documenting the progression of skills, especially in 3D design and sustainable fashion practices, through before-and-after comparisons, mentor evaluations, and self-assessments.
- Matching completed project components against the initial learning objectives to ensure

all goals were met.

Assessing Originality, Resolution, and Evaluation/Synthesis

- Evaluating the uniqueness of the digital process model, the collection, and the 3D world through peer reviews and industry expert feedback.
- Reflecting on how effectively the project's outcomes addressed the initial challenges and gaps identified in the fashion industry.
- Analyzing how the project components integrate and complement each other and contribute to the overarching goals of sustainability, diversity, and inclusivity.

Reflecting on Successes

- Documenting key milestones, breakthroughs, and positive feedback received throughout the project.
- Assessing the reception of my work by peers, mentors, and the audience at the RUNWAY fashion show and other presentations.

Strategies for Self-Reflection and Path Adjustment

- Scheduling weekly self-reflection sessions to assess progress, challenges, and feelings.
- Establishing clear benchmarks related to project phases, such as completing the digital process model, finalizing the alum collection, and launching the 3D virtual world.
- Incorporating both formal (mentor and expert reviews) and informal (peer discussions and audience reactions) feedback mechanisms to gauge the project's impact and areas for improvement.

Keeping Track of Pace and Achievements

- Referring to the detailed timeline with specific deadlines for each project component to monitor pacing.

- Maintaining a log of completed tasks, acquired skills, and feedback received to visualize progress.

Gathering and Reflecting on Feedback

- Seeking structured critiques from mentors, industry experts, and faculty advisors at key project milestones.
- Utilizing social media, community forums, and casual conversations to gather various perspectives.
- Keeping a journal to record reflections on feedback, emotional responses, and adjustments made in response to critiques.

SECTION FOUR: OUTCOMES

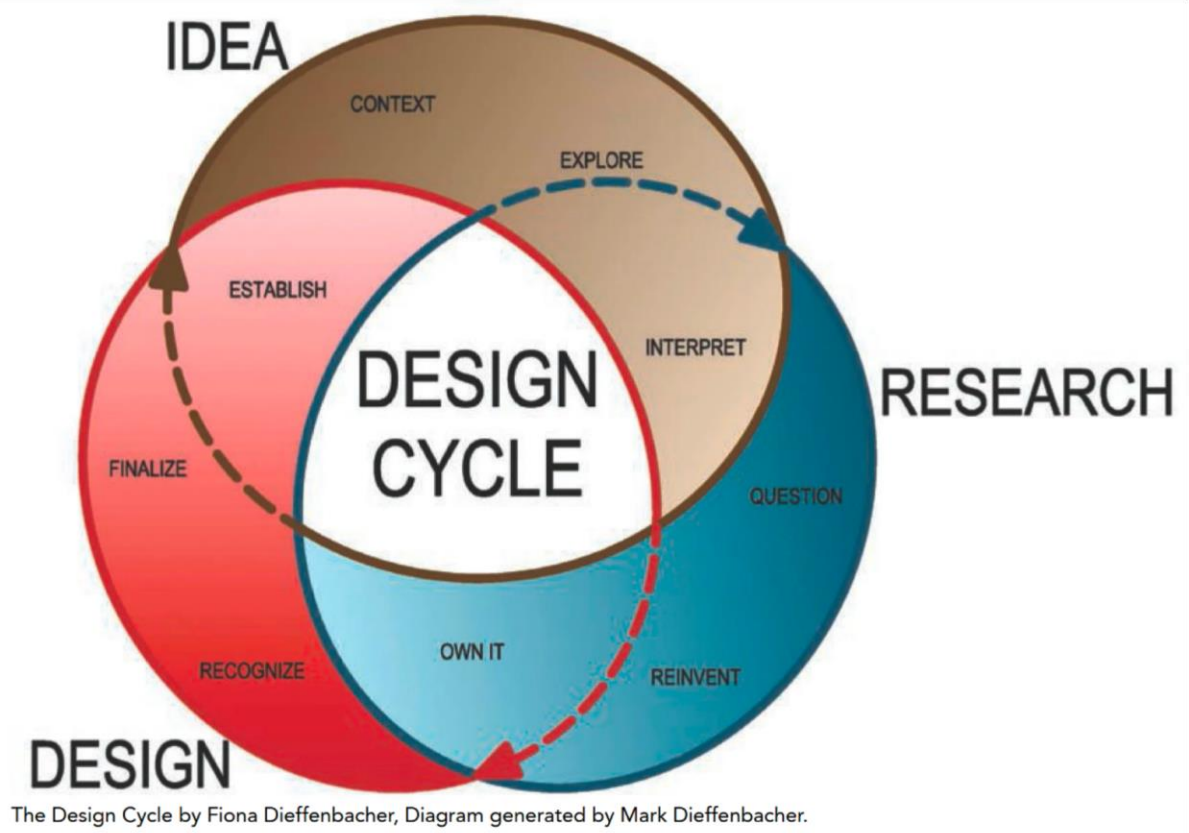
Phygital Fashion Design Process and Toolkit

My engagement with Clo3D, a versatile 3D fashion design program, sparked the genesis of this project. This platform facilitates the conceptualization of designs within a three-dimensional environment and supports various creative outputs beyond traditional fashion, including interior and toy design. My exploration into Clo3D revealed its potential to revolutionize critical stages in fashion design, particularly sampling, and ideation, prompting me to consider its integration throughout the design process.

Inspired by Fiona Dieffenbacher's "Fashion Thinking," which outlines a design cycle comprising the stages of idea generation, research, and design (Figure 4.1) I sought to reimagine this cycle within a digital context (Figure 4.2). This approach proposes using digital tools throughout the design cycle, potentially transforming the traditional fashion design process into a fully digitalized practice.

