ATWP135
COURSE PORTFOLIO
ASSESSMENT

INSTRUCTOR: KÄSTLE VAN DER MEER
NAME: TANUJ DARGAN
STUDENT NUMBER: V01040822
SECTION: A28 (20252)

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Introduction

Welcome to my portfolio! I'm honored to share with you the projects I've worked on throughout this course, have not only helped me grow as a writer but also broadened my perspectives on various topics. This portfolio is a collection of my work completed throughout the course of ATWP 135, including a Personal Literacy Statement, an Academic Summary, a Persuading Skeptics Essay, a record of my Research Consultation Meeting & Questions, a Peer Review and Draft Introduction, and a Final Research Essay. Each piece represents a step in my journey as a writer and a testament to my growth.

One of my favorite aspects of this class was learning to analyze academic writing in terms of rhetorical purpose, audience, content, genre, and stylistic features. This in-depth approach to examining written works has given me a newfound appreciation for the intricacies of effective communication. By considering these elements, I've gained valuable insights into how writers tailor their messages to specific audiences and purposes (Dargan, 2024). This knowledge has been instrumental in shaping my own writing process and has helped me create more targeted and impactful pieces.

Before taking this class, I considered myself a decent writer but lacked confidence in my ability to tackle complex writing tasks. However, this course has transformed my understanding of the writing process and equipped me with valuable tools and strategies to approach any writing challenge. I've learned the importance of prewriting, drafting, and revising, and how each stage contributes to the overall quality of the final product (Dargan, 2024) Moreover, I've come to appreciate the value of collaboration and feedback in the writing process, as evidenced by the Peer Review assignment.

One of the assignments that particularly challenged me was the Persuading Skeptics Essay. It pushed me to think critically about a controversial topic and craft a compelling argument that would resonate with a skeptical audience (Dargan, 2024). Through this experience, I learned the

importance of anticipating counterarguments and addressing them effectively to strengthen my own position.

I'm especially proud of my Final Research Essay, which allowed me to showcase the skills and knowledge I gained throughout the course. The Research Consultation Meeting & Questions record demonstrates my ability to engage in scholarly research and seek guidance when needed (Dargan, 2024). The final essay itself is a testament to my growth as a writer, as I was able to synthesize information from various sources and present a cohesive, well-supported argument (Dargan, 2024).

In terms of design decisions, I aimed to create a visually appealing and user-friendly portfolio that effectively showcases my writing journey. I hope that the organization and presentation of the projects make it easy for you to navigate and appreciate the progression of my skills and understanding of the writing process.

Thank you for taking the time to explore my ATWP135 portfolio. I hope that it provides a comprehensive view of my development as a writer and the valuable lessons I've learned along the way.

Personal Literacy Statement

Writing drafts.... feels more like being drafted into the army. As someone who wrote countless number of Essays upwards of 1000 words, this assignment should feel like nothing for me right?

Yet somehow it feels like the most daunting task I've been assigned since I've gotten to university. I often find myself working on a single draft that includes versions of my shitty, good, and terrific edition drafts as well.

My Computer Science Extended Essay. for example, had several documents with the title FINAL, FINAL FINAL, FOR SURE FINAL. That was a rare occurrence for me, which subsequently placed me in an uncomfortable situation as I thought to myself "I'm ruined". This, in turn, led to additional turmoil, causing heightened levels of demotivation and procrastination in the subject I had once loved immensely.

As I pull up my sleeves, stretch my neck out until it gives off a *crack* sound and get into the zone of being the academic weapon I am, I start to overthink and come up with different ways I could present my thoughts. Unlike Lamott and my Extended Essay, I tend to "let it all pour out and then let it romp all over the place" as if "no one was going to see it" until I come back scampering around the revision history editing my essay/paper into the state I want it to be in. While I keep myself occupied with that, the music that's supposed to help me focus slowly takes over and I lose track of what it is that I was trying to communicate. However, during the university application process, this proved beneficial, allowing me to review my work, identify errors, and ideate, which inherently led me to UVIC. On some rare occasions I have found myself to work in autopilot mode especially in my Extended Essay, where it feels like I've been writing about a topic I am well acquainted with for so long that I just let my sub conscious mind cook up my essay.

To add, throughout my high school years, the feeling of "you can either type or kill yourself." has often overshadowed the quality of my work. I noticed this becoming extremely prevalent during

the last few weeks of final 12th grade submissions for my Theory of Knowledge Essay. I began writing for the sake of getting the task done and not trying to work according to the rubrics or the thoughts I wanted to express.

In contrast to academic writing, I find myself running away from reading academic writing even more. While I enjoy casually reading romance, horror, and murder mystery novels like "Before the Coffee gets cold", reading research papers makes me want to "study my teeth in the mirror for a while".

Moreover, while working on essays for daunting subjects like Maths, it would feel like the critic, or the teacher is sitting on my shoulders looking over every single word I write and judging me for it. Although I have never made a low effort submission, I still feel like I had an opportunity to improve every single time. However, in cases like my high school IB Internal Assessments, it seemed my work quality dramatically improved as the deadline approached. While I may seem like someone who thrives under pressure the irony is that, despite disliking last-minute efforts, I still submit assignments at 11:59 pm on the due date. To end on a good note, I did submit this assignment a day before the deadline, I guess getting something down on paper does really work.

