



2024 Capstone Final Report:
Art+AI Compass

Casey James

Department of Informatics and Mathematics, Mercer University

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Dr. Feng Lui

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Executive Summary

Artificial Intelligence (AI) has become an influential tool in creative fields, revolutionizing how content is created, modified, and consumed. From creative areas such as visual arts and music to writing and image and video production, emerging AI technologies offer creators powerful new ways to express ideas, streamline workflow, and reach wider or more targeted audiences. With this creative potential comes critical questions surrounding ethics and responsible use of AI in the arts. These questions expound on issues such as authorship, copyright, bias, consent, abuse, and unintended consequences of automating the creative process. As AI systems become more sophisticated, they increasingly blur the lines between human creativity and machine-driven outputs, challenging traditional notions of originality and intellectual property.

This research project seeks to explore and analyze the responsible use of AI in arts and content creation by examining both the benefits and ethical challenges posed by various tools. It will delve into how AI can be used to augment artistic processes while ensuring creators retain ownership and recognition for their works. Furthermore, the project will address how AI models, which often learn from vast datasets, may unintentionally create biases, replicate harmful stereotypes, or infringe upon personal rights. By assessing current practices, guidelines, and policies, this research aims to propose an online resource guide for informed and responsible use of this technology. This guide will serve as a foundational resource for artists, content creators, occasional users, organizations, and educators by providing practical guidelines and fostering awareness of best practices and general knowledge of rights and protections to promote the responsible use of generative AI.

Acknowledgements

First, I would like to thank Dr. Liu for providing guidance and support throughout the duration of this course. It is apparent that she possesses an abundance of knowledge and experience within the field of information technology and genuinely wishes to see her students succeed. Without her support, it would have undoubtedly been an overwhelming process and seem impossible to conceptualize and organize information in regard to my topic of choice. Second, I would like to extend my appreciation to both friends and family for participating in reviewing content, gauging accessibility and progress of the project, and providing feedback and support when needed.

Background

The creative landscape as we know it has undergone many transformations and as of late, the majority of these changes can be attributed to artificial intelligence (AI.) Artificial intelligence, specifically generative, offers unprecedented tools for content creation across various fields including visual arts, music, writing, and video production. These advancements have enabled creators to enhance their productivity and experiment with innovative techniques, however, the rapid adoption of AI in creative industries raises significant concerns that warrant attention. Issues such as authorship, disputes, copyright infringement, and the potential perpetuation of biases through AI-generated content pose challenges to traditional understandings of creativity, originality, and intellectual property. Furthermore, the misuse or unintended consequences of these technologies, such as automating harmful stereotypes or infringing on person rights, highlight the need for informed, responsible practices in deploying AI tools.

This research project addresses the pressing need to balance AI's benefits in the arts with the challenging complexities it introduces. By analyzing existing practices while exploring the capabilities and limitations of AI tools, this study seeks to provide insights into how creators can harness AI responsibly without compromising their rights or the integrity of their work as well as their peers'. The project's primary objective is to develop a comprehensive online resource guide aimed at fostering awareness and information as well as providing actionable guidelines for artists, content creators, and the casual user. By creating such a resource, it will encourage users to navigate the complexities of AI while promising inclusivity, fairness, and accountability in its application. Ultimately, the initiative seeks to mitigate the social risks associated with generative AI in the arts and other creative spaces, encouraging its use as a transformative yet ethically complying force in the creative domain.

Project Timeline

Weeks	Tasks	Status
Week 1	Begin reviewing academic literature, reports, and case studies on AI in creative fields and draft the initial summary.	Complete
Week 1	Identify key topics (AI's impact on visual arts, music, and content creation and how generative AI works) and draft an outline.	Complete
Week 1	Start compiling and annotating sources.	Complete
Week 2	Finalize the literature review document.	Complete
Week 2	Key Topics Report: Compile information and create report	Complete
Week 2	Source List: Finalize the annotated list of sources.	Complete
Week 3	Begin identifying and drafting key ethical concerns (authorship, copyright, bias). and information of generative AI's mechanics	Complete
Week 3	Research AI tools and decide on the top 3-5 tools to analyze. Draft a testing plan outlining various test scenarios and personas.	Complete
Week 4:	Finalize and submit the detailed testing plan and personas	Complete
Week 5	Begin testing AI tools based on scenarios outlined in the testing plan and record initial results.	Complete
Week 5	Finalize and submit the initial report on how generative AI works and the ethical concerns surrounding the technology	Complete
Week 6	Draft initial guidelines for responsible AI use in content creation based on analysis findings. Add links to sources and cases where applicable.	Complete
Week 6	Record video of demonstration using AI tools and the personas chosen.	Complete
Week 6	Begin putting information from the guideline's proposal onto the prototype website.	Complete
Week 7	Develop and finalize the front-end webpage prototype with guidelines and resources for responsible AI use within the arts sector	Complete
Week 7	Compile the final report, including literature review, interview findings, case study summaries, testing results, and guidelines.	Complete
Week 7	Create PowerPoint presentation and finalize organizing final report.	Complete
Week 8	Present project summarizing findings and providing a walkthrough of the guideline webpage.	

My timeline has changed a lot since the initial proposal was placed. My topic was not solid initially and the vision was not fully developed with my deliverables. A lot of the testing and personas were pushed back towards weeks 4-5 due to restructuring the initial project goal.

Project Scope

Project Scope Statement			
Project Name	Art + AI Compass: Navigating responsible use of generative artificial intelligence in content creation and the arts.		
Project Manager	Casey James	Date	12/12/2024
Project Scope Description	Art + AI Compass is a web-based resource guide for artists or content creators of any kind who are utilizing artificial intelligence in their works. This guide will have resources on various aspects of AI, in particular the arts and creation, and offer tips and best practices for creators and individuals who fall victim to its misuse.		
Project Objective	To create an online resource guide for artists and creators to access as needed when navigating artificial intelligence use within their field.		
Project Deliverables	<ul style="list-style-type: none"> -User friendly website -Easy to understand information on generative AI. -General information on various aspects of - responsible and proactive AI use with links to external resources. -Video demonstration of tools used based on scenarios from both ends of the user spectrum and how to overcome issues with each. -Analysis of performance between four generative AI tools: OpenAI'S DALL-E, Canva's DreamLab, Adobe Firefly, Meta AI 		
Project Requirements	<ul style="list-style-type: none"> -Computer -Internet access -AI tools: OpenAI'S DALL-E, Canva's DreamLab, Adobe Firefly, Meta AI 		
Acceptance Criteria	A functional, easy to use website is created with factual information and helpful resources on generative AI in the arts.		
In Scope	<ul style="list-style-type: none"> -Rebranding or changes to colors, logos, and general design. -Creation of additional content or pages on website. 		

Project Deliverables Definition

The objective of the project was to create a front-end website to house resources and guidelines for informed and responsible generative AI use in the arts. The website also includes general information on various aspects of generative image AI with a focus on conveying the basic mechanics of the technology to the reader. To accompany the guidelines for best practices, the website also houses links to external references and sources that are useful to the audience. Furthermore, an analysis showing the abilities, strengths, and challenges of four AI tools, OpenAI'S DALL-E, Canva's DreamLab, Adobe Firefly, Meta AI, was performed and documented to offer the reader more insight into the individual merits of each tool and are accompanied with videos demonstrating scenarios based on real-world issues which add a practical insight into the content. Various aspects of the project, including the logo and persona photos were generated using the AI tools in the study and the web pages were constructed using Figma for prototyping and google sites for the final product of the front-end webpage.

Success Measurements

1. User-Friendly Website

- The website is visually appealing, intuitive, and navigable.
- Achieves a satisfactory score in usability testing with artists and content creators.
- Includes clear and functional search and navigation features.

2. Easy-to-Understand Information on Generative AI

- Explanations are correct, concise, and accompanied by visual aids where needed.
- Tested with a diverse audience for clarity, with 80% of participants indicating they understand the information without external help.