Figure 4.1

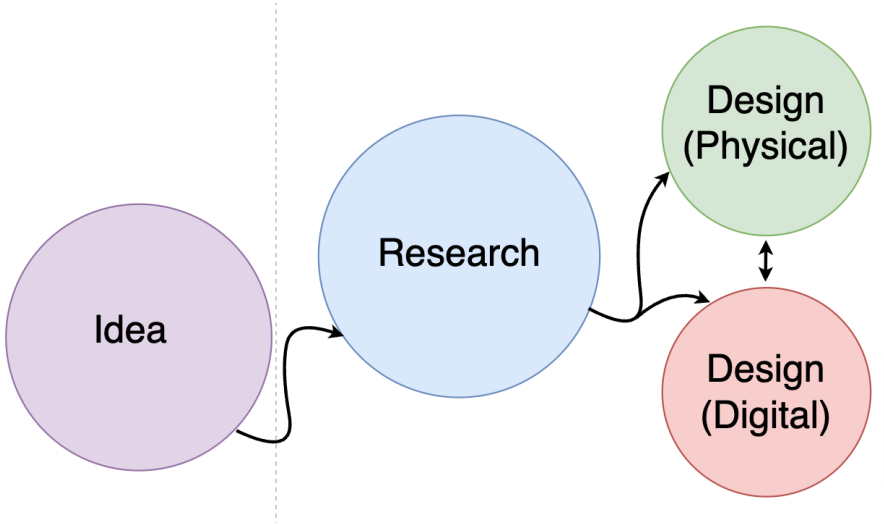
The Design Cycle



Note. The Design Cycle by Fiona Dieffenbacher, Diagram generated by Mark Dieffenbacher.

Figure 4.2

The Restructured Design Cycle



Note. The redesigned Design Cycle includes a split design stage (physical and digital) to be used interchangeably.

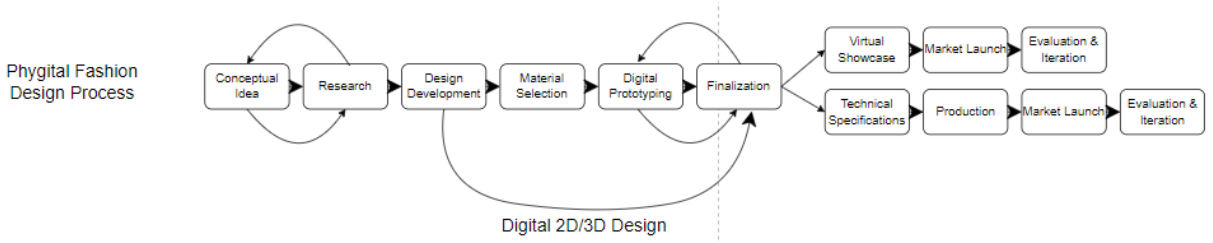
A detailed analysis of the designers and case studies presented in Dieffenbacher's work made it apparent that each designer employs distinct steps at every stage of the design process. For instance, in the idea generation stage, techniques range from brainstorming and mind mapping to music and dance, virtual simulation, digital collages, photo documentation, and extensive visual research. The research stage may involve sketching, digital collages, 3D projection, and other specific steps such as 2D and 3D design, body drawing and space, co-design, and the utilization of smart technology. The design stage often incorporates sketching, zero-waste cutting, technical flat sketching, collaboration, and draping.

Upon identifying the relevant steps in each stage that resonated with my design approach, I explored digital tools that could facilitate these processes. Initial research included consultations with artificial intelligence platforms like Google and ChatGPT to identify current digital tools employed in the fashion industry. This exploration yielded diverse tools, from Adobe Illustrator for design illustrations to Clo3D and Marvelous Designer for 3D design and prototyping, and Blender and Adobe Substance for more generalized 3D modeling. This toolkit can be found in Appendix A.

This investigation led to developing a "phygital" fashion design process— a methodology that integrates physical and digital workflows. The phygital fashion design process workflow (Figure 4.3) begins with conceptual ideation, linked closely with ongoing research, feeding into a design development phase that includes material selection and digital prototyping. The cycle allows continuous refinement between digital prototyping and finalization, culminating in a virtual showcase. This process significantly reduces material waste and streamlines the design process, aligning with sustainable design principles.

Figure 4.3

The Phygital Fashion Design Process workflow



Note. The Phygital Fashion Design Process workflow to streamline the designing process.

The digital fashion design process and toolkit from this research will be applied to create my alumni collection for the Buffalo State fashion show, "Runway: True Delusion." Inspired by nostalgia and video games from the 2000s, this collection is specifically tailored for plus-size fashion, utilizing the discussed digital tools to refine and develop the brand identity for CYBERBAE.

project CYBERBAE

For this next section of the project, I applied the phygital fashion design process to my alumni collection, “project CYBERBAE.” I am structuring my application as a case study exactly like the case studies found in the book Fashion Thinking by Fiona Dieffenbacher. This will allow the reader to understand the steps in my process and see how different ideas for this collection came together in each Design Cycle stage, showing the book's effectiveness and creative process.

PHASE I: IDEA GENERATION

PROCESS LIST

- Journaling
- Design sprints
- Artificial Intelligence (AI)
- Collages
- Mood board
- Music
- Media (TV shows and movies)
- Creative Problem Solving (Thinking Skills Model)
- Play (Video games and vintage toys)
- Image gathering

CONTEXT: Where did the idea come from?

In 2023, my academic journey in graduate school, specifically within the Creativity and Change Leadership program, catalyzed a significant realization about the role of play in adult creativity (insert a few citations here). Historically, my childhood engagement with video games fostered joy and a deep connection with myself and others—a realization that became apparent during my studies. This insight spurred an inner child healing journey, marked by a deliberate return to activities that reignited joy and nurtured my inner child.

A pivotal moment in this journey was my role in directing the Runway 2023 fashion show at SUNY Buffalo State, "Provoking Protopias," which conceptualized a balanced world—a "protopia"—neither perfect nor chaotic. This concept of balance resonated deeply, aligning with the world I envisioned at 10 years old. This personal and professional convergence inspired the reconnection to my childhood through modern expressions of identity and technology, notably through fashion and gaming, leading to the creation of the persona "CYBERBAE." This identity encapsulates my affinity for technology and nostalgia, reminiscent of the technological optimism of the 2000s. Through this persona, the brand CYBERBAE was born and from there, I created a

digital mind map to explore the themes and topics that were most important to me and that I felt reflected the brand the most, like Fashion, Technology, Creativity, and Nostalgia (seen in Appendix B).

EXPLORE: Moving ideas forward

Further exploration into what specifically sparked joy in my childhood revealed a profound connection with video games, which were not merely an escape but a means of bonding with friends and siblings. These experiences highlighted the importance of camaraderie and visual storytelling within gaming. Inspired by the theme "True Delusion" for the next RUNWAY show, which reflects on mental health and the interplay of light and dark inspired by the 2024 solar eclipse, I chose to integrate elements of video game narratives and characters that symbolize this theme. Characters like Rosalina from "Super Mario Galaxy" and Bella Goth from "The Sims 2," who represent narratives of celestial mystery and dramatic adventures, were selected to anchor the fashion narratives. These characters, alongside personal retail experiences and media influences like "That's So Raven," informed a broader reflection on self-expression through fashion, challenging and redefining beauty standards from the 2000s.