Academic Summary

The article "Online Outrage Can Benefit Brands That Take Stances on Social Issues" explores the phenomenon of online outrage and its impact on brands that publicly express social stances. In theory, the authors Saeid Kermani, Peter Darke, and Theo Noseworthy, believe that when brands align with social causes, they tend to face online outrage. However, this outrage can be advantageous as it increases the brand's visibility and can lead to increased sales. This is supported by Nike's controversial Colin Kaepernick advertisement and the subsequent online backlash, which unexpectedly resulted in monetary success of $6 billion for the company. The article explores the psychology behind the positive impact of brand outrage, implying that it's viewed by participants as a threat to their personal social values, often stemming from a vocal minority. Many consumers, who either align with the brand's position or are unconcerned, might feel driven to support the brand amidst the outrage, leading to increased sales. The managerial implications underline the need for brands to align their social marketing campaigns with their core customer values to mitigate risks and maximize benefits. The article also discusses the importance of brand authenticity, arguing that brands with a history of supporting social causes are seen as more authentic and thus more likely to benefit from the outrage, whereas brands that suddenly adopt social causes may face consumer scepticism and may be on the inferior edge of the double-edged sword. In conclusion, the authors argue that while online outrage can be difficult for, it can also serve as a powerful tool for increasing visibility and sales, especially for brands that consistently support social causes.

Persuading Skeptics Essay

In the thoroughly researched article "Online Outrage Can Benefit Brands That Take Stances on Social Issues," Saeid Kermani, Peter Darke, and Theo Noseworthy deconstruct a popular myth in contemporary marketing—that brands should stay out of socially contentious issues to maintain a neutral market position. However, the authors don't simply challenge that notion; by extensive dissection of the aftermath left by Nike's controversial ad campaign featuring Colin Kaepernick, they assert an argument in which brand resiliency in the face of public aversion can lead to enhanced consumer loyalty and financial success (Darke et al., para. 3).

This essay seeks to further the argument presented in the article, by pointing out its ethos, logos, and pathos and hence further consolidating its credibility, and building up its power of persuasion to the skeptics.

The article is relevant for a broad readership—from marketing professionals through to change advocates in society—advocating that brands become mirrors of societal evolving values. In an era where consumer power is rising to direct purchasing in tune with one's ethics and politics, the authors argue that brands can command this (Darke et al., para. 5). This is the context in which the article's thesis is set—one of those that are not mere speculation, but rather are soundly based upon a series of systematic studies.

The authors label this 'positive outrage' and capture the positive effects that public backlash against a brand's social stance can have at its very heart. The authors show, in a sample of five methodologically sound studies, that consumers self-expressing that they adhere to a brand's values experience a higher sense of affiliation toward the brand and buy more from it in reaction to social media outrage (Darke et al., para. 7). This argument is a testament to the logos in the article – a logical structure buttressed by empirical evidence.

The case with details about Nike's Kaepernick campaign, when the brand value rose $6 billion despite initial backlash, is one of the quantitatively powerful examples proving the statement

given by this article (Darke et al., para. 3). This is not only the story of an underdog but the story of logos, appealing to the logical side of the skeptic with hard evidence and reason.

The article's ethos, or its ethical appeal, is indisputably strong. The authors' scholarly and professional background naturally give their analysis a certain weight and command respect. The deep dissection of consumer behavioral data and the balanced presentation of the risks related to brand activism hardly give room for a different opinion (Darke et al., para. 12). In acknowledgment of how complex it is and how much a stand on the social issue might be a mishap, the authors refine the argumentation which takes into consideration the benefits and difficulties of brand activism. Pathos is also taken care of in the authors' rhetorical strategy. People may have deep connections to the brands they use as a reflection of values that are important to them, so it is all that much more striking to read about it when that brand is under some kind of perceived attack. Such emotional investments may turn consumers into brand advocates who in return mobilize to support and defend a brand from the outrage.

More important than the individual consumer behavior, the authors take their considerations regarding the implications of the findings into society. They have argued that currently, brands are in a strategic position towards driving social change as wielders of adequate social influence. It will unify people for collective action and will unite people in favor of common cause (Darke et al., para. 14). This then gives another dimension to the article, calling on the readers to reflect the wider implications that brand activism has for social coherence and development. The authors state that in the age of the internet, which now has its loud echo mirroring public opinion, brands will necessarily incite outrage with the purpose of building a stronger and more dedicated client list (Darke et al., para. 16).

Finally, the paper by Kermani, Darke, and Noseworthy is a highly persuasive, balanced article which appeals to its audience's logic, ethics, and emotions. Nuanced and insightful, the article reveals brand strategies on controversial issues—leveraging potential adversity as a source of

strength. The article convinces that through its logic, credible authorship and emotional resonance, brands have much to gain from standing firm in their social beliefs even against the online outrage (Darke et al., para. 18). This article does not just argue for a novel marketing strategy, but it rather puts fourth a new paradigm wherein brands are active participants in the discourse of social values—fully prepared to weather the tempest of public opinion whilst being on the right side.

Naysayer Description:

The naysayer to this article may come from traditionalists in business who believe companies should remain neutral in social discourse to avoid public opinion volatility. They argue that taking social stances could divide the customer base, dilute the brand's focus on product quality and service, and lead to long-term loss of trust and customer loyalty. They also question the sustainability of such marketing strategies, doubting whether short-term gains translate into long-term profitability and brand health.

Research Consultation Meeting & Questions

1. **Introduction and Topic of Interest**

   The general subject that interests me is Computer Science, specifically the sub-discipline of Game Development. The specific aspect of this subject that intrigues me is the comparison of different lighting methods in video games in terms of their performance and visual quality. I am particularly interested in understanding which methods offer the best balance between these two factors.

2. **Current Knowledge**

   Currently, I understand that lighting in video games is a crucial aspect of game development as it significantly impacts the visual quality and performance of the game. Different lighting methods, such as parametric/bitstream methods, hybrid methods, and reduced-reference (RR) models, have different characteristics and efficiencies. Some methods are more efficient but may not provide the best visual quality, while others may offer superior visual quality but require more computational resources such as real time ray tracing or PTGI (A combination of ray tracing and path tracing).

