**Total 30 pages, 8500 words**

**INTRODUCTION (600 words)**

**This section includes a clear statement of the problem and the reasons for studying it. Provide a detailed yet concise background discussion of the problem and the significance, scope, and limits of the work.**

Images stand as essential mediums through which human engage with and interpret their surroundings, largely perceiving the world through visual stimulation. They represent visual perception, ranging from tangible captures by optical devices—cameras, mirrors, telescopes, and microscopes—to the areas of imagination realized through paintings and digital art. Historically preserved on paper, canvas, and light-sensitive materials like film, the evolution of imaging technology has ushered in a digital era where images are increasingly stored, shared, and manipulated in digital formats. This progression is underpinned by significant advances in digital acquisition technology and signal processing theories, reshaping our interaction with images, and expanding the horizons of artistic and scientific expression. This background forms a crucial context for exploring the dynamic interplay between AI and image, highlighting a transformative shift in how we create, disseminate, and perceive images in contemporary society.

The advent of AI-generated art, particularly in the form of drawings, marks a revolutionary chapter in the history of artistic expression and media theory. This innovation traces its basis to the exploration of automata, a field where technology and artistry intersect, challenging traditional definitions of authorship and artistic genius. AI drawings originate from the desire to extend the capabilities of human creativity with the precision versatility and computation ability of machine intelligence. Early experiments in this domain sought to understand whether machines could replicate or even augment the creative process, leading to the development of algorithms capable of producing visual art. Today, AI's capability in art generation has transcended mere replication, embodying the ability to synthesize novel visual expressions from vast datasets of existing artworks. These systems, powered by advanced machine learning techniques such as Generative Adversarial Networks (GANs) and deep learning models, can now generate images that resonate with human aesthetics, yet are entirely new creations. This breakthrough not only frees artistic production, making it accessible to those without formal training, but also stimulates a profound discourse on the essence of creativity, the role of the artist, and the evolving relationship between humans and machines in the creation of art. AI-generated drawings emerge not just as technological singularity, but as a medium that challenges and expands the boundaries of traditional media theory, inviting a reevaluation of art's place in the digital age. It also prompts a profound reevaluation of media theories and fosters a deeper comprehension of the intricate relationship between technology and artistic creativity.

Jean-Paul Sartre's theory highlights a fundamental distinction between perception and imagination. According to Sartre, perception is an observational, incomplete engagement with objects through our senses, inherently limited to one perspective at a time. Conversely, imagination is total and subjective, presenting all aspects of an imagined object simultaneously, based on our synthesis of knowledge and intentions. This conceptualization of imagination as "quasi-observation" suggests that our imaginative constructs are deeply personal and shaped by our desires and prior experiences. In the context of AI art, Sartre's theory offers intriguing parallels. AI-generated art challenges traditional media by introducing a form of 'imagination' that synthesizes vast datasets into creations that might reflect the machine's 'intention' based on its programming. Thus, AI art can be seen as a manifestation of technological quasi-observation, where the output reflects a blend of past data and current algorithmic processes, inviting viewers to engage not just with the art itself but with the underlying intentions and knowledge embedded by its creators.

Under the strict requirements of Yun Lv (rhythm) and Dui Zhang antithesis, Gu Shi (Chinese ancient poetry) uses minimal words to unfold various scenes from magnificent natural landscapes to deeply empathetic experiences of joy and sorrow, separation and union. This is achieved through imagery—a symbol in ancient poetry, and people's imagination. To expand upon the essence of Classical Chinese poetry within the framework of Jean-Paul Sartre's theory and semiotics, it's pertinent to delve into how these ancient texts serve as a conduit for profound imaginative engagement. The meticulously structured verses, bound by the artful constraints of antithesis and rhythm, epitomize the use of linguistic signs to evoke expansive worlds within the reader's mind. This poetic form, leveraging a succinct and potent vocabulary, mirrors Sartre's concept of imagination as a realm where the totality of an object—or in this case, a vivid scene or emotion—is presented through synthesis of the reader's knowledge and intentions. The sparse yet evocative language of these poems, each character imbued with deep historical and cultural significance, operates as a semiotic beacon, guiding the reader to transcend the textual surface and explore the multifaceted layers of meaning. Classical Chinese poetry thus stands as a testament to the ancient poets' adeptness in creating immersive, imagistic experiences, illustrating the dynamic interplay between signifier and signified, and highlighting the imaginative leap required to fully realize the poetic imagery within the mind's eye.

"Verse into Vision" presents an innovative tool designed to transform ancient Chinese poetry into visual art through AI technology, enabling a dynamic exploration of poetic imagery within a digital landscape. This project produces a collection of over a thousand images derived from Wang Wei's poetry, embodying the fusion of textual elegance and visual aesthetics. Additionally, the development of a user-friendly website showcases these images, offering public access and interaction with the artwork. These outcomes not only validate my proficiency in data science but also spotlight the venture's impact in bridging AI and artistic expression. Despite its successes, the project navigates through challenges like time and financial constraints, and intellectual property limitations, which somewhat narrow the scope of AI model exploration and depth of media theory and semiotics discussion. This endeavor illuminates both the accomplishments and potential expenses for future exploration in the convergence of technology and art.