Figure 4.4

“project CYBERBAE” mood board

Note. The “project CYBERBAE” mood board was created using Pinterest and Canva.

INTERPRET: Idea to concept

The conceptualization phase involved synthesizing my love for video games and fashion from the 2000s into a collection that speaks to inner child healing, emphasizing pink, which holds personal significance. At one point in my childhood, my favorite color was pink, but because I faced teasing and bullying for not being a "tomboy,” I changed it to blue in the third grade. Reclaiming my favorite color as pink in my adulthood allows me to stay true to myself and let my childhood self know that the opinions of others are not as important as what makes you happy and comfortable. This process involved selecting iconic video game characters that resonated with personal and thematic elements of the collection, such as Gum from "Jet Set

Radio" and Dawn from "Pokémon Diamond," who embody adventure and fashion-forwardness. The design process utilized digital tools in design sprints, reimagining these characters' attire in silhouettes popular in the 2000s and employing AI to generate concept names and deepen the thematic connections to early 2000s culture.

PHASE II: RESEARCH EXPLORATION (developing ideas within a framework)

PROCESS LIST

- Y2K fashion
- Vintage MMOs (Massive Multiplayer Online Games)
- Reflection/Analyzing
- 3D Design
- Plus-size fashion
- Interior design
- Virtual reality (VR)
- Fashion and Technology
- Visual research
- 3D printing
- Zero Waste Design

QUESTION: How, What, Where, When, and Why?

A primary challenge I encountered while creating this fashion collection was my inexperience. My education in fashion and design occurred predominantly during the pandemic, which limited access to traditional educational methods. This resulted in truncated courses in fashion illustration, pattern drafting, and advanced sewing, which were transitioned to a hybrid format, reducing in-person classroom time.

I intended to utilize the digital fashion design process developed earlier to create a collection inspired by Y2K fashion—a period not directly experienced in my youth as it was aimed primarily at teenagers and adults from 1999 to 2009. Furthermore, being plus-sized, I faced challenges with the limited size ranges available during that era, typically ending at large sizes, which were scarce. This inspired the creation of a collection that not only echoes Y2K

trends but also inclusively represents plus sizes and diverse skin tones, notably underrepresented in the fashion media of that era.

The collection was predominantly created using Clo3D, a digital fashion design tool that adjusts model sizes, hair, and skin tones to ensure inclusivity in digital representations. This tool also facilitated the creation of digital garments from scratch or using existing patterns, which were then translated into physical patterns for the collection.

REINVENT: Allow your unique perspective and research to generate creative outcomes

In this stage, the collection drew inspiration from female video game characters from the 2000s, including Gum from Jet Set Radio Future, Bella Goth from The Sims 2, Rosalina from Super Mario Galaxy, and Dawn from Pokémon Diamond. This blend of Y2K and plus-size fashion aesthetics and digital design steered clear of direct cosplay, aiming to integrate these characters into Y2K fashion narratively. The garments maintained the original color schemes of these characters but were designed to stand alone as wearable pieces or cosplay.

Design sprints (see Appendix C) were conducted to determine the best representation of each character through the garments, integrating elements like rhinestone letters representing Xbox controller buttons in Gum's dress as a nod to its gaming origin. A fashion design sprint is a tool I used to generate as many ideas as possible, similar to the tool Brainwriting, a tool that is often used in creative problem-solving. With multiple fashion figures on a page, I will give myself 2 minutes max to sketch out up to 12 looks based on a single idea or an item reiterated in multiple ways. This process also emphasized zero-waste design, leveraging digital tools to minimize traditional fashion production waste like paper and fabric, thereby reinventing the fashion design process for sustainability.

Figure 4.5

"project CYBERBAE" final digital sketches

Note. Fashion illustrations and range board created using FashionDraw and Canva.

OWN IT: Avoid reiterating existing concepts or directly translating from your source

In the final phase, the research on Y2K fashion, 3D design, plus-size fashion, and zero-waste design culminated in a four-look collection that reflected my connection with fashion and video gaming and addressed broader representational inclusivity. This collection was further enriched by incorporating 3D printed accessories, enhancing the uniqueness of the designs.

The research extended into exploring vintage massively multiplayer online games (MMOs) like Club Penguin and Pixie Hollow, as well as the interior designs from famous TV

shows of the era like iCarly and That's So Raven. These elements informed the thematic and aesthetic decisions of the collection, ensuring it resonated with the nostalgic yet innovative spirit of the Y2K era, thereby authentically owning and transforming the inspirations into a contemporary fashion collection.

PHASE III: DESIGN TRANSLATION

PROCESS LIST

- Garment Construction (Physical)
- Digital Twins of garments (Digital)
- Lookbook/Zine
- Film
- 3D Virtual World Prototype
- 3D printed accessories

RECOGNIZE: emerging themes within your work

The project's reinvention phase focused on leveraging personal insights and extensive research to generate creative outcomes. Inspired by female video game characters from the 2000s, the collection sought to merge Y2K fashion aesthetics with plus-size inclusivity under a digital design framework. Rather than replicating the characters' costumes directly, the designs reinterpreted these figures through a Y2K fashion lens, incorporating elements that reflected the characters' original color schemes and thematic attributes.

Figure 4.6

"project CYBERBAE" 3D Line Board

Note. "project CYBERBAE”- 3D Line Board created using Clo3D and Canva

For instance, the garment for Gum from Jet Set Radio featured rhinestone decorations mirrored the Xbox controller buttons, integrating a playful element of game culture into the

design. Incorporating gaming elements into fashion design facilitated a unique aesthetic experience and engaged with nostalgia by evoking memories of early gaming experiences.

Sustainability was further emphasized through zero-waste design principles, which were implemented using digital tools to minimize material waste traditionally associated with fashion production. This reflected an innovative approach to fashion design and responded to environmental concerns within the industry.

Figure 4.7

Final physical collection of “project CYBERBAE”

Note. Physical collection of "project CYBERBAE”

FINALIZE: design outcomes

In finalizing the design outcomes, great care was taken to ensure that each piece authentically represented the characters that inspired them while also fitting within the aesthetic framework of Y2K fashion. Each garment was designed to stand alone as a modern interpretation of Y2K trends, incorporating elements that spoke to the unique stories of characters like Bella Goth, whose narrative was enhanced through accessories that told her story of alien abduction.