3. **Information Needed**

   To become better informed about this topic, I need to find out more about the specific methods used for real time lighting and identify the most common ones out of them to help maintain focus within my research. Moreover, I need to consider factors that I would use to analyse performance and visual quality. Factors such as FPS, Avg FPS, 1% Lows, Power Draw, Hardware Utilisation, Texture quality and more. Additionally, I would need to research on the implementation of various lighting methods in different game engines and how that would impact quality or performance metrics. Finally, I would look into how developers balance performance and visual quality.

4. **Research Question**

How do different lighting methods in video games compare and contrast in terms of their performance and visual quality, and which methods offer the best balance between these two factors? I have completely revised my topic because my original choice was extremely niche, making it highly challenging to condense all the necessary information within 1000-1500 words. Additionally, my new topic holds greater personal interest for me and is likely to captivate a broader audience.

5. **Working Thesis**

    My current working thesis is that **the balance between performance and visual quality in video game lighting methods is not a one-size-fits-all solution but rather a dynamic equilibrium that varies depending on the specific requirements of a game project.** This balance is influenced by factors such as the game's artistic style, technical constraints, targeted hardware platform, and the intended gaming experience. More specifically, methods such as static lighting might be preferred in games where performance is the priority (Firewatch and LIMBO for example), as this approach requires less computational power due to pre-computed light maps. Conversely, for games emphasizing high visual fidelity, dynamic lighting methods, though more resource-intensive, might be the optimal choice due to their real-time adaptability and ability to produce more realistic and immersive environments. Moreover, sometimes solo/indie developers may use these methods to reduce development time. Furthermore, hybrid lighting methods, which combine elements of both static and dynamic lighting, might offer the most balanced approach for games that aim to strike a balance between performance and visual quality. However, the best method can only be determined by a thorough comparative analysis of the different lighting techniques, taking into account factors such as the computational cost, implementation complexity, artistic control, and the overall impact on the visual aesthetics and gameplay experience. To add, most well-known games (Counter Strike, VALORANT, Rainbow Six,

LoL, COD, The Last of Us, Uncharted and many more) utilise a hybrid model alongside a

rendering technique known as deferred rendering which will be explained further in my

research paper.

6. **Sources of Reliable Information**

Akay, Simal. Degree Project in Architectural Lighting Design Second Cycle 15.0 Hp

Lighting for Tension in Video Games. 14 July 2022.

https://www.divaportal.org/smash/get/diva2:1683254/FULLTEXT01.pdf

This was found through a google search "lighting in video games with a mood", I was

trying to find something on how lighting systems might change on the basis of a game's

tone and mood.

Cristian Lambru, Anca Morar, Florica Moldoveanu, Victor Asavei, Alin Moldoveanu.

"Comparative Analysis of Real-Time Global Illumination Techniques in Current Game

Engines | IEEE Journals & Magazine | IEEE Xplore." Ieeexplore.ieee.org,

ieeexplore.ieee.org/document/9527241 Accessed 5 Mar. 2024.

I found this source by using Google Scholar with the keywords: "real time game lighting

comparison".

El-Nasr, Magy, and Ian Horswill. "Intelligent Lighting for Game Environments." Journal of

Game Development, vol. 1, Jan. 2005, pp. 17–50.

https://www.researchgate.net/publication/229139093_Intelligent_Lighting_for_Game_E
nvironments

I found this by searching for "lighting for game environments" on google scholar.

Andrey Iones, Anton Krupkin, Mateu Sbert, Sergey Zhukov. "CSDL | IEEE Computer

Society." Www.computer.org,

www.computer.org/csdl/magazine/cg/2003/03/mcg2003030054/13rRUwwslvK

Accessed 6 Mar. 2024.

I was searching for video game lighting through the UVIC Library when I found this.

Magy Seif El-Nasr, Simon Niedenthal, Igor Kenz, Priya Almeida, Joseph Zupko. "Dynamic Lighting for Tension in Games." Game Studies Journal, vol. 7, no. 1, 2006, summit.sfu.ca/item/13.

This was also found through a google search "lighting in video games with a mood".

Tomas Akenine-Möller, Eric Haines, Naty Hoffman, Angelo Pesce, Michał Iwanicki, and Sébastien Hillaire. Real-Time Rendering. Boca Raton, Crc Press, Taylor & Francis Group, 2018.

This source was found through the UVIC Library website and search terms "Real Time Rendering".

Wang, Brandon. "VALORANT Shaders and Gameplay Clarity." technology.riotgames.com, Riot Games, 30 June 2020, technology.riotgames.com/news/valorant-shaders-and-gameplay-clarity

I found this source via a google search with the terms "Valorant Lighting". My intent with this search was to gauge an understanding of how lighting works in performance oriented games such as VALORANT since it falls under the e-sports category and not the AAA titles category.

7. **Source Annotation**

Cristian Lambru, Anca Morar, Florica Moldoveanu, Victor Asavei, Alin Moldoveanu. "Comparative Analysis of Real-Time Global Illumination Techniques in Current Game Engines | IEEE Journals & Magazine | IEEE Xplore." Ieeexplore.ieee.org, ieeexplore.ieee.org/document/9527241. Accessed 5 Mar. 2024.

Annotation: This article by Cristian Lambru, Anca Morar, Florica Moldoveanu, Victor Asavei, Alin Moldoveanu. offers a detailed comparison of real-time global illumination techniques in current game engines. Authored by experts in game development and computer graphics, the paper targets fellow researchers and game developers. The unique comparative analysis provides practical insights into different illumination

techniques in various game engines. This source could be illuminating for research on real-time global illumination in game development.

8. **Excitement and Worries**

One thing that excites me about working on this topic is the opportunity to delve deeper into the intricacies of game development, particularly the technical and artistic decisions that go into creating diverse and immersive gaming experiences. The study of lighting techniques in video games offers a fascinating intersection of art and technology, and it's thrilling to think that the insights gained from this research could potentially contribute to the creation of more visually stunning and well-optimized games in the future. On the other hand, one thing that worries me about working on this topic is the complexity of balancing visual quality with performance. Understanding the technical aspects of different lighting methods and their impact on a game's performance can be quite challenging. Additionally, evaluating the visual quality of different lighting techniques is a subjective process, which can be influenced by personal preference and the specific artistic style of the game. Therefore, providing an objective comparison and identifying the best balance between these two factors poses a significant challenge.