**MEDIA AND LITERATURE REVIEW (3000 words)**

**This section lays out a clear argument towards establishing your perspective on the research question at hand. To do this, you can provide a theoretical or historical literature review and/or case study analysis of works in your medium of choice (i.e. film, installation, fictional narrative, interactive media, etc.). Be sure to keep the discussion focused on precedence that directly speaks to your argument and topic. Do not include unnecessary references that are minorly relevant.**

**PROCESS, MATERIALS, AND METHODS (3000 words)**

**This section describes your response to the discussions and perspectives laid out above. For creative practice students, this section should describe your creative process, techniques and technologies applied, as well as material used to create your final outcome. For certain types of works such as digital work, games, websites, apps, etc., this section should also reflect your design process and various prototypes, user studies, play tests, etc. For film and video works, you could include discussions on narrative and story development, character design, cinematography, editing and special effects approaches, etc.**

1. **Introduction to the Creative Process:**
   * 1. **In this project, I wish to create a tool that visualize the Chinese poetry. This is because that in my early education, the Chinese poetry is always recited instead of understanded, which makes me hate to learn it. However, I realized that the beauty of Chinese ancient poetry soon as I lost the utilitarian external motivation. To let people truly understand Chinese poetry and play with them instead of reciting them mechanically, I want to develop the tool that can turn Chinese poetry into Images with their own modifications.**
     2. **This tool is designed to have basic input of Chinese ancient poem and then it will generate a corresponding English prompt for the AI drawing model. Then it will call the drawig model to draw the image and display it. People can also download the image easily. In order to show capability of the tool, the project also include part that aims to visualize a set of Chinese ancient poetry to have a collection of outcomes. With the outcomes, there must be a way to display them, that’s why another website is designed for people to rate the outcomes and view the images.**
     3. **During this process the knowledge of my major – data science – is fully used: coding in different programming languages, data collection and process, construction of database and website, the model tuning, Human-computer interaction design, and data visualization and outcome presentation.**
     4. **Through the implementation of this tool, I also thought a lot about the way that algorithms understand icons and symbols in Chinese and reflect its meaning to semiotics and information theories.**
2. **Development of the Program:**
   * **Description of the programming process to translate Chinese poetry into images.**
   * **Discussion on the choice of APIs used for image generation.**
   * **Explanation of algorithms or models developed and their functionality.**
3. **Website Design and Development:**
   * **Outline of the design process, including user interface design principles applied.**
   * **Description of the development technologies and frameworks utilized.**
   * **Iterations and prototypes developed, if any, and user testing conducted to refine the website.**
4. **The Image Generation of 《王维集》:**
   * **Detail the process of selecting and processing the database of Wang Wei's poetry.**
   * **Explanation of how each poem was translated into a corresponding image.**
   * **Discuss any challenges encountered and how they were addressed.**
5. **Website for 《王维集》 Presentation and Interaction:**
   * **Describe the features of the website that presents Wang Wei's poetry images.**
   * **Explain the voting mechanism and how it engages users.**
   * **Mention any user feedback received and subsequent iterations of the website.**
6. **Expansion Beyond 《王维集》:**
   * **Discuss the process of generating images from other famous poems and those written by peers.**
   * **Reflect on the differences in approach, if any, between different sets of poetry.**
7. **Technical Challenges and Solutions:**
   * **Address specific technical hurdles encountered during the project, including issues with APIs, data processing, or website functionality.**
   * **Describe the solutions implemented to overcome these challenges.**
8. **Conclusion:**
   * **Summarize the key accomplishments of the project.**
   * **Reflect on the significance of the work in demonstrating your abilities as a data science student and contributing to the interdisciplinary field of AI and art.**

The inspiration of this project was driven by my personal transformation from reluctance towards learning Chinese ancient poetry, due to its traditional recitation methods, to a profound appreciation of its inherent beauty. This shift inspired the creation of a tool designed to bring these poetic works to life visually, enabling users to interact with and understand the poems on a deeper level. This tool, engineered to take a poem as input and generate an English prompt for an AI drawing model, culminates in the visual representation of the poem. The ambition was to freely interact with the rich tapestry of Chinese poetry through technology, allowing for personalization and easy image download. To showcase this tool's capabilities, the project also includes a collection of visualized Chinese poems, presented on a website where viewers can engage by rating and viewing images. Utilizing my data science background, the project encompassed coding in diverse programming languages, data management, database and website development, algorithm tuning, and meticulous design of human-computer interactions. This journey not only utilized my technical skills but also encouraged a contemplation on how algorithms interpret symbols and icons within Chinese poetry, engaging deeply with semiotic and informational theories.