The final designs were sketches and fully realized digital models that could be translated into physical garments, complete with 3D-printed accessories. This dual existence of digital and physical versions underscored the collection's innovative approach to fashion design, bringing each character to life through a detailed and thoughtful presentation of accessories and thematic elements.

Figure 4.8

“project CYBERBAE” at RUNWAY 2024: True Delusion

Note. Physical garments on the models at RUNWAY 2024: True Delusion

ESTABLISH: your voice and design identity

The project CYBERBAE collection was instrumental in establishing a personal voice and design identity, emphasizing inclusivity, nostalgia, and the fusion of fashion with pop culture elements from the 2000s. The collection featured signature elements such as lettuce hems and bell sleeves, specifically chosen to flatter plus-size figures and reflect personal style preferences.

Using all plus-size models and models of varying skin tones was a deliberate effort to challenge and expand the norms of representation within the fashion industry. This approach made a strong statement about diversity and inclusion and solidified a personal design identity that values authenticity and the empowerment of underrepresented groups.

By integrating personal memories and cultural influences from video games and 2000s media, the collection offered a unique narrative connected with broader cultural themes of nostalgia and innovation, establishing a distinctive voice within the contemporary fashion landscape.

Figure 4.9

The Designer's Bow

Note. Designer bow at RUNWAY 2024: True Delusion

3D Virtual World Component

In addition to a physical line, CYBERBAE will also exist in the virtual world. This virtual component of the project explores the integration of fashion and video gaming within a digital space, focusing on the nostalgic appeal of early 2000s fashion games. My previous

engagements with MMOs like Club Penguin, RuneScape, Habbo Hotel, and dedicated fashion gaming sites such as everythinggirl.com and girlsgogames.com have significantly shaped my childhood and cultivated a profound love for fashion-oriented gaming. The objective is to develop a virtual space within an MMO framework like VRChat or Roblox, revitalizing the allure of girly fashion games through modern advancements in 3D fashion design and digital interaction.

Figure 4.10

3D Virtual World mood board

Note. Mood board for the 3D virtual world created using Pinterest and Canva.

Purpose and Goals

The primary purpose of CYBERBAE's 3D virtual world is to establish an immersive, interactive, and environmentally sustainable digital arena that transcends conventional fashion paradigms. The project is designed to:

1. **Foster Community:** Cultivate a community of individuals passionate about fashion, technology, creativity, and environmental sustainability.
2. **Showcase Digital Fashion:** Provide a dynamic platform for displaying and engaging with CYBERBAE's digital fashion collections.
3. **Promote Sustainability:** Highlight sustainable practices within the fashion industry through digital experiences to minimize the ecological footprint of physical garment production.
4. **Enhance Engagement:** Encourage active participation through virtual fashion-related activities and collaborative opportunities.

The User Experience

The user experience in CYBERBAE's 3D virtual world is crafted to cater to fashion and design enthusiasts, offering various avenues for creative expression and professional simulation. Users can engage in fashion design by utilizing intuitive 3D tools to create unique digital garments, which can then be displayed in personal showrooms or community-run fashion shows, fostering a platform for creativity and exposure. Set design capabilities allow users to create distinctive environments for photoshoots or artistic installations, providing a collection of virtual materials and objects for a fully customized experience. Additionally, asset design extends creative control, enabling users to craft items for use in various settings, including photoshoots and personal spaces.

User experience is an integral part of online MMOs, with the user experience described as "the integration perception, action, motivation, and cognition" (Hassenzahl, 2013). User experience design is the collection of methods an interactive designer will use to make the quality of the users experience the prime concern (Allanwood & Beare, 2014). Fashion journalism and publications are integral to the user experience, with facilities to produce digital magazines equipped with professional layouts and editorial tools. This feature empowers users

to write articles, conduct interviews, and feature stories that emphasize sustainability and innovation in fashion. A virtual photo studio further enhances this experience, allowing users to organize elaborate photoshoots using advanced lighting tools and camera effects, mirroring real-life professional setups. Moreover, users are encouraged to assume the role of creative directors by establishing art spaces where they can display installations or create short films using in-game cinematography tools, adding a layer of artistic depth to the virtual world. The community aspect is enriched through events, collaborations, and a digital marketplace, promoting a culture of interaction, learning, and trading among users, which is vital for sustaining a vibrant, creative community. In order to visualize these user experience hubs, I used generative AI to conceptualize what each space would look like in this 3D virtual world (seen in Appendix D).

Figure 4.11

Central Hub 2D mockup

Note. 2D isometric mockup of the “Bedroom Hub” created using Procreate.

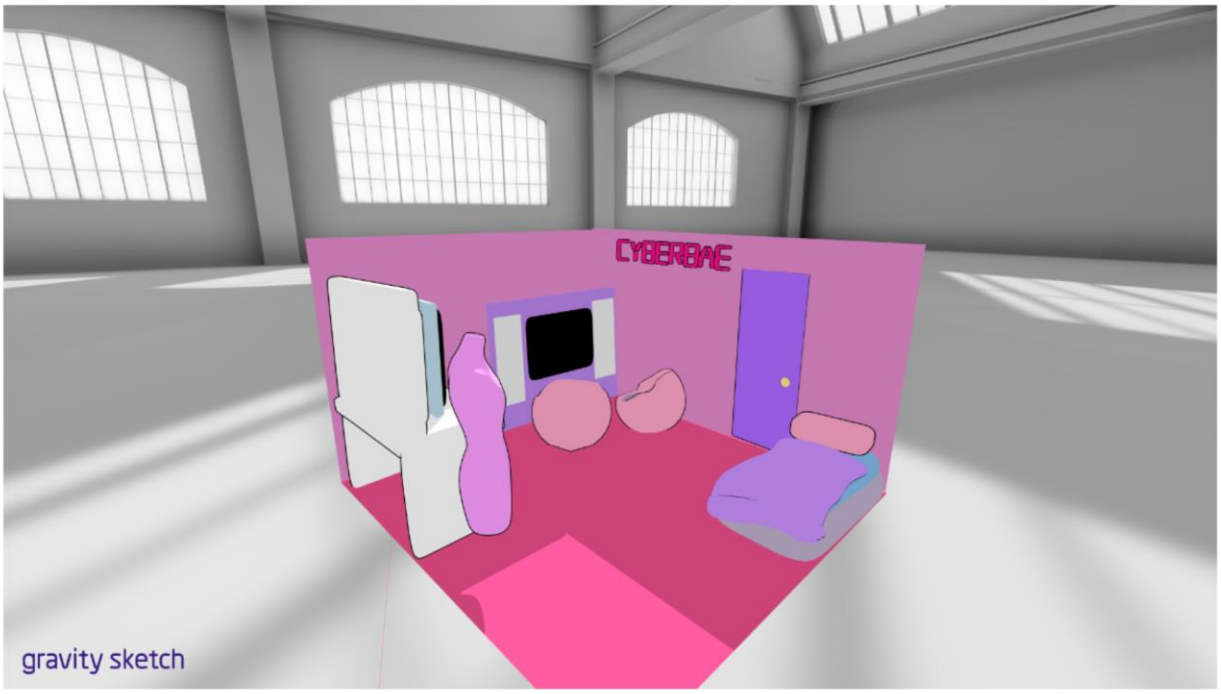
The Bedroom Hub

The Bedroom Hub is the central interactive space in CYBERBAE's virtual environment, conceptualized as a customizable tween girl’s bedroom that reflects iconic Y2K aesthetics. This personal space allows users to express their style through extensive customization options,