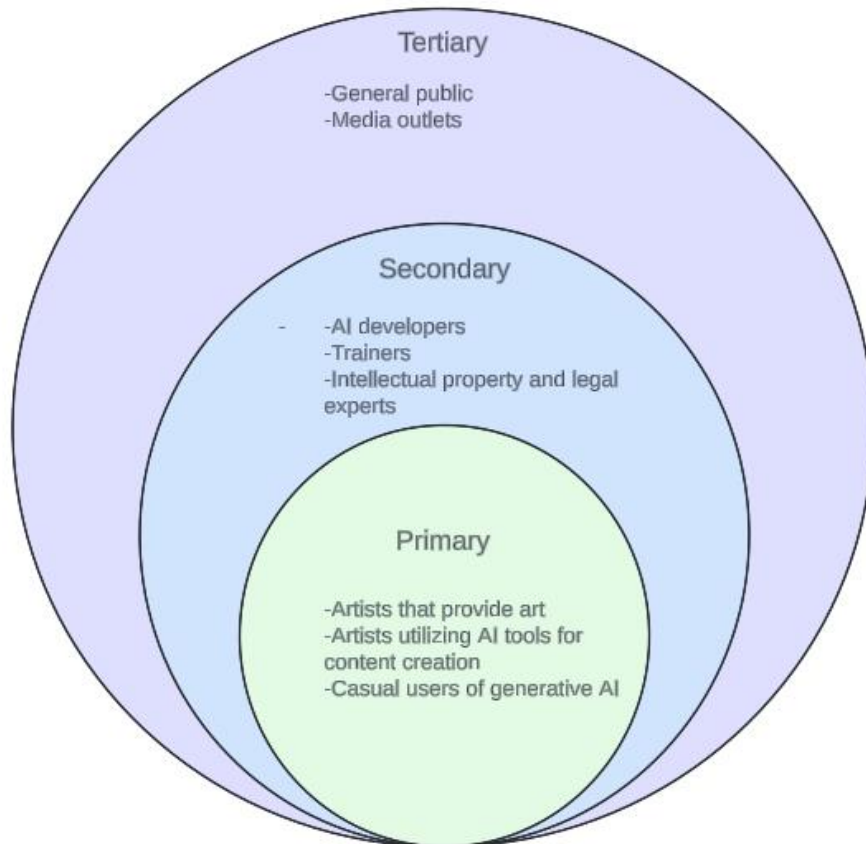
3. General Information and Links to External Resources

- Covers at least five key topics on responsible and proactive AI use in the arts.
- Links to at least 15 reputable external resources, categorized for ease of use.
- All links are verified to be active and relevant during the project delivery.

4. Video Demonstration of Tools and Scenarios

- Demonstrates at least 4 AI tools in action, showing realistic scenarios from both the creator's and user's perspectives.
- Videos highlight common issues and practical solutions.
- Receive at minimum 80% approval rating for usefulness and clarity in stakeholder feedback.

Stakeholders Map



The stakeholders map is used to show the weight each respective audience holds within the focus of this project. The primary stakeholders are artist of varying degrees, ones who produce art used to train AI and those who are utilizing AI tools during their content creation as well as casual users who are exploring or using AI tools to generate images or art pieces. The secondary group is for the AI program developers, trainers or educators, and intellectual property and legal experts as the resources given are in relation to their fields. The third group of stakeholders is the general public and media outlets. While they may not be interacting first-hand with the tools and AI rendering content, they are passively consuming the outputs of these tools in various ways.

Needs Finding

Introduction/Setup

Hello and thank you for taking the time to participate in this interview. The purpose of this interview is to explore your views on the growing use of Artificial Intelligence (AI) in the creative sectors such as the arts and content creation. Your insights will contribute to our research on the inferences and strategies surrounding AI use best practices. The interview should roughly take 30-45 minutes, and your responses will remain confidential and used solely for research purposes.

Interview Questions

1. How familiar are you with the current developments in AI technology?
2. Can you describe any recent AI advancements or trends that have caught your attention?
3. In what areas of your work or day-to-day life have you encountered AI?
4. What are your thoughts on the rapid growth and increasing integration of AI into different industries?
5. Do you see this growth as primarily positive, negative, or both? Why?
6. How do you feel about AI's ability to generate images?
7. Do you foresee any potential challenges or benefits in the long term?
8. Do you believe there is a need to establish stronger governance and regulations for AI systems?
9. If yes, what specific areas (e.g., data privacy, bias, transparency) need the most attention?
10. Have you ever experienced or heard of any ethical issues related to AI?
11. Should there be a global standard for AI governance, or should each country/industry govern AI independently?

12. Do you foresee specific risks such as job displacement, increased inequality, etc?

13. Is there anything else you would like to share about the future of AI in creative fields or its potential impacts on society?

Closing Statement: Thank you once again for sharing your thoughts and insights. Your input is invaluable to our research on the public opinions of AI in the arts and other creative fields. Should you have any further thoughts or want to share additional information, please feel free to reach out.

Personas

Persona 1: The AI-Integrated Artist

Name: Erin Arti

Background: Erin is a multimedia artist who has a background in traditional painting and digital design. She has always been fascinated by technological advancements and began experimenting with AI tools for art creation. She views AI as a collaborative partner that helps her push boundaries and create pieces that combine traditional art with the power of machine learning.

Her work combines elements of surrealism and abstract art, using AI algorithms to create vibrant and layered compositions. She guides the AI's creative process by tweaking various parameters and combining outputs with her hand drawn elements. Erin believes that AI can help artists overcome creative blocks and introduce new styles to broaden one's scope of what art can be and aims to utilize AI tools as an aid to enhance creativity and not replace it.

Challenges: One of Erin's main challenges is balancing personal touch with automated aspects that come with the use of AI in her works. She often faces criticism from traditionalists who believe

AI diminishes the authenticity of art. She also struggles with the ethical responsibilities of creating images that AI might mimic or reinterpret in ways she did not anticipate.

Goals: Erin aims to open an art exhibit to showcase pieces created in collaboration with AI to highlight the creative potential of human-AI collaboration. She also advocates for responsible use of AI in art, pushing for artists to credit the datasets and original works that contribute to AI's "learning."



Persona 2: The Traditional Artist Affected by AI Use

Name: Mason Sao

Background: Mason is a digital illustrator who specializes in character design and concept art. He has been in the industry for more than 10 years working with various entities such as indie games, graphic novels, and animation studios. Recently, he discovered that some of his artwork was being used to train generative AI models without his consent and feels uncomfortable about how easy AI can replicate his unique style.

Mason's work has a distinct hand-drawn quality with various textures and carefully crafted details. His style is recognizable as it consists of dynamic, expressive characters and vivid atmospheric backgrounds. Mason believes that art is deeply personal and that each of his pieces that he has created reflect his experiences and emotions. He feels as though AI-generated art lacks this human depth and context and wants to protect the integrity of his style and ensure that it remains tied to his identity as an artist.

Challenges: Mason has had his work used in AI training datasets without permission which has led to counterfeit versions of his style proliferating online. He struggles with the concept of intellectual property in the digital age, where AI models can absorb and mimic his creative identity he has cultivated over the years. His main concerns are protecting his livelihood as an artist and ensure fair compensation for if his works are being used to train AI.

Goals: Mason is actively involved in discussions surrounding ethics in concern to AI in art and is advocating for copyright protections and transparency in AI dataset use. He is also working with other artists to push for policies that allow creators to opt out of having their work used for AI training without explicit consent and helps educate other artists on watermarking techniques and how to responsibly share art in the age of AI.



Persona 3: The Content Creator Leveraging Generative AI

Name: Riley Mediare

Background: Riley is a freelance content creator who produces engaging videos and social media posts for lifestyle and travel. Riley. With a background in marketing and video editing, has been quick to adopt generative AI tools to streamline their workflow and stay ahead in a highly competitive space.