9. **Proposed Topic Summary**

My proposed research topic revolves around the comparative analysis of different lighting methods utilized in video games, specifically evaluating their performance and visual quality. I posit that the optimal balance between these two factors is not a universal solution, but rather a dynamic equilibrium that is contingent on the specific requirements of a game project. This hypothesis is supported by several scholars in the field. For instance, Akenine-Möller et al., in their book "Real-Time Rendering," discuss how various lighting techniques can dramatically affect the visual perception and performance of a game. Similarly, Watt and Policarpo's book "The Computer Image"

delves into the technical aspects of different lighting methods and their impacts on computational cost and visual fidelity. Through my research, I aim to critically evaluate these lighting methods in the context of different gaming scenarios. My goal is to identify the best practices for achieving an effective balance between performance and visual quality, taking into account factors such as the game's artistic style, technical constraints, targeted hardware platform, and the intended gaming experience. I am hopeful that my research will contribute to the existing body of knowledge in game development and potentially lead to more efficient and visually impressive games in the future.

Discussion Forum Posts

Mini-Assignment 1

Patchwriting Draft:

In Chapter 3.3 of 'Why Write: A Guide for Students in Canada,' the author discusses 'The Basics', introducing the 'Rhetorical Triangle as Communication Formula.' This section covers three key aspects: 'The subject,' 'The audience,' and 'The author.' The first element towards communication covered in the book refers to considering the focus of any form of communication. The authors go on to explain how some forms of communication may require little to no elucidation while others may be harder to interpret and thus requiring extended conversations. The writers also convey the fact that some subjects when delivered by a certain speaker have higher authority thus, seem more effective. Moreover, they accentuate on the idea that some topics require more light to be shed on them while others require imposition of languages or design to maintain the reader's attention. "An example of the same has been given as an anti-vaping government initiative" that makes use of graphics to ensure appropriate exchange with its target audience. Moving on to the second element of communication we tend to change how one discusses a subject depending on the audience. Audiences can be swayed by their assumption of the speaker, say the authors. They proceed to mention how those that side with your agenda don't require as much verification on the matter. Moreover, the author believes that for most undergraduate students in Canada, this concept is unfamiliar thus, increasing its presence throughout the book. Using an anecdotal when presenting information to an audience can substantially boost the effectiveness of an author's communication. This is what the final aspect of communication is geared towards as per the authors of Why Write. Assuming that you were a Formula 1 driver for Redbull Racing, and you were writing about motorsport racing. You would use several firsthand experiences from the sport as examples throughout your essay. This automatically makes you a credible and trustworthy source for the

information presented. Building upon this idea, the credibility of esteemed Canadian scientist and astronaut Dr. Roberta Bondar, for instance, becomes evident when seeking information on matters relevant to her expertise or life in general. Whether it be expertise in life or work, her fame enhances her trustworthiness within the audience. These elements combine to create the rhetorical triangle and shows that all 3 are correlated and are best used when in a balanced combination of one another. This formula for communication emerges from Aristotle's paper on rhetoric and it is a must for anyone who needs to communicate effectively, say the authors. The writers conclude by mentioning that further sections will contain more detail and how audience is deemed as the trickiest aspect of communication that you must keep an eye out for.

Summary:

Chapter 3.3 of 'Why Write: A Guide for Students in Canada's breaks down communication into three key aspects. The authors explain the importance of understanding the focus of what you're communicating. They further elaborate on how certain topics necessitate in-depth communication while others are fine with marginal amounts of clarification. They emphasize on the authority of authors and it leading to effective communication of certain topics. Moreover, the writers stress that a tailored approach is a must via an anti-vaping government initiative example maximising engagement through graphics. This second element addresses the need to adapt communication basis the audience. The authors put fourth that audiences are influenced by their perception of a speaker and those that parley with the speaker are likely to require less verification. This concept, rather unfamiliar to Canadian Undergraduates, is emphasised throughout the book. The final aspect covers the use of anecdotes to enhance communication. The writers suggest that sharing personal experiences can establish credibility and trust, citing the example of an Olympic skateboarder writing about skateboarding. They highlight how fame plus the credibility of individuals like Dr. Roberta Bondar, for example, enhances trustworthiness in their respective fields and beyond. They conclude by stating that the

rhetorical triangle, established in Aristotle's rhetoric paper, combines subject, audience, and author for effective communication. The chapter hints at upcoming detailed sections, and highlights importance of audience once again.

Mini Assignment 2

Youtube Video Link: **https://www.youtube.com/watch?v=bvLF1pp3pRw**

Introduction

The YouTube video I've chosen for this rhetorical analysis is a review of the Lenovo Legion 5 (2020) by Jarrod's Tech. This review is a comprehensive look at the laptop's features, performance, and value for money, making it a valuable resource for potential buyers.

Initial Thoughts

My initial reaction to the video was one of appreciation and excitement for the detailed and unbiased review. Jarrod's Tech provided a thorough analysis of the laptop's features, performance, and value, making it easy for viewers such as me to make an informed decision. Given the poor experiences I had with my previous laptop purchases, finding someone that aids the decision-making process was extremely helpful. Additionally, this video really helped me put some credibility into Jarrod as a youtuber since he didn't over-hype the product for any monetary or other purposes but rather because of the genuine price to performance ratio and quality of the laptop.

What readership does the author want to reach?

Jarrod's Tech aims to reach potential buyers of gaming laptops, particularly those interested in the Lenovo Legion 5. Other than that, he mainly targets students and those working in business environments with this since he often states the subtle look of the laptop as a key factor for many and the price range being highly competitive as well.