ranging from furniture and wall décor to interactive elements like lava lamps and inflatable chairs that evoke the early 2000s vibe. The wardrobe features within the hub are expansive, allowing users to experiment with fashion trends characteristic of the Y2K era such as butterfly clips, cargo pants, and mood rings, enhancing the nostalgic experience. Using this interactive and customizable space could enhance user creativity because being in an immersive environment induces better creative performance (Liu et al., 2023).

Figure 4.12

Central Hub 3D mockup



Note. 3D mockup of the “Bedroom Hub” created using Gravity Sketch on the Meta Quest 3.

The hub also includes a game console, styled to mimic the iconic tech aesthetics of the Y2K era with translucent colorful plastics, serving as a gateway to various themed worlds within the MMO. These worlds are inspired by popular video game franchises and offer activities and challenges tailored to their unique settings—ranging from magical forests and mystical

creatures in a Fantasy Adventure World to futuristic cities and space stations in a Space Exploration World. Each world fosters engagement and creativity, allowing users to collect themed fashion items, participate in quests, and immerse themselves in a culturally rich and interactive environment. Social spaces like virtual malls, arcades, and cafes provide communal areas for users to meet, shop, and participate in activities, further enriching the user experience and fostering a sense of community within the virtual world.

SECTION FIVE: KEY LEARNINGS

Key Content Learnings

Digital Fashion Design Process and Toolkit

The development of the Digital Fashion Design Process and Toolkit has significantly simplified the workflow for creating fashion digitally. This toolkit has proven instrumental in curating digital fashion items, facilitating a more streamlined and efficient design process. By providing essential tools and resources, the toolkit enables designers to visualize and construct digital garments quickly, enhancing creativity and productivity. The hope for this process and toolkit is that it would be integrated into fashion education curriculum and will eventually be taught in tandem with traditional fashion design methods.

Project CYBERBAE

In project CYBERBAE, the creation of digital and physical garments demonstrated remarkable success, showcasing high-quality and aesthetically pleasing results. However, translating these digital designs into physical garments highlighted challenges, particularly the need for a robust pattern-making background. This gap underscores the importance of traditional fashion design skills in achieving accurate physical representations of digital concepts.

3D Virtual World

The use of AI in generating imagery significantly aided in conceptualizing various aspects of the 3D virtual world, providing a visual framework that enhanced the creative process. Tools like Gravity Sketch in virtual reality (VR) environments proved invaluable, allowing me to immerse myself and effectively scale and explore spatial designs within the virtual world.

Key Process Learnings

Digital Fashion Design Process and Toolkit

Throughout the development and application of the Digital Fashion Design Process and Toolkit, it was critical to refer to the source material consistently. This practice ensured the digital creations remained faithful to the original design concepts and specifications, maintaining design integrity and coherence.

Project CYBERBAE

The design process within project CYBERBAE benefited greatly from periods of incubation, which allowed creativity to flourish and culminated in a highly innovative collection. The term “incubation” refers to the theory that unconscious processes may be operating in the period during which the problem solver is not consciously thinking about the problem (Christensen, 2020). Moreover, integrating phygital (physical + digital) methodologies significantly reduced waste, exemplifying an environmentally conscious approach to fashion design that could serve as a model for future projects.

3D Virtual World

Exploring alternative programs capable of achieving the desired outcomes was a crucial learning point in developing the 3D virtual world. This exploration was necessary to overcome limitations encountered with initial software choices, highlighting the importance of flexibility and adaptability in digital tool selection.

Project Evaluation

The digital processes established through this project have been effective and illuminative, offering a clear pathway for future fashion design endeavors. The successful integration of digital and physical stages within the design process provided a structured framework to guide subsequent fashion projects. Project CYBERBAE emerged as a potent demonstration of my unique abilities to blend personal interests, such as video games, fashion, technology, and media, with professional execution, effectively connecting with and inspiring the broader fashion community by including aspects like diversity, inclusivity, and nostalgia for their own childhoods as well as inner-child healing through the theme of the fashion show, RUNWAY: True Delusion.

While the 3D virtual world remains an ongoing project, its foundational concepts and developmental trajectory have positioned it as a significant advancement within the digital fashion sphere. This initiative stands as a testament to the potential of digital environments in revolutionizing the way fashion is conceived, experienced, and shared, marking a promising direction for future innovations in the industry.

SECTION SIX: CONCLUSION

What I Know Now

At the beginning of the semester, I knew I wanted to create a revolutionary digital design process for fashion designers to create and curate their designs sustainably. I then applied this process to my collection to show how to utilize this process and curate the creative journey. Lastly, I wanted to develop and prototype a 3D virtual world where my collection and brand would exist and in doing so create a community space for people who like to and want to engage with other people who enjoy digital fashion.

Now, I have created a digital fashion design process and toolkit that not only touches on the digital process but also stems into a physical process where a fashion designer can create both digitally and physically. Using this process and toolkit, I created my first collection inspired by nostalgic video game characters from the 2000s, letting me know that the process works and that I can apply it to more fashion designs in the future. Lastly, when prototyping the 3D virtual world, I can utilize emerging technologies to ideate, conceptualize, and design this space. My interest in emerging technologies and technology, in general, has brought me to this specific space where I can create my own lane and be helpful to other multi-faceted creatives who enjoy fashion, technology, and creativity.