Riley's content is polished, fast-paced, and visually dynamic, blending humor, storytelling, and informative information. They use AI to generate scripts, create animated graphics, and even enhance their video editing process with automated scene transitions and audio mixing. Riley sees generative AI as a way to enhance creativity and efficiency, allowing more time to focus on building connections with their audience. They believe AI empowers creators to scale their output and meet the demand for fresh, engaging content without burning out.

Challenges: Riley faces skepticism from parts of their audience who feel AI-generated content lacks authenticity and worries about losing the "human touch" in their storytelling while maintaining their unique voice amidst a sea of AI-driven creators. Additionally, navigating copyright and fair use when using AI-generated images or audio is a concern.

Goals: Riley's aim is to create a fully AI-augmented content creation workflow while maintaining a personal and authentic brand identity. They are working on a course to teach aspiring creators how to use generative AI tools effectively and responsibly in the content creation space.



Persona 4: The Illustrator Collaborating with Generative AI

Name: Emma Collabrio

Background: Emma is an experienced illustrator who specializes in concept art for games and animated films. With a degree in visual arts and years of freelancing under her belt, Emma began exploring generative AI as a way to enhance her creative process and reduce repetitive tasks.

Emma's work is vibrant and detailed, often inspired by fantasy and science fiction themes. She uses generative AI to prototype ideas, experiment with compositions, and generate quick drafts that she refines manually to preserve her signature style. Emma sees generative AI as like having an ever-evolving sketch assistant that expands her creative possibilities. She views it as a way to speed up her workflow, allowing her to focus on storytelling, world-building, and intricate details in her finished pieces.

Challenges: Emma struggles with the ethical concerns of using generative AI. She is careful to avoid datasets that might have been trained on copyrighted material without consent. She also

worries about being overshadowed by AI-generated art that lacks the depth and narrative intention of human-made illustrations.

Goals: Emma aims to integrate AI into her creative pipeline without compromising the authenticity of her work. She's developing a portfolio that showcases how generative AI can complement traditional illustration techniques and is planning to host workshops for other artists interested in responsibly using AI in their creative process.



Videos performing scenarios for personas 1 & 2 are linked below:

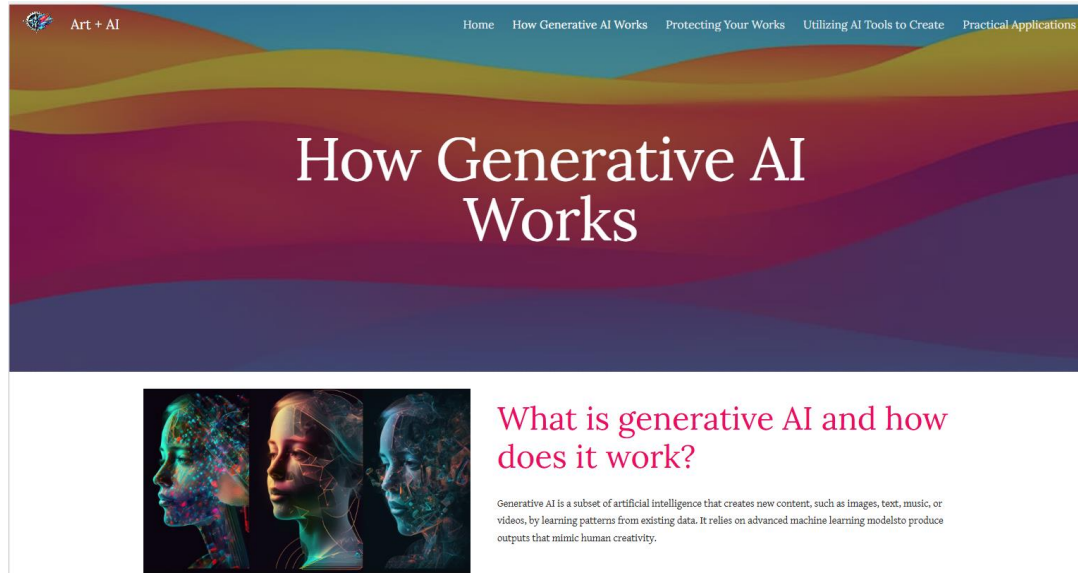
<https://www.youtube.com/watch?v=y6YrYyzY3TM>

<https://www.youtube.com/watch?v=Zfzrg0zcbpA>

Key Tech Component

The key technical component of this project is a website that houses resources and general information about generative AI in the arts. It can be found at:

<https://sites.google.com/view/art-ai-compass/home>



Feature/Function Design

The function/feature design of this project is a resource website with guidelines on how to use and interact with generative AI responsibly.

Key features include:

- Overview on generative AI
- A page dedicated to the use of AI with linked resources.
- A page dedicated to protection against AI with linked resources.
- Demonstration videos on various AI tools and how to complete tasks efficiently.

User Task List

The following user task lists coincide with the videos linked on the resource website and also at the end of the personas section of the report (see page 16.) The tasks are to help illustrate real world applications that Persona 1 Erin and Persona 2 Mason could potentially run into. The videos linked show these tasks in action. The aim of these tasks is to demonstrate two perspectives that are addressed in the resources available on the website; those who want to protect their works against misuse and those who want to utilize AI to enhance their creative experiences.

Task 1:

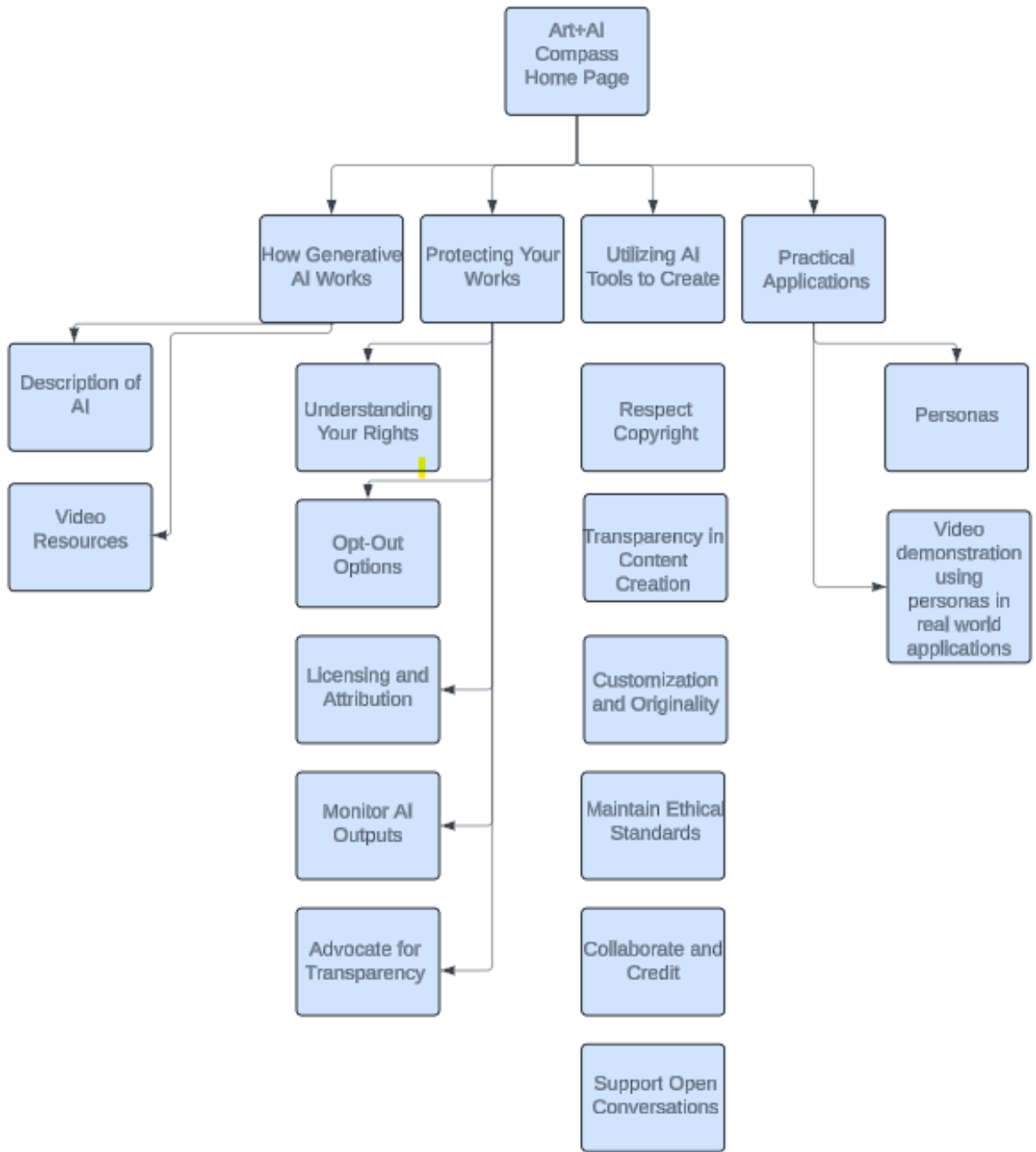
Create an image to depict the relationship between an artist and AI in an abstract, surrealist style.