What is the author trying to convince me of or what is the author trying to put across to me?

The review covers various aspects of the laptop, including its design, performance, and value for money. Moreover, he intends to express why this machine maybe the right fit for various forms of users that maybe looking to buy it.

Why is the argument convincing?

The argument is convincing because it is based on a thorough analysis of the laptop. Jarrod's Tech tests the laptop's performance evaluates its design, features, performance and compares it to other products in the market. This approach provides viewers with a well-rounded understanding of the product. Other than that, it gives a review of the realistic performance one can expect from the laptop rather than a synthetic benchmark review that would only be relevant to a very minimal audience. To me this video specifically stands out because it is to date made by one of the only youtubers that cover nitty-gritty details like being able to lift the lid with one hand or the positioning of speakers affecting their performance on different surfaces. These are things that you would only find out by using the laptop and can be a deal breaker for many people. Having such information at hand helps immensely and prevents people from regretting their decisions in the future. Unlike, others who tend to just display specifications and benchmark statistics which can only go so far in giving the buyer an understanding of what they can expect while owning the laptop.

Does the author want me to feel some way about it, and why?

Rather than taking an emotional appeal, Jarrod's Tech wants viewers to feel informed and confident in their decision-making process. The detailed review is designed to provide viewers with all the information they need to make an informed decision about whether the Lenovo Legion 5 is the right choice for them.

Does the author want me to think in new ways about it, and why?

The review encourages viewers to think critically about their needs and preferences when choosing a gaming laptop. It prompts viewers to consider various factors, such as performance, design, weight, and value for money, and to weigh these factors against their personal needs and budget.

Do they want me to trust their evidence, and do I?

Jarrod's Tech uses evidence from his own testing and analysis of the laptop to support his review. This includes performance tests, evaluations of the laptop's design and features, and comparisons with other products in the market. I found this evidence to be trustworthy and convincing, especially once I owned the laptop.

Do I have any bias toward the article topic or author?

As a viewer and someone who is engrossed in the tech world, I don't necessarily have a bias for Jarrod's tech but after looking at the videos he has produced over the past few years, I have begun to trust his reviews a little more than other reviewers and have found that to help me make financially sound decisions. Although I must mention, my first good experience with a laptop was after I made the decision to buy a Legion 5 based on the review.

Feedback to Peers

Mini Assignment 1 Feedback

I found your summary and patch writing to be really well condensed content wise. I feel it has every necessary detail and its just enough to not become boring. As for the transitions, I personally tend to use "Moreover", "Therefore", "Moving on", "To continue" quite a lot but with your writing I found two places where I could re-write it sound a little more natural and flowy (not sure if that's an actual word).

For example you wrote: "In an article by Dr. Eve Tuck and Dr. K. Wayne Yang analyses a very important rhetorical figure, which is a metaphor. In their article they show the ways in which words can powerfully impact how we think, dream and behave in the world."

My version: "In their article, Dr. Eve Tuck and Dr. K. Wayne Yang analyze a crucial rhetorical figure—metaphor. Through their analysis, they vividly illustrate how words possess the power to shape our thoughts, dreams, and behavior in the world."

Although I believe the above isn't a great example of what I'm trying to put fourth, I think the following would be better:

You wrote: "In this article they say that rhetoric helps you see the difference of what can heal you and what can harm you and then it can help you make strong choices."

Revised: "The authors argue that rhetoric serves as a tool to distinguish between what can heal and harm, empowering individuals to make informed and robust choices."

Other than that, I enjoyed reading your work it was short and got the key points through to the reader.

Mini Assignment 4 Feedback

Your research on the gut microbiome's role in health and disease is timely and important, given the aging global population. By exploring the mechanisms behind gut microbiome dysbiosis and its links to various conditions, you could contribute to the development of new therapies for wellness. Your focus on the "hidden brain in the gut" is particularly intriguing and could provide valuable insights into this complex system. I believe your research is likely to help people debunk myths and facts floating around all over social media.

Peer Review and Draft Introduction

Introduction:

Lighting plays a crucial role in creating immersive and visually appealing video game environments. It sets the mood, guides player attention, and enhances the overall aesthetic of virtual worlds (El-Nasr et al). However, achieving high-quality lighting in video games is a complex task that requires careful consideration of various factors, including performance, artistic style, technical constraints, and target hardware (Akenine-Möller et al).

One of the primary challenges in video game lighting is striking a balance between visual fidelity and computational efficiency. High-quality lighting effects, such as global illumination (the simulation of indirect lighting bouncing off surfaces) and dynamic shadows (real-time shadows that update with moving objects), can significantly enhance the realism and visual impact of a game (Lambru et al). However, these techniques often come at a high computational cost, which can negatively affect the game's performance, particularly on resource-constrained platforms like mobile devices or older gaming consoles (Iones et al).

To address this challenge, game developers employ a variety of optimization techniques and clever rendering strategies. These approaches, such as pre-computed lighting (baking lighting information into textures), light probes (capturing and storing lighting information at specific points in a scene), and level-of-detail (LOD) techniques (reducing the complexity of objects based on their distance from the camera), help to reduce the computational overhead while maintaining acceptable visual quality (Akenine-Möller et al). Hardware acceleration and the utilization of graphics APIs like DirectX and Vulkan (API's are software interfaces that allow developers to communicate with graphics hardware) also play a crucial role in leveraging the capabilities of modern GPUs to achieve efficient lighting (Wang).

Another essential aspect of video game lighting is its ability to support the artistic vision and style of the game. Different game genres and art styles may require distinct lighting approaches to achieve the desired aesthetic (Akay). The choice of lighting techniques must align with the game's intended visual style and atmosphere. The target hardware and intended gaming experience also influence the selection of lighting techniques, with console games, PC games, and mobile games each presenting unique challenges and opportunities (El-Nasr et al).