What I See Myself Doing

In the near future, I will refine the digital fashion design process and toolkit by testing out this process and the tools in the toolkit. I know that not everyone's process is linear, and I found that my process was random. By testing this process, I'll be able to share it with other fashion designers and even test it with them to see if it is effective for people who are not as technologically savvy. I also see myself creating more fashion designs and collections using this process, but I also refine my traditional fashion design skills to ensure the quality of the physical

garments represents the digital garments. I am interested in formal training and courses on patternmaking and fashion computer-aided design to strengthen my skills. I want to expand my knowledge of 3D printing, enhance my creativity, and create pieces that will go hand in hand with the physical creation of my designs. Lastly, I see myself formally learning 3D modeling and coding to create the 3D virtual world, mainly on VR Chat or Roblox, since those are MMOs that are already established. I know that many gamers miss fashion-centered games, so I feel there is an untapped market of people who want to create and engage digitally while interacting with others within the community.

This project has been life-changing, to say the least, and has made me believe that I can take my ideas and make them a reality just by brainstorming, writing, and working with others for constant feedback. I aim to be a catalyst within the fashion industry that will turn it on its head, being the authentic and progressive leader it needs.

References

Igini, M. (2023, August 21). *10 concerning Fast Fashion Waste Statistics*. Earth.Org. https://earth.org/statistics-about-fast-fashion-waste/

Dieffenbacher, F. (2021). *Fashion thinking : creative approaches to the design process* (Second edition.). Bloomsbury Visual Arts, Bloomsbury Publishing Plc.

Rissanen, T. , & McQuillan, H. (2023). Digital Tools for Zero Waste Fashion Design. In Zero Waste Fashion Design (pp. 133–164). London: Bloomsbury Visual Arts. Retrieved March 24, 2024, from http://dx.doi.org/10.5040/9781350241862.ch-4

Van Tilburg, W. A., Sedikides, C., & Wildschut, T. (2015). The mnemonic muse: Nostalgia fosters creativity through openness to experience. *Journal of Experimental Social Psychology*, *59*, 1-7.

Ye, S., Ngan, R. Y. L., & Hui, A. N. (2013). The state, not the trait, of nostalgia increases creativity. *Creativity Research Journal*, *25*(3), 317-323.

Cheung, W. Y., Wildschut, T., Sedikides, C., Hepper, E. G., Arndt, J., & Vingerhoets, A. J. (2013). Back to the future: Nostalgia increases optimism. *Personality and Social Psychology Bulletin*, *39*(11), 1484-1496.

Dionisio, J. D. N., Burns III, W. G., & Gilbert, R. (2013, June). 3D Virtual Worlds and the Metaverse: Current Status and Future Possibilities. *ACM Computing Surveys*, *45*(3), 38. http://dx.doi.org/10.1145/2480741.2480751

Singla, A., Gupta, N., Aeron, P., Jain, A., Garg, R., Sharma, D., Gupta, B., & Arya, V. (2023). Building the Metaverse: Design Considerations, Socio-Technical Elements, and Future Research Directions of Metaverse. *Journal of Global Information Management*, *31*(2), 1–28. IGI Global. http://doi.org/10.4018/JGIM.321755

Dugal, J. (2023, November 8). *How the metaverse and generative AI are transforming fashion*. fashionabc. Retrieved December 10, 2023, from https://www.fashionabc.org/how-the-metaverse-and-generative-ai-are-transforming-fashion/

Hassenzahl, M. (2013). User experience and experience design. The encyclopedia of human-computer interaction, 2, 1-14.

Allanwood, G., & Beare, P. (2014). Basics interactive design: user experience design: creating designs users really love. A&C Black.

Liu, J., Burkhardt, J. M., & Lubart, T. (2023). Boosting Creativity through Users' Avatars and Contexts in Virtual Environments-A Systematic Review of Recent Research. Journal of Intelligence, 11(7), 144. https://doi.org/10.3390/jintelligence11070144

Christensen, B. (2020). Incubation. In M. A. Runco & S. R. Pritzker (Eds.), Encyclopedia of Creativity (pp. 642-647). Elsevier Science.

Dieffenbacher, F. (2021). *Fashion thinking : creative approaches to the design process* (Second edition.). Bloomsbury Visual Arts, Bloomsbury Publishing Plc.

Rissanen, T. , & McQuillan, H. (2023). Digital Tools for Zero Waste Fashion Design. In Zero Waste Fashion Design (pp. 133–164). London: Bloomsbury Visual Arts. Retrieved March 24, 2024, from http://dx.doi.org/10.5040/9781350241862.ch-4

Van Tilburg, W. A., Sedikides, C., & Wildschut, T. (2015). The mnemonic muse: Nostalgia fosters creativity through openness to experience. *Journal of Experimental Social Psychology*, *59*, 1-7.

Ye, S., Ngan, R. Y. L., & Hui, A. N. (2013). The state, not the trait, of nostalgia increases creativity. *Creativity Research Journal*, *25*(3), 317-323.

Cheung, W. Y., Wildschut, T., Sedikides, C., Hepper, E. G., Arndt, J., & Vingerhoets, A. J.

(2013). Back to the future: Nostalgia increases optimism. *Personality and Social Psychology Bulletin*, *39*(11), 1484-1496.

Dionisio, J. D. N., Burns III, W. G., & Gilbert, R. (2013, June). 3D Virtual Worlds and the Metaverse: Current Status and Future Possibilities. *ACM Computing Surveys*, *45*(3), 38. http://dx.doi.org/10.1145/2480741.2480751