- Erin is having a creative block on her next art piece and decides to try to draw inspiration from AI tools.
- Erin pulls up the four AI tools: Open AI's DALL-E, Canva's DreamLab, Adobe's Firefly, Meta AI
- Erin inputs the following prompt into each: Create an abstract art piece in a surrealist style to depict the merging of artist and AI.
- Erin will then review the images rendered by each and decide if further altering to the prompt is needed.
- Erin will replace "AI" with "technology" and "art" where "artist" was in the prompt and review generated images.
- Erin will replace "technology" with AI but leave "art" in place of "artist" then review generated images.
- After reviewing all options and editing the prompt as needed, Erin will then choose from the generated images to use as a guide or starting point for her next piece.

Task 2: Check to see if watermarked art is being used to train AI or use watermarked image to render results

- Mason finds a watermarked character art with a defined style.
- Mason will upload the image to the AI tools, Open AI's DALL-E, Canva's DreamLab, Meta AI. Adobe's firefly does not have an option to do so.
- Mason enters a prompt of "Make this character have long purple hair."
- Mason is to review images to vet if the watermarked image is used inappropriately.
- Mason uses various tools including reverse image search on google to see if the image has been uploaded to other sites without permission.

Site Structure



Usability Study Methodology and Research

For my research I will be utilizing mixed methods using both qualitative and quantitative research methods. The two primary methods I feel would be beneficial and accessible to my topic is an interview, user testing, and observation. To garner a general temperature surrounding generative AI use within the arts an interview was vital to set the tone and find the starting point for research (reference page 10-11 for the interview questions.) For user testing and observation, I conducted research into the basic mechanics of generative AI and used various scenarios including personas to show the operational force behind each AI tool and comprised a table reflecting their features and best uses.

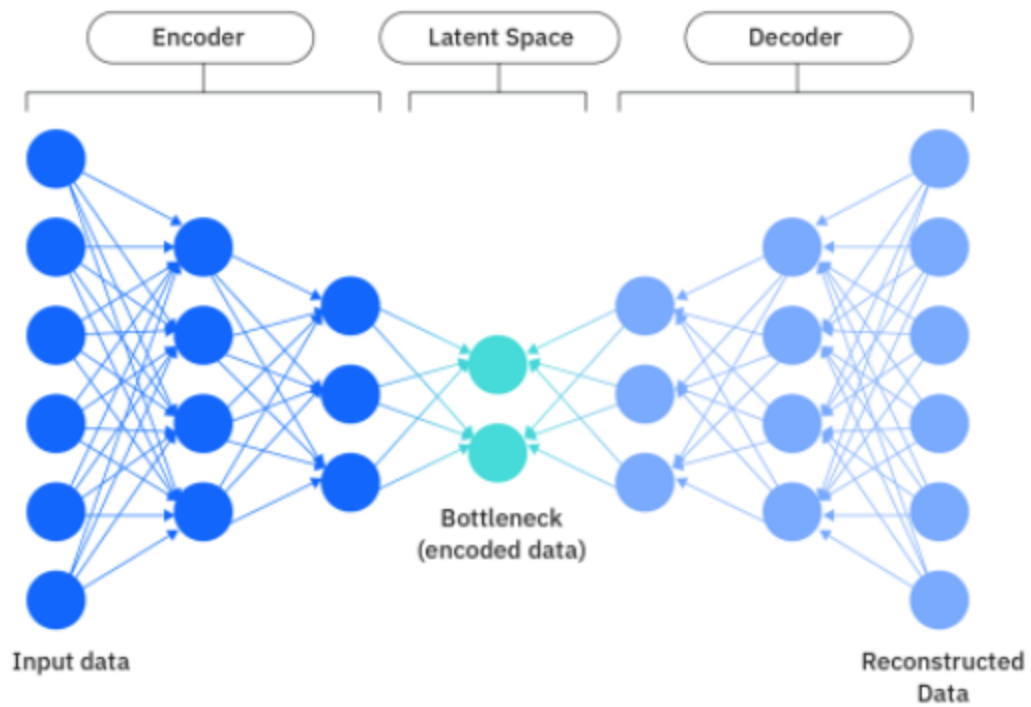
In order to better understand the subject matter, a simplified overview of the dynamics and functionality of generative image AI is provided.

What is generative image AI?

Generative image AI refers to Artificial Intelligence models that are able to create imagery through text or image prompts. These AI models are trained using a dataset, in this case billions of images, which is curated for the use of the model (*Research guides: Artificial intelligence for image research, n.d.*)

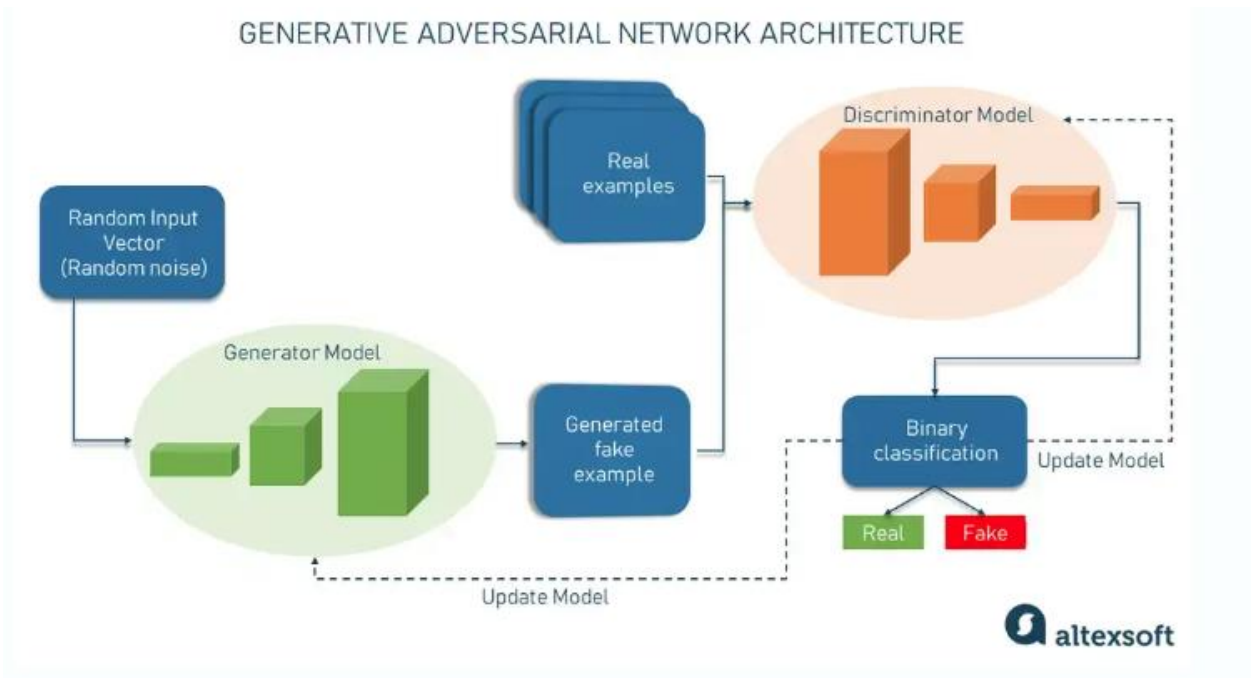
According to Medium, (Dominguez, 2024) they can be broadly categorized into two categories: Variation Autoencoders (VAEs) and Generative Adversarial Networks (GANs).