This research paper will explore various lighting techniques used in video games, including static lighting (pre-computed, non-dynamic lighting), dynamic lighting (real-time lighting that updates with changes in the environment), global illumination, and physically-based rendering (a lighting model that simulates light behavior based on real-world physical properties). It will examine their implementations, performance considerations, and suitability for different game types and platforms. The paper argues that balancing performance and visual quality in video game lighting is a dynamic equilibrium that varies based on factors such as artistic style, technical constraints, targeted hardware, and intended gaming experience (El-Nasr et al). By analyzing the trade-offs between performance and visual quality, this paper aims to provide insights into achieving the desired balance that enhances the overall gaming experience without compromising performance.

Thesis: Balancing performance and visual quality in video game lighting is a dynamic equilibrium that varies based on factors such as artistic style, technical constraints, targeted hardware, and intended gaming experience. This research paper will explore various lighting techniques, their implementations, and suitability for different game types and platforms, providing insights into achieving the desired balance between performance and visual quality.

Outline:

Argument 1: High-quality lighting effects enhance the realism and visual impact of a game, but they often come at a high computational cost.

- **Topic 1:** The impact of advanced lighting techniques on game realism
    - **Subtopic:** Global illumination and dynamic shadows
    - **Supporting data:** These techniques significantly enhance the realism of a game but are computationally expensive.
- **Topic 2:** The challenge of maintaining performance with advanced lighting techniques
    - **Subtopic:** The impact on game performance, especially on resource-constrained platforms
    - **Supporting data:** Advanced lighting techniques can negatively impact performance on platforms like mobile devices or older consoles.

Argument 2: The choice of lighting techniques must align with the game's artistic style, intended atmosphere, and target hardware.

- **Topic 1:** The influence of artistic style and atmosphere on lighting choices
    - **Subtopic:** The need for distinct lighting approaches for different game genres and art styles
    - **Supporting data:** Lighting techniques must support the game's intended visual style and atmosphere.

- **Topic 2:** The role of target hardware and gaming experience in lighting technique selection

    - **Subtopic:** The unique challenges and opportunities presented by console games, PC games, and mobile games

    - **Supporting data:** The intended gaming experience influences the selection of lighting techniques.

Argument 3: Achieving high-quality lighting effects while maintaining optimal performance is a significant challenge in video game development.

- **Supporting Evidence:**

    - Advanced lighting techniques like global illumination and dynamic shadows enhance realism but are computationally expensive, especially on resource-constrained platforms like mobile devices or older consoles.

    - Optimization strategies like pre-computed lighting, light probes, and level-of-detail (LOD) techniques reduce computational overhead.

    - Hardware acceleration and graphics APIs like DirectX and Vulkan leverage modern GPUs for efficient lighting.

    - Real-time global illumination techniques in current game engines and their comparative analysis can provide insights into balancing performance and visual quality.

    - https://www.diva-portal.org/smash/get/diva2:1444282/FULLTEXT01.pdf

        Arvidsson, Natali, and Ana Laura Martínez. Balance between Performance and Visual Quality in 3D Game Assets Appropriateness of Assets for Games and Real-Time Rendering Faculty of Arts Department of Game Design. 2020.

Argument 4: The choice of lighting techniques must align with the game's artistic style, intended atmosphere, and target hardware.

- **Supporting Evidence:**

  - Different game genres and art styles require distinct lighting approaches to support the intended visual style and atmosphere.

  - Target hardware and gaming experience influence the selection of lighting techniques, as console games, PC games, and mobile games present unique challenges and opportunities.

  - The role of intelligent lighting in game environments and how it can be used to create tension in games.

  - https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9998512/
    Cheng, Xiang et al. "A review of the effect of the light environment of the VDT workspace on the "learning to learn" effect of video game training." Frontiers in neuroscience vol. 17 1093602. 24 Feb. 2023, doi:10.3389/fnins.2023.1093602

Additional Topic 1: The role of shaders in gameplay clarity

- Subtopic: How shaders contribute to the visual quality and performance of a game (Wang, 2020)

- Supporting data: Case study of VALORANT's shaders and their impact on gameplay clarity

Additional Topic 2: The future of lighting in video games

- Subtopic: Emerging trends and technologies in video game lighting

- Supporting data: Predictions and expert opinions on the future of lighting in video games

Final Research Essay

Exploring Video Game Lighting Techniques: Performance and Visual Quality Trade-offs

Introduction

Lighting is a critical aspect of creating immersive and visually appealing video game environments, setting the mood, guiding player attention, and enhancing the overall aesthetic of virtual worlds (El-Nasr et al, 2005). However, achieving high-quality lighting in video games is a complex task that requires careful consideration of performance, artistic style, technical constraints, and target hardware (Akenine-Möller et al, 2018). Game developers must strike a balance between visual fidelity and computational efficiency, employing optimization techniques such as pre-computed lighting (Akenine-Möller et al, 2018), light probes (Lambru et al, 2021), level-of-detail (LOD) techniques (Iones et al., 2019), hardware acceleration, and the utilization of graphics APIs like DirectX and Vulkan (Wang, 2020) to reduce computational overhead while maintaining acceptable visual quality.

This research paper will explore various lighting techniques used in video games, including static lighting (pre-computed, non-dynamic lighting), dynamic lighting (real-time lighting that updates with changes in the environment), global illumination, and physically based rendering (a lighting model that simulates light behavior based on real-world physical properties). It will examine their implementations, performance considerations, and suitability for different game types and platforms. The paper argues that balancing performance and visual quality in video game lighting is a dynamic equilibrium that varies based on factors such as artistic style, technical constraints, targeted hardware, and intended gaming experience (El-Nasr et al, 2005). By analyzing the trade-offs between performance and visual quality, this paper aims to provide insights into achieving the desired balance that enhances the overall gaming experience without compromising performance.