The programming process to translate Chinese poetry into images was a sophisticated routing of exploration and refinement. Beginning with various AI drawing models, we navigated through different attempts in DALL-E, Midjourny, Stable Diffusion to find the optimal approach for visual translation. Central to our methodology was a translating model that parsed the essence of the poetry, focusing on capturing the objects, emotions, and scenes described. We crafted a dynamic script to generate English prompts from Chinese verses, tailored for an AI drawing model's comprehension. Through meticulous tuning and experimentation, including adjustments to prompts for clarity and thematic accuracy, we honed the script's ability to produce prompts that resonate with the poem's imagery. The script successfully integrates the analysis of poetic elements with the generation of detailed, contextually rich visual prompts, ensuring that the resulting images are imbued with the poem's atmospheric and stylistic nuances. As an example, here is a poetic prompt that the code generated:

The distant fragrance invades the ancient pathway,

As clear and verdant scenery connects with the abandoned city.

The vibrant blooms and their sweet scent,

Permeate the air, a reminder of days long gone.

The winding pathway, worn with time,

Symbolizes the passage of years, of memories left behind.

Surrounded by lush, green vegetation,

A serene and peaceful atmosphere fills the air.

In the background, a deserted city stands,

With crumbling walls and dilapidated buildings,

Nestled amidst rolling hills and mountains,

Painted in shades of emerald green.

The sky above is clear and bright,

The sun shining down, casting a warm golden glow.

A moment frozen in time, evoking nostalgia,

And a sense of tranquility that lingers in the air.

In this scene from ancient China,

The beauty of nature and the remnants of the past,

Merge together in a harmonious embrace,

Creating a picture of timeless beauty and serenity.

This delicate balance of technology and creative insight resulted in a collection of images that not only represent the poem's visual narrative but also embrace the aesthetic and cultural depth of ancient Chinese settings, devoid of any modern elements or anachronisms.

**FINAL OUTCOME (1000 words)**

**This section should focus on clarifying and outlining your final product (i.e., a film, an art installation, a performative piece, etc.). For instance, an installation artwork would include your concept statement, description of the work, an exhibition design and rationale, as well as possible image, audio, and video documentation of the work in its finished state. Please consult with your mentor on what is suitable to discuss in this section based on your medium of choice.**

1. **Overview of Project Outcomes**:
   * Provide a brief summary of the project's final deliverables, setting the stage for a detailed discussion.
2. **The Program: Translating Poetry into Images**:
   * Describe the program developed for converting Chinese poetry into visual art, emphasizing its innovative aspects.
   * Highlight the technical capabilities and the creative potential it unlocks.
3. **Website Interface for Public Access**:
   * Detail the design and functionality of the website that interfaces with the program, facilitating user interaction.
   * Discuss the user experience and how the website serves as a bridge between the program and the audience.
4. **《王维集》Image Collection**:
   * Present the collection of over 1000 images generated from Wang Wei's poems, discussing the significance of this selection.
   * Reflect on the artistic and cultural implications of visualizing such a canonical body of work.
5. **Interactive Website for 《王维集》**:
   * Describe the second website specifically designed for showcasing the 《王维集》 collection and facilitating user votes.
   * Analyze the engagement and feedback received from users, and the impact on the project's reception.
6. **Extension Beyond 《王维集》**:
   * Discuss additional images generated from other famous poems and contributions from peers, highlighting the project's adaptability and broader application.
   * Reflect on the diversity of visual interpretations and the engagement with a wider range of literary works.

**REFLECTIONS (2000)**

**This section is written to put the interpretation of the final outcome into the context of the original problem. Do not repeat the discussion points above or include irrelevant material. The reflection should be based on what you were able to achieve for the final outcome and could also include next step development plans for the work or research.**

**This section includes a clear statement of the problem and the reasons for studying it. Provide a detailed yet concise background discussion of the problem and the significance, scope, and limits of the work. This section lays out a clear argument towards establishing your perspective on the research question at hand. To do this, you can provide a theoretical or historical literature review and/or case study analysis of works in your medium of choice (i.e. film, installation, fictional narrative, interactive media, etc.). Be sure to keep the discussion focused on precedence that directly speaks to your argument and topic. Do not include unnecessary references that are minorly relevant. This section describes your response to the discussions and perspectives laid out above. For creative practice students, this section should describe your creative process, techniques and technologies applied, as well as material used to create your final outcome. For certain types of works such as digital work, games, websites, apps, etc., this section should also reflect your design process and various prototypes, user studies, play tests, etc. For film and video works, you could include discussions on narrative and story development, character design, cinematography, editing and special effects approaches, etc. This section should focus on clarifying and outlining your final product (i.e., a film, an art installation, a performative piece, etc.).**

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