- Variational Autoencoders (VAEs): VAEs are probabilistic models that encode images into a latent space, where they are represented as vectors. The decoder then reconstructs the images from the encoded vectors, enabling the model to generate new images by sampling from the latent space.



(Bergmann & Stryker, 2024)

- **Generative Adversarial Networks (GANs):** GANs consist of two neural networks, a generator, and a discriminator, engaged in a competitive process. The generator creates synthetic images to fool the discriminator, which, in turn, aims to distinguish between real and fake images. This back-and-forth battle results in the generation of highly realistic images.



(AltexSoft, 2023)

Where do the generative image AI models get their data from?

As mentioned above, AI models must be trained using datasets in order to render results and must be trained on exceptionally large amounts of data in order to produce more accurate results. Training data can be sourced both internally and externally from third party sources. An example of internal sourcing is Spotify's AI DJ, as it tracks your listening history and in turn generates a playlist. Some examples of external or third-party sourcing are from vendors who sell large amounts of data, such as Reddit, and open data sets provided by entities such as the government, research institutions, and companies for commercial purposes. Companies may also use internet scrapers to obtain data, but this runs a higher risk as it can infringe on copyrights (*What data is used to train an AI, where does it come from, and who owns it?*, n.d..)

Who owns this data?

Data is not necessarily owned, instead different rights may be attached to different types of data and the owner of those right may choose to restrict the use of data by third parties. While various types of data are used in different types of generative AI models, we will focus solely on issues surrounding image rendering. Data use may have various blurred lines, but there some protections that come with it in terms of data being used without authorization resulting in infringement of copyright and database right. Copyright is most relevant as it is attached to most human-created content such as text, images, video, audio, or other means of artistic works and can constitute as infringed if all or a substantial part of the work in question is copied. Databases also have rights that protect their data from being extracted from said database without permission from the owner. An example of this is Getty Images as they have commenced legal proceedings in both the UK and US against Stability AI claiming that the use by Stability AI's "Stable Diffusion" generative AI using their images within their training data sets is copyright infringement (*What data is used to train an AI, where does it come from, and who owns it?*, n.d..)

Why do images look like that?

As most people who have attempted to render images in a generative tool, one can see there are still many drawbacks and areas for improvement within these tools. Most notoriously is the AI struggle with hands.



(Growcoot, 2023)

This tends to happen for various reasons from how people hold their hands in many different positions in source photos and their lack of presence of visibility in source photos used to train these models, to simply the technology behind it. Other examples that highlight the pitfalls of image generating involve texture and lighting resulting in blurry or jumbled images. Due to AI's lack of perspective, it has a hard time with light placement and continuity of different textures, say from skin to hair and uses a medium to bridge the two, resulting in the flawed images.



(Edwards, 2023)

With a basic understand of generative AI established, the next step is to observe and analyze different generative AI tools and provide findings.

AI Tool	Overview	Key Features	Ideal For	When to use
OpenAI's DALL-E	Renowned for generating highly detailed and imaginative images from textual descriptions. The latest version, DALL-E 3, integrates seamlessly with ChatGPT for enhanced interaction.	<ul style="list-style-type: none"> - Generates intricate and creative images based on detailed text prompts. - Integration with ChatGPT allows for conversational prompt refinement. - Emphasizes ethical considerations, avoiding replication of living artists' styles and preventing harmful content. 	Users seeking to translate complex and imaginative textual descriptions into visual art, especially when nuanced detail and creativity are paramount.	Choose DALL-E when you need to generate highly creative and detailed images from complex textual descriptions, especially for unique artistic projects.
Canva's Dream Lab	Canva's AI-powered image generation tool designed to integrate seamlessly within Canva's user-friendly design platform.	<ul style="list-style-type: none"> - Generates images directly within Canva's interface for easy design incorporation. - Supports multiple languages and offers various styles. - Limits output to four images per prompt to maintain focus and quality. 	Designers and marketers looking for quick, integrated image generation within a familiar design platform, ideal for social media graphics, presentations, and marketing.	Use Dream Lab for quick and straightforward image generation within Canva's platform, ideal for marketing materials, social media posts, and presentations

Adobe's Firefly	A suite of generative AI models integrated into Adobe Creative Cloud, offering tools like text-to-image generation, text effects, and generative fill.	<ul style="list-style-type: none"> - Seamless integration with Adobe apps such as Photoshop and Illustrator. - Focuses on commercial safety by training models on licensed and public domain content. - Provides advanced customization options, including style selection, color adjustments, and composition variations. 	Creative professionals using Adobe's ecosystem requiring advanced, customizable AI-generated content integrated into their design tools.	Use Firefly if you're an Adobe Creative Cloud user seeking advanced AI tools integrated into your existing design workflow, requiring high customization and commercial safety.
Meta AI	Meta has developed various AI models, including image generation tools, with a focus on research and development rather than consumer-facing products.	<ul style="list-style-type: none"> - Focuses on research and development in AI, advancing image generation technologies. - Emphasizes ethical AI practices and transparency in AI-generated content. 	Researchers and developers interested in exploring cutting-edge AI technologies and contributing to the development of AI models.	Engage with Meta AI if you're involved in AI research or development, focusing on the technical aspects and ethical considerations of AI-generated content.

System Development

To obtain my final deliverable I had created a wireframe prototype as well as a detailed prototype of a website. From there I implemented an actual web site to house a variety of pages as the subject content expanded Figma's capabilities for their prototyping websites.

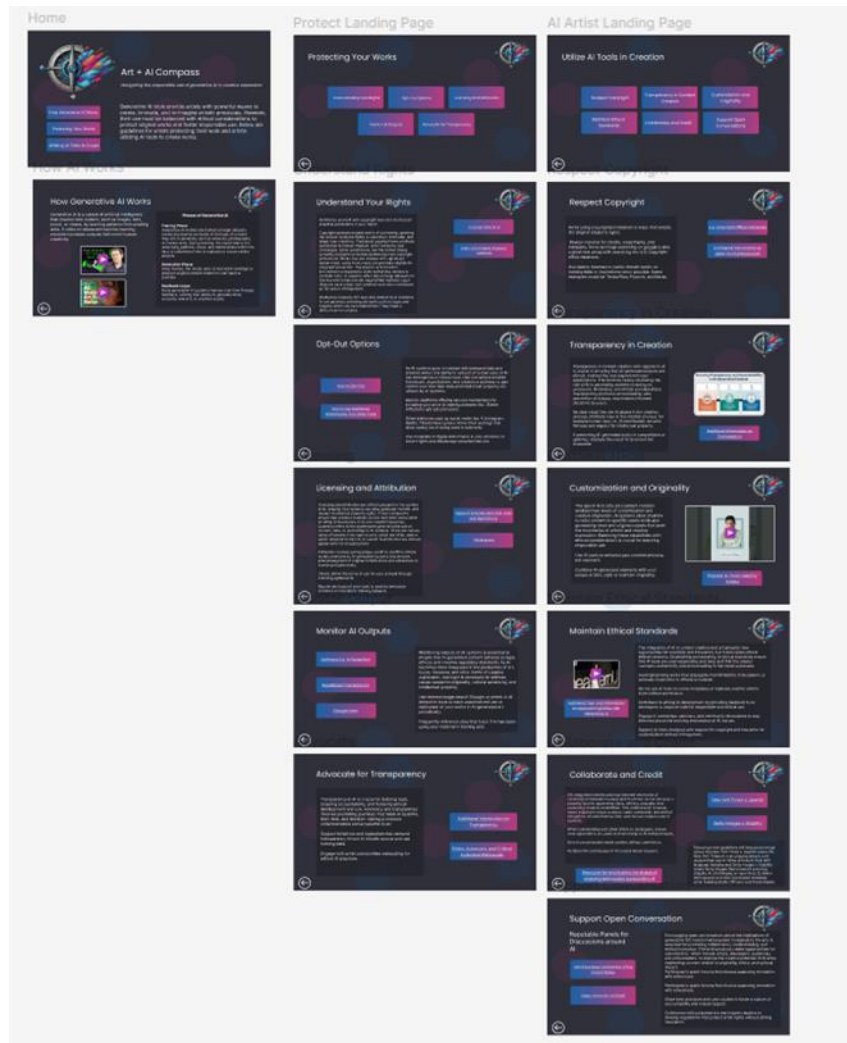
Prototype 1.0:



- <https://www.figma.com/proto/da2Yzsxs85yiwSyF55vCB1/Capstone-Wireframe?node-id=1-192&node-type=canvas&t=kvjGR98ns2XljoBk-1&scaling=min-zoom&content-scaling=fixed&page-id=0%3A1>

The first version of the prototype helped organize the final layout of information on the website.

Prototype 2.0:

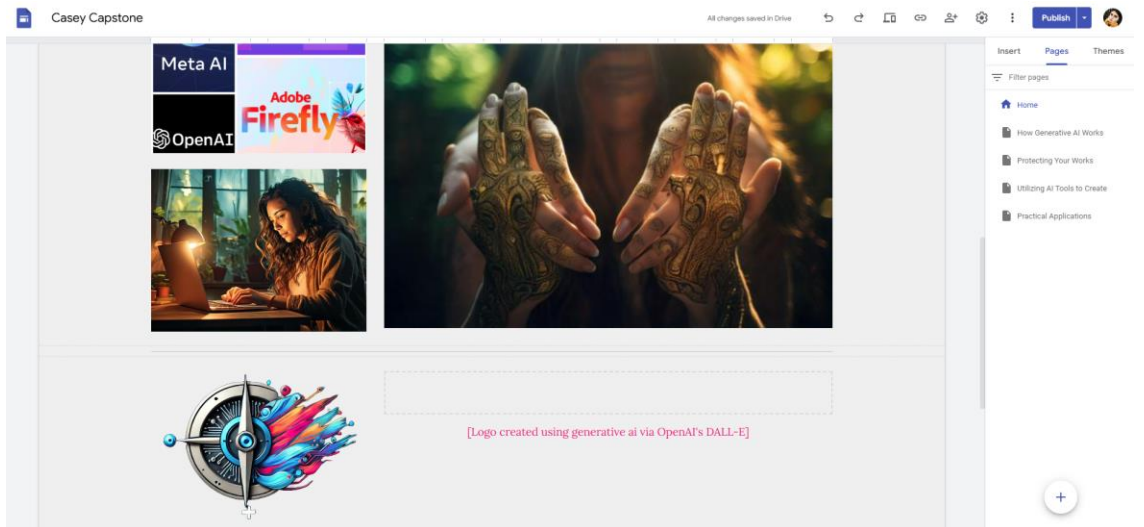
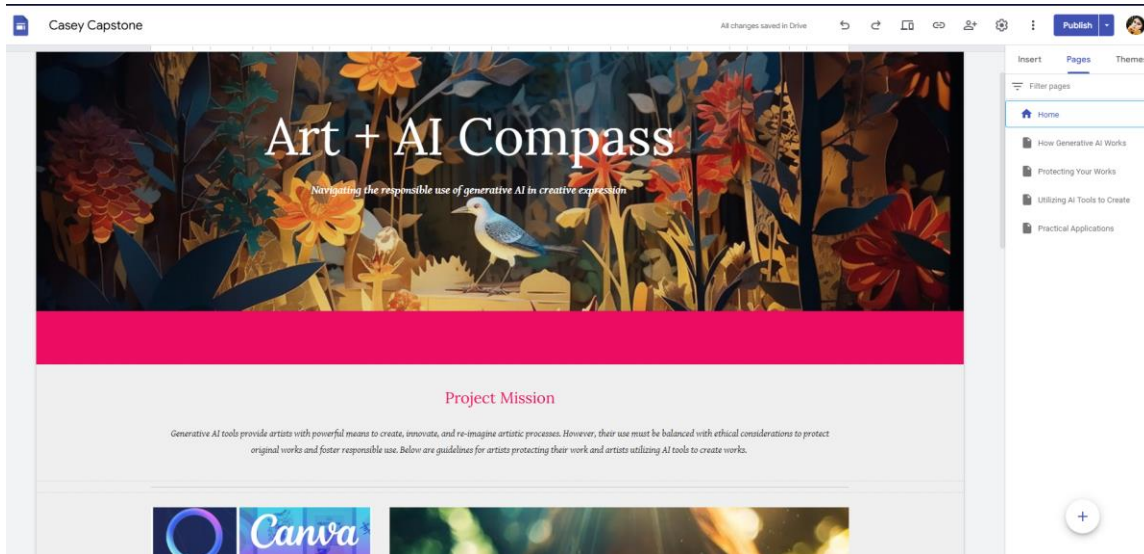


- <https://www.figma.com/proto/Q42ZMzGC0y5uKN9YaZkAyz/Guidelines?node-id=1-3&node-type=canvas&t=h0v1E5uC5wTNjffS-1&scaling=contain&content-scaling=fixed&page-id=0%3A1>

The second prototype helped with more of a visualization of content as well as needs and placement of links to external sources. The original directory allowed a separation between the two target audiences: An artist using AI to create and an artist protecting their works for the misuse of AI within the creative realm. This stage also fostered a logo I rendered using AI tools as well as visuals and videos relevant to each point.

3rd Version: Final Website

The final version was created using google sites and allowed more flexibility and space to place content and was more suitable to house a resource website. This website now contains the original points for guidance, external resources, and general information on generative AI as well as demonstration videos and further insight into AI tools showing how to use them and what resources can be used in select situations. There are 4 pages to this website; Home, How Generative AI Works, Protecting Your Works, Utilizing AI Tools to Create, and Practical Applications.




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All changes saved in Drive

Art + AI

Home How Generative AI Works Protecting Your Works Utilizing AI Tools to Create Practical Applications

How Generative AI Works



What is generative AI and how does it work?

Generative AI is a subset of artificial intelligence that creates new content, such as images, text, music, or video, by learning patterns from existing data. It relies on advanced machine learning models to produce outputs that mimic human creativity.

Insert Pages Themes

Filter pages

- Home
- How Generative AI Works
- Protecting Your Works
- Utilizing AI Tools to Create
- Practical Applications


+

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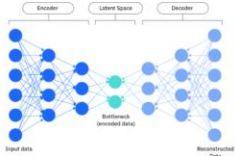
All changes saved in Drive

What is generative AI?

Generative image AI refers to Artificial Intelligence models that are able to create imagery through text or image prompts. These AI models are trained using a dataset, in this case billions of images, that is curated for the use of the model. They can be broadly categorized into two categories: Variational Autoencoders (VAEs) and Generative Adversarial Networks (GANs).




Variational Autoencoders (VAEs)



VAEs are probabilistic models that encode images into a latent space, where they are represented as vectors. The decoder then reconstructs the images from the encoded vectors, enabling the model to generate new images by sampling from the latent space.

Generative Adversarial Networks (GANs)

GANs consist of two neural networks: a generator and a discriminator engaged in a



Insert Pages Themes

Filter pages

- Home
- How Generative AI Works
- Protecting Your Works
- Utilizing AI Tools to Create
- Practical Applications

+

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All changes saved in Drive

competitive process. The generator creates synthetic images to fool the discriminator, which, in turn, aims to distinguish between real and fake images. This back-and-forth battle results in the generation of highly realistic images.



Phases of Generative AI

Training Phase:
Generative AI models are trained on large datasets containing diverse examples of the type of content they aim to generate, such as artworks, photographs, or literary texts. During training, the model learns the underlying patterns, styles, and relationships within the data to understand how to replicate or create similar outputs.

Generation Phase:
Once trained, the model uses its learned knowledge to produce original content based on user input or prompts.

Feedback Loops:
Many generative AI systems improve over time through feedback, refining their ability to generate more accurate, relevant, or creative results.

Additional Videos



Insert Pages Themes

Filter pages

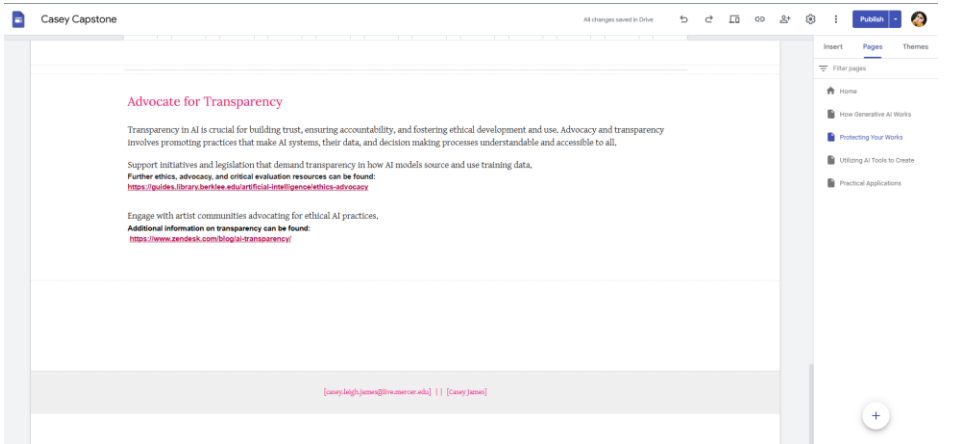
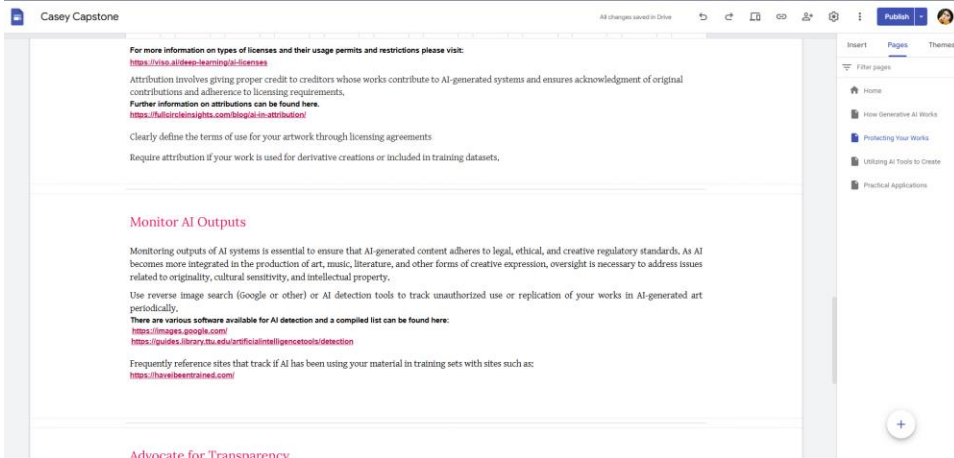
- Home
- How Generative AI Works
- Protecting Your Works
- Utilizing AI Tools to Create
- Practical Applications

+

This screenshot shows the top portion of a Wix website. The header includes the name 'Casey Capstone' and navigation links for 'Home', 'How Generative AI Works', 'Protecting Your Works', 'Utilizing AI Tools to Create', and 'Practical Applications'. The main content area features a large, colorful abstract background with the title 'Protecting Your Works' in white. Below this is a graphic with icons for AI, Wix, and other digital tools, followed by the subtitle 'How to Protect Your Works From the Misuse of AI'. A short introductory paragraph explains the importance of understanding AI use and provides a link to a compiled list of resources.

This screenshot displays the 'Understanding Your Rights' section of the website. It begins with a list of sub-topics: 'Understanding Your Rights', 'Opt-Out Options', 'Licensing and Attribution', 'Monitor AI Outputs', and 'Advocate for Transparency'. The main text explains that copyright protects original works of authorship, granting creators exclusive rights to reproduce, distribute, and adapt their creations. It notes that traditional copyright laws attribute authorship to human creators, but AI systems often rely on large datasets for training, which may include copyrighted material. It also discusses intellectual property (IP) laws extending to AI creations and provides links to copyright laws for AI and intellectual property protection resources.

This screenshot shows the 'Opt-Out Options' section of the website. The text explains that as AI systems grow to interact with personal data and creative works, the ability to opt-out of certain uses of AI has emerged as a critical issue. It provides information on monitoring platforms offering opt-out mechanisms for including art in AI training datasets, specifically mentioning Stable Diffusion's opt-out protocols. It also discusses other platforms like social media (X, Instagram, Reddit, TikTok) and provides links to information on how to perform opt-out for each. Finally, it mentions using metadata or digital watermarks in artworks to assert rights and discourage unauthorized use, and provides a link to additional resources on how to use metadata, watermarks, and other available tools such as disabling downloads.



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- Home
- How Generative AI Works
- Protecting Your Works
- Utilizing AI Tools to Create
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How to Use AI Tools Responsibly in the Creative Process

- Respect Copyright
- Transparency in Content Creation
- Customization and Originality
- Maintain Ethical Standards
- Collaborate and Credit
- Support Open Conventions

Respect Copyright

Avoid using copyrighted materials in ways that violate the original creator's rights. Review material for credits, watermarks, and metadata. Reverse image searching on Google is also a great tool along with searching the U.S. Copyright office database.
<https://www.copyright.gov/public-records/>

Use openly licensed or public domain works as training data or inspirations when possible. Some examples would be TensorFlow, Pytorch, and Keras.
Additional information on more open source resources can be found here:
<https://www.digitalocean.com/resources/articles/open-source-ai-platforms>

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- Home
- How Generative AI Works
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Creators are ethical, transparent, and aligned with user expectations. This involves openly disclosing the role of AI in generating content, including its processes, limitations, and ethical considerations. Transparency promotes accountability, aids prevention of misuse, and enables informed decisions by users.

Be clear about the role AI played in the creation process. Attribute roles in the creation process, for example human input vs. AI contribution, ensures fairness and respect for intellectual property.

If presenting AI-generated works in competitions or galleries, disclose the use of AI to ensure fair evaluation.

Additional information about transparency can be found here:
<https://www.ibm.com/think/topics/ai-transparency>

Ensuring Transparency and Accountability in AI-Generated Content

1. PROVIDE AN OVERVIEW OF AI
2. DISCLOSE AI'S PROCESSING
3. PROVIDE A CLEAR AND EASY-TO-UNDERSTAND EXPLANATION

Customization and Originality

The use of AI in arts and content creation enabled new levels of customization and creative origination. AI systems allow creators to tailor content to specific needs while also generating novel and original outputs that push the boundaries of artistic and creative expressions. Balancing these capabilities with ethical considerations is crucial for ensuring responsible use.

Use AI tools to enhance your creative process, not replace it.

Combine AI-generated elements with your unique artistic style to maintain originality.

Popular AI tools used by artists:
<https://www.grammarly.com/ai-essentials-ai-tools-for-artists/Publishable-Outputs>

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Maintain Ethical Standards

The integration of AI in content creation and art presents new opportunities for creativity and innovation, but it also raises critical ethical concerns. Establishing and adhering to ethical standards ensure that AI tools are used responsibly and fairly and that the creator maintains authenticity and accountability in the creative process.

Avoid generating works that propagate misinformation, hate speech, or culturally insensitive or offensive material.

Do not use AI tools to create deepfakes or replicate another artist's style without permission.
Additional tips and information on approaching ethics within generative AI can be found here:
<https://openstevy.com/2024/07/03/guidelines-for-responsible-content-creation-with-generative-ai/>

Contribute to ethical AI development by providing feedback to AI developers to improve tools for responsible and ethical use.

Engage in workshops, webinars, and community discussions to stay informed about the evolving intersection of AI and art.

Support AI tools designed with respect for copyright and that allow for customization without infringement.

Collaborate and Credit

AI's integration into the arts has fostered new forms of collaboration between humans and machines. AI can serve as a powerful tool for generating ideas, refining concepts, and expanding creative possibilities. This collaboration however, raises important concerns about credit, ownership, and ethical recognition of contributions from both human creators and AI systems.

When collaborating with other artists or developers, ensure clear agreements on credit and ownership of AI-assisted works.

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Following these guidelines will help prevent legal issues like New York Times v. OpenAI where the New York Times is in an ongoing lawsuit over unpermitted use of Times articles to train GPT language models and Getty Images v Stability where Getty Images filed a lawsuit accusing Stability AI of infringing on more than 12 million photographs and their associated metadata when building Stable Diffusion and DreamStudio.

New York Times V. Open AI:
<https://www.nytimes.com/blog/2024/04/09/nytimes-openai-the-times-ai-legal/>

Getty Images V. Stability
<https://www.penningtonlaw.com/news-publications/latest-news/2024/generative-ai-in-the-courts-getty-images-vs-stability-ai>

A great source for monitoring the status of ongoing legal cases surrounding AI is linked below:
<https://www.bakerlaw.com/services/artificial-intelligence-ai-case-tracker-artificial-intelligence-convrights-and-class-actions/>

Support Open Conversations

Encouraging open conversations about the implications of generative AI's transformative power in regards to the arts is essential for promoting collaboration, understanding, and ethical innovation. These discussions create opportunities for stakeholders- which include artists, developers, audiences, and policymakers- to explore the creative potential of AI while addressing concerns related to originality, ethics, and cultural impact. Participate in public forums that discuss balancing innovation with ethical use.

Participate in public forums that discuss balancing innovation with ethical use.
Additional reputable panels for discussion around AI are:
<https://www.acus.gov/event/forum-federal-ai-use>
<https://www.cmu.edu/engn/programs/afai.html>

Share best practices and case studies to foster a culture of accountability and mutual respect.

Collaborate with policymakers and industry leaders to develop regulations that protect artist rights without stifling innovation.

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Art + AI

Home | How Generative AI Works | Protecting Your Works | Utilizing AI Tools to Create | Practical Applications


Practical Applications

How do I know what tool to use?


Choosing an AI tool plays a major role in one's creative process and can greatly alter the results one may receive from prompts. Researching popular tools and what they excel in can better help you when choosing where to start. Don't be afraid to try out many to find the one most suited to your style and needs!

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OpenAI's DALL-E



Cava's DreamLab



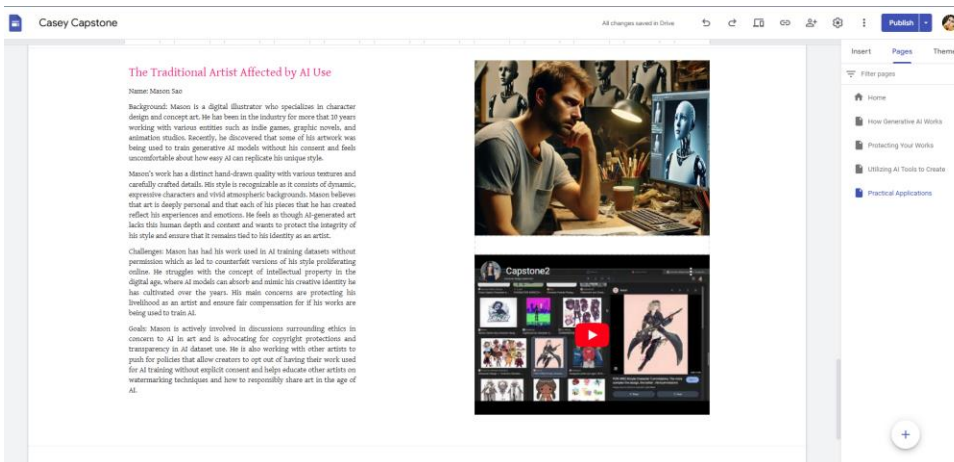
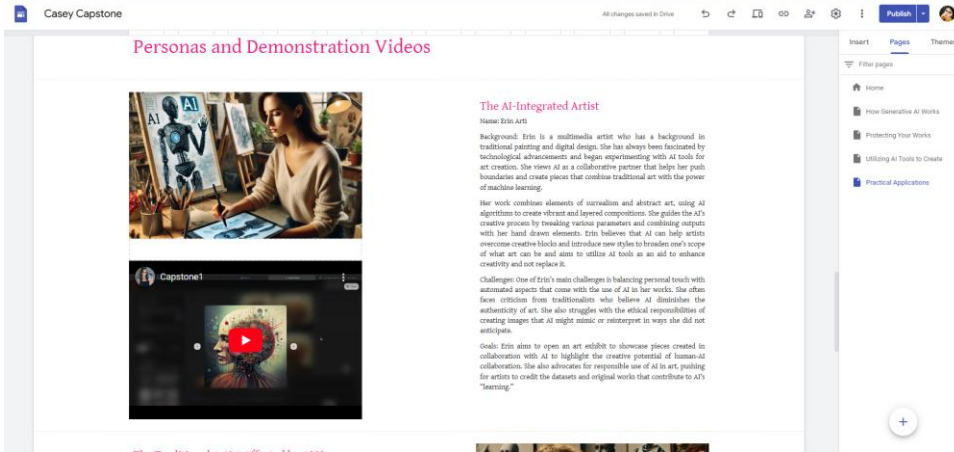
Adobe's Firefly



Meta AI

Generative image AI tools have revolutionized the creative process, with each tool offering unique features tailored to different user needs. The four tools that will be compared along with guidance on when to use each are OpenAI's DALL-E, Cava's Dream Lab, Adobe's Firefly, and Meta AI's image generation capabilities.

AI Tool	Overview	Key Features	Ideal For	When to use
OpenAI's DALL-E	Renowned for generating highly detailed and imaginative images from textual descriptions. The latest version, DALL-E 3, integrates seamlessly with ChatGPT for enhanced interaction.	Generates intricate and creative images based on detailed text prompts. Integration with ChatGPT allows for conversational prompts, where users can refine prompts through iterative conversations, leading to highly detailed and creative results.	Users seeking to generate complex and imaginative images based on detailed text prompts, especially when creative and detailed results are paramount.	Choose DALL-E when you need to generate highly creative and detailed images from complex text prompts, especially for unique artistic projects.
Cava's Dream Lab	Cava's AI-powered image generation tool designed to streamline	Generates images directly within Cava's interface for easy design incorporation.	Designers and marketers looking for quick, integrated image generation within Cava's	Use Dream Lab for quick and straightforward image generation within Cava's



- <https://sites.google.com/view/art-ai-compass/home>

Usability Study Analysis

Interview questions

1. What part of the website did you enjoy the most?
2. Do you feel as though there is an adequate amount of content on each topic?
3. Is there anything you do not like about the website's layout?
4. Was navigating the website intuitive and easy?
5. Do you feel as though the information was relevant to the topic of AI use within creative fields?

Results

Question	Participant 1	Participant 2	Participant 3	Participant 4	Participant 5
What part of the website did you enjoy most?	"I really liked the interactive elements on the homepage that gave an overview of the site's purpose."	"The examples and personas section were very engaging and informative."	"The clear categorization of topics made it easy to find specific information."	"The visual design and color scheme were very appealing. I love how vibrant it is."	"I liked the practical guidelines section; it felt actionable and relevant."
Do you feel as though there is an adequate amount of content on each topic?	"Yes, each topic had enough detail without being overwhelming."	"I felt a few