Static Lighting

Static lighting refers to pre-computed, non-dynamic lighting techniques used in video games. These techniques involve calculating lighting information offline and storing it in textures or light maps, which are then applied to the game's environment during runtime (El-Nasr et al, 2005). It offers more realistic and consistent lighting effects due to pre-computed calculations, but it lacks the dynamism and responsiveness of dynamic lighting techniques. In fast-paced games, baked in lighting offers improved performance thus being preferred for e-sports titles such as (Counter Strike, Valorant, Rainbow Six and more...). (Wang, 2020)

Dynamic Lighting and Real-Time Effects

Dynamic lighting refers to real-time lighting techniques in video games that update as the game environment changes. These techniques calculate lighting information on the fly, considering factors such as the position and movement of light sources, the geometry of objects in the scene, and the materials properties of those objects. Dynamic lighting can simulate the effects of moving sources of light, changing weather conditions, and time of day, adding a level of realism that static lighting cannot match. Thus, it creates a more engaging and interactive experience for the players. Often dynamic lighting can be observed as shadows for characters are generated.

Global Illumination

Global illumination refers to the simulation of indirect lighting in a virtual environment. Indirect lighting includes the bounce and scattering of light, which contributes to realistic lighting effects such as soft shadows, color bleeding, and ambient occlusion. Global illumination techniques aim to capture these complex interactions of light to achieve more realistic and natural lighting in video games. Global illumination techniques can be computationally expensive and can impact game performance, especially in real-time applications.

Physically Based Rendering in Game Design

In the past, video game creators used multiple textures and maps for each object part to simulate different lighting conditions. Now, they create a single texture per part and use a physics model to control light and shadows in the game. This physics model computes how light from a source will:

1. Reflect and refract off a given surface with varying angle, reflectivity, absorption, and diffusion characteristics.

2. Reduce in intensity and change wavelength as it interacts with surfaces.

By using this method, game developers can create more realistic and dynamic lighting that changes naturally as the game environment and lighting conditions change (El-Nasr et al, 2005). This means they don't have to make a new texture for every possible situation, saving time and effort while still making the game look better. Using a single texture can be problematic due to its high memory demand (Doghramachi, 2020). This is because you can't load and unload multiple texture files as needed, resulting in a larger file size that may not fit within the memory constraints of older hardware (Doghramachi, 2020). One challenge is the computational complexity of physically based rendering, which can strain hardware resources and impact performance (El-Nasr et al, 2005).

Performance Considerations for Game Lighting

While techniques such as Global Illumination and Dynamic Lighting produce a highly realistic gaming experience, they require a significant number of computational resources. (Arvidsson et al, 2020) To balance the visual quality of these advanced lighting techniques with the performance requirements of real-time rendering, game developers often employ various optimizations and approximations.

The impact on game performance must be carefully considered when implementing advanced lighting (Arvidsson et al, 2020). A common technique we notice is using a combination of

lighting techniques such as a mix of real-time lighting and pre-computed lighting. For example, the game "The Last of Us" (shown below) utilizes a combination of dynamic lighting for real-time interactions and pre-computed lighting for more static elements of the environment.

Figure 1:

(TheBerkay, 2023)

Notice how there are no character model shadows being generated. The game uses the large water body to create an effect like a dynamically lit shadow, instead of generating character model shadows. This hybrid lighting approach optimizes gameplay by avoiding computationally intensive character shadows.

Figure 2:

(MKIceAndFire, 2023)

The image shows lighting reacting to character models and the environment. Static elements like the sun shining on the backboard use pre-baked or static lighting, while reflections on character models and faces are dynamic, rendering based on their direction relative to the sun and other objects.

Lighting Techniques for Different Game Genres

The choice of lighting techniques in a game must align with the game's genre and artistic style. Different game genres require distinct lighting approaches to support their unique visual styles and atmospheres. For example, a realistic military shooter may benefit from physically based rendering and global illumination, while a stylized platformer might opt for more simplified, cartoon-like lighting.

Horror games often employ low-light environments, dynamic shadows, and flickering light sources to create suspense and unease. In contrast, adventure games may use bright, vibrant lighting to highlight the game's exploration and discovery aspects. The intelligent use of lighting can significantly enhance the game's mood and player immersion. (Cheng et al, 2023)

Figure 3:

(Skrebels, 2023)

The image above is from the game Alan Wake 2, a horror survival game where the developers at Remedy Entertainment employed artistic techniques such as low lighting, and more to get dystopic feeling.

Adapting Lighting Strategies for Various Platforms

The target hardware and intended gaming experience also influence the selection of lighting techniques. Console games, PC games, and mobile games each present unique challenges and opportunities.

For instance, mobile games may need to rely more heavily on baked lighting and simpler shading models due to the limited processing power of mobile devices. PC games, on the other hand, can take advantage of the latest graphics APIs and powerful GPUs to deliver cutting-edge lighting effects.

Figure 4:

(Moore, 2019)

The image from PUBG Mobile shows significantly lower texture quality and no dynamic lighting. All lighting is pre-baked onto low-resolution maps to optimize performance.

Console games often fall somewhere in between, with developers having to balance the desire for high-quality visuals with the need to maintain a stable framerate on fixed hardware

specifications. Therefore, the choice of lighting techniques should be carefully considered based on the capabilities and limitations of the target platform. (Arvidsson et al, 2020)

Trade-offs Between Performance and Visual Quality

Achieving high-quality lighting effects while maintaining optimal performance is a key challenge in video game development. Advanced lighting techniques like global illumination and dynamic shadows enhance realism but are computationally expensive, especially on resource-constrained platforms. (Arvidsson et al, 2020)

Optimization strategies can help reduce computational overhead. Pre-computed lighting, light probes, and level-of-detail (LOD) techniques are some common techniques used alongside hardware acceleration software such as DirectX and Vulkan. However, these optimizations and trade-offs must be carefully evaluated to ensure they don't significantly compromise the visual quality or the game's intended atmosphere and style. As seen in Figures 1,2 and 3 the trade-offs have been made in such a way that they are negligible or not noticeable for the player.