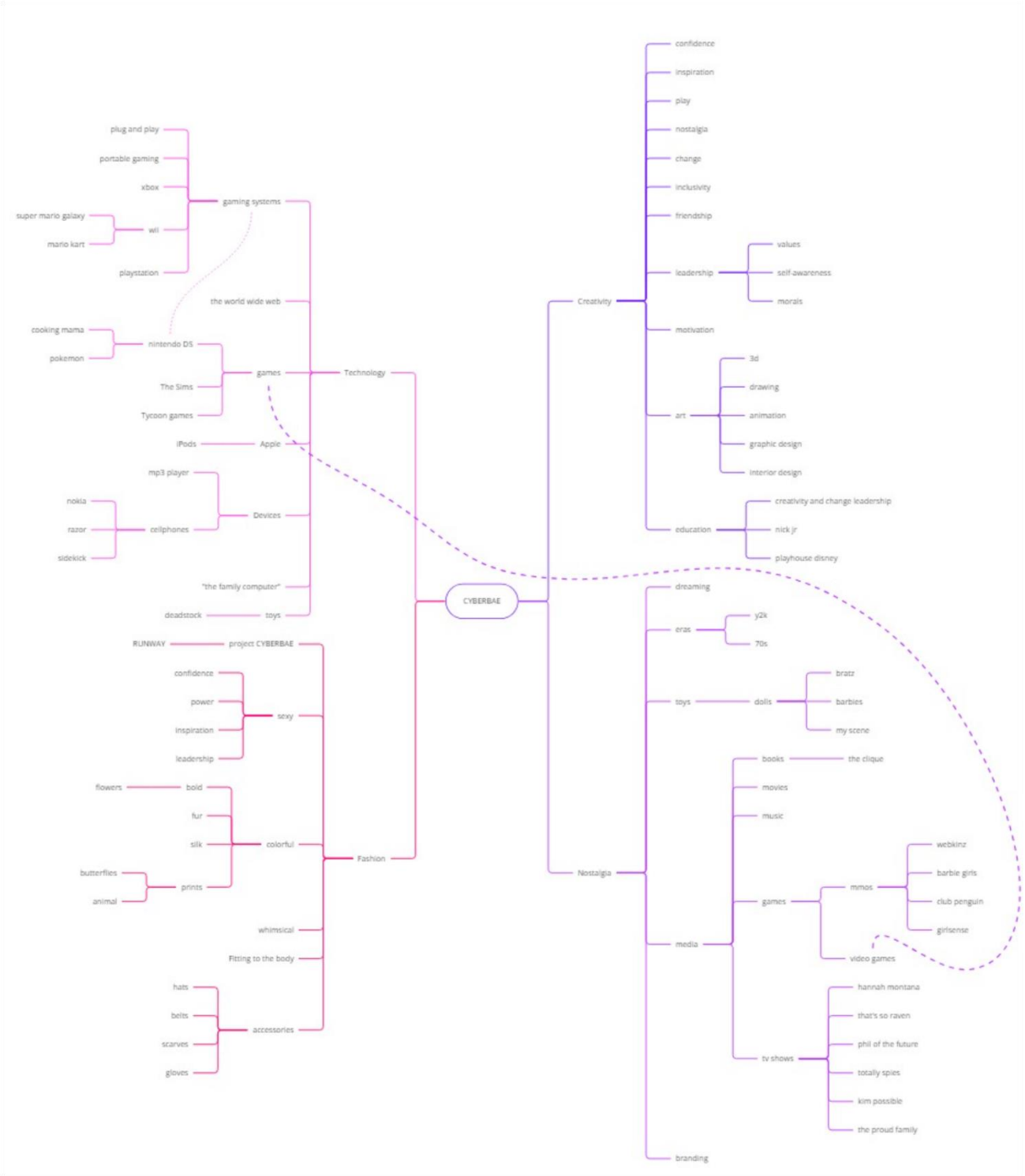
Singla, A., Gupta, N., Aeron, P., Jain, A., Garg, R., Sharma, D., Gupta, B., & Arya, V. (2023). Building the Metaverse: Design Considerations, Socio-Technical Elements, and Future Research Directions of Metaverse. *Journal of Global Information Management*, *31*(2), 1–28. IGI Global. http://doi.org/10.4018/JGIM.321755

Dugal, J. (2023, November 8). *How the metaverse and generative AI are transforming fashion*. fashionabc. Retrieved December 10, 2023, from https://www.fashionabc.org/how-the-metaverse-and-generative-ai-are-transforming-fashion/

Appendices

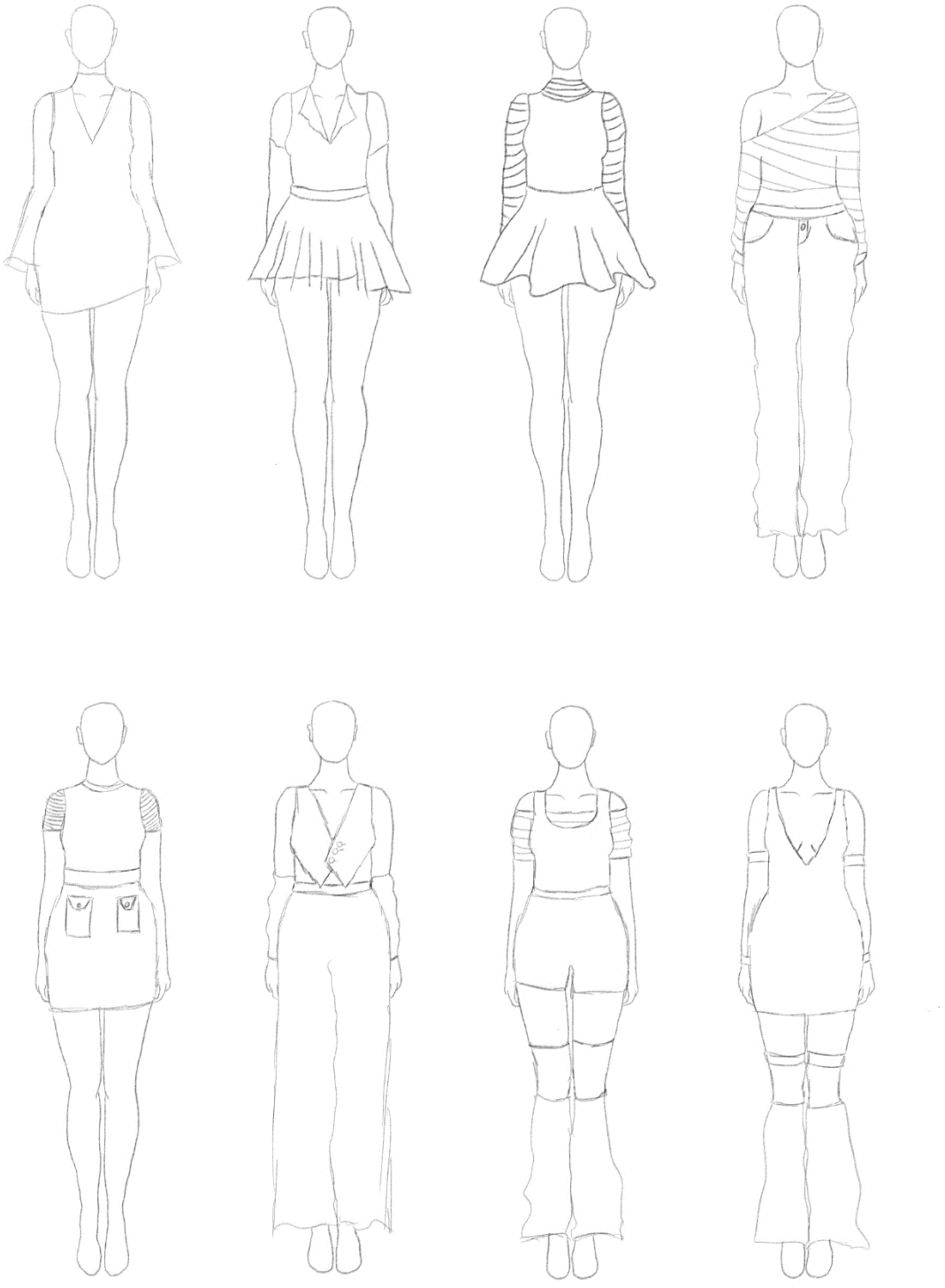
Appendix A: Phygital Fashion Design Process Toolkit