Enhancing Gaming Experience Through Optimal Lighting Balance

Balancing the performance and visual quality of lighting techniques is critical to enhancing the overall gaming experience. At the same time, maintaining a smooth and responsive gameplay experience is crucial for player engagement and satisfaction.

Intelligent lighting systems can play a significant role in this balance. By dynamically adjusting lighting based on game state, player actions, or scripted events, intelligent lighting can guide player attention, convey mood and atmosphere, and even influence gameplay (Cheng et al, 2023).

Conclusion

To conclude, achieving the optimal balance between performance and visual quality in video game lighting is a complex and dynamic process. There is no one sure-shot method or combination of lighting systems that can be used for all games to achieve the optimal

experience for players. It requires careful consideration of various factors, including the game's genre, artistic style, and target platform, as well as the ongoing advancements in game development technology and hardware capabilities.

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Grading Reflection Overview

I believe my research paper "Exploring Video Game Lighting Techniques: Performance and Visual Quality Trade-offs" merits an A grade in the 90-100 range based on the grading rubric and checklist provided.

The thesis statement in the introduction clearly and concisely states the paper's purpose and argument, which is that "balancing performance and visual quality in video game lighting is a dynamic equilibrium that varies based on factors such as artistic style, technical constraints, targeted hardware, and intended gaming experience." This sets up a thought-provoking premise that engages the reader. The introduction also effectively previews the structure and key points that will be covered in the rest of the paper.

Throughout the body, I provide detailed explanations and definitions of key lighting techniques like static lighting, dynamic lighting, global illumination, and physically based rendering. Each technique is analyzed in terms of implementation, performance considerations, and suitability for different game types and platforms. For example, on page 2 I write "Dynamic lighting refers to real-time lighting techniques in video games that update as the game environment changes. These techniques calculate lighting information on the fly, considering factors such as the position and movement of light sources, the geometry of objects in the scene, and the materials properties of those objects." This level of explanation demonstrates a sophisticated understanding of the topic beyond surface-level knowledge.

To support my claims and arguments, I incorporate evidence from highly relevant and credible sources including scholarly articles and industry publications. All external information is properly cited both in the body and Works Cited section. By drawing upon expert knowledge, I establish strong scholarly credibility for my writing.

The paper maintains a logical flow and subtle sequencing of ideas from the introduction through the conclusion. Transitions between paragraphs and sections are smooth and well-executed. I

present balanced considerations of the key issues, acknowledging the challenges and tradeoffs between visual quality and performance. This is exemplified on page 4: "Achieving high-quality lighting effects while maintaining optimal performance is a key challenge in video game development. Advanced lighting techniques like global illumination and dynamic shadows enhance realism but are computationally expensive, especially on resource-constrained platforms."

While there may be a few minor sentence-level errors, they do not impede clarity or readability. The writing style remains professional, articulate, and engaging throughout. The inclusion of visual examples further elevates the paper by providing concrete illustrations of the lighting techniques and optimizations discussed. Overall, I believe the paper is polished and demonstrates a level of insight and writing proficiency that meets the criteria for an A grade in the 90-100% range according to the rubric. The combination of a thought-provoking thesis, in-depth explanations, strong research and citation of credible sources, logical organization, and clear writing justify this assessment.

In summary, based on how my paper aligns with the grading criteria and checklist, I assert that my research paper deserves a grade of 95-100%. The sophisticated argumentation, level of detail, integration of high-quality sources, and overall execution make it an exemplary submission deserving of a high A grade.

Reflection

As I conclude my ATWP135 course, I have come to recognize my growth as a researcher and writer. Through the various projects and assignments, I have developed a keen eye for detail, a critical mindset, and a passion for exploring complex topics. My journey has been one of self-discovery, as I have learned to embrace my unique voice and perspective while also considering the needs and expectations of my audience (Dargan, 2024). I hope that readers of my portfolio will recognize my dedication to the craft of writing and my commitment to producing well-researched, thoughtful, and engaging content.

Looking ahead, I am excited to continue honing my skills as a writer and applying the knowledge I have gained in ATWP135 to future academic pursuits. One of my primary goals is to further develop my ability to analyze and synthesize information from diverse sources, as this skill is crucial for producing high-quality research papers and essays (Dargan, 2024). I also aim to refine my understanding of rhetorical strategies and how to effectively tailor my writing to specific audiences and purposes (Dargan, 2024). While I have gained confidence in my ability to navigate the writing process, from prewriting to revising, I recognize that there is always room for improvement. I plan to continue seeking feedback from peers and instructors and to dedicate time to practicing and experimenting with new writing techniques. Additionally, I have recognized a tendency to use long sentences, which can sometimes make it difficult for readers to follow my ideas. Going forward, I will focus on crafting more concise and readable sentences to enhance the clarity and effectiveness of my writing.

As I progress in my academic journey, I am particularly interested in pursuing a major in Computer Science. I believe that the skills I have acquired in ATWP135 will be invaluable in this field, as effective communication is essential for teamwork and developing software that others would use around the world. The ability to conduct thorough research, critically analyze information, and present compelling ideas will be vital for success in this major (Dargan, 2024).

Moreover, the emphasis on considering audience and purpose in ATWP135 will serve me well when writing for various stakeholders, such as other developers, and the general public.

In addition to the practical skills I have gained, ATWP135 has instilled in me a deeper appreciation for the power of writing as a tool for personal growth and social change. I am eager to continue exploring the ways in which writing can be used to challenge assumptions, spark meaningful conversations, and contribute to the collective knowledge of our society.

As I embark on this next chapter of my academic and professional life, I am confident that the foundation I have built in ATWP135 will serve as a springboard for success and enable me to make a positive impact through my writing. With various tasks and challenges ahead, I believe my writing skills will continue to grow and develop.

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