Appendix B: Project CYBERBAE Mind Map

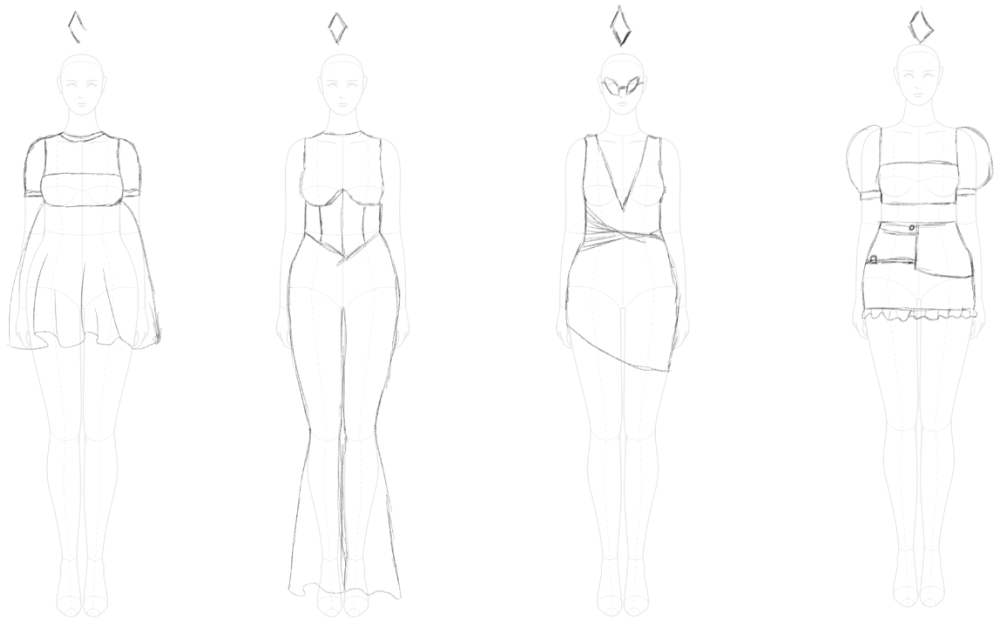


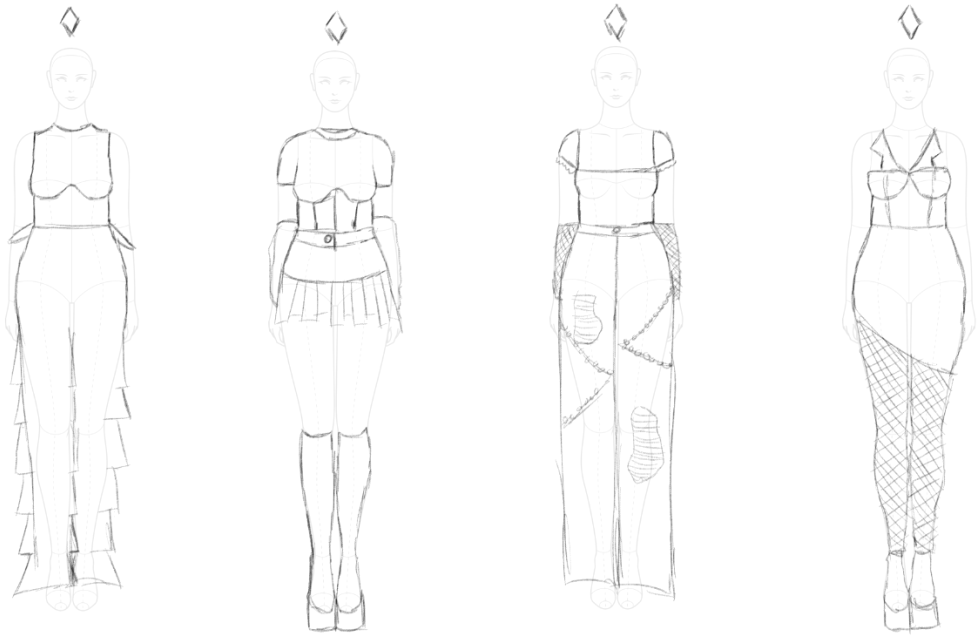
Appendix C: Project CYBERBAE Design Sprints

Design sprint to visualize popular clothing silhouettes from the 2000s.



Design sprint to visualize different garment concepts for Look 1: Gum - Jet Set Radio Future





Design sprint to visualize different garment concepts for Look 2: Bella Goth - The Sims 2

Appendix D: 3D Virtual World AI Images

Visual concept of an AI Virtual Stylist. This character will help lead the user through the tutorial of the game.

Visual concept of a 3D fashion design studio. Users would be able to create garments from scratch or pre-designed silhouettes.

Visual concept of a magazine studio within the 3D virtual world. Users would be able to create fashion publications with a wide variety of features to create the fashion magazine of their dreams.

Visual concept of a virtual photo studio. Users can build sets and use digital photography to showcase their garment designs or stylized fashion concepts on models for fashion publications and campaigns.

For more visual references of this Masters Project, visit this link:
https://viewer.diagrams.net/?tags=%7B%7D&target=blank&highlight=FF99FF&layers=1&nav=1&title=McDaniel_Masters%20Project.drawio#G1RUhV1lFpc5fwapFM0D-7v33J2bHU1y0c

Or

https://drive.google.com/file/d/1RUhV1lFpc5fwapFM0D-7v33J2bHU1y0c/view?usp=sharing

Permission to place this Project in the Digital Commons online

- I hereby grant permission to the Department of Creativity and Change Leadership, Center for Applied Imagination at Buffalo State University permission to place a digital copy of this master's Project The Phygital Design Process: Using Emerging Technologies to Create a Phygital Fashion Brand Rooted in Nostalgia as an online resource.

Madeline McDaniel

Name

5/21/2024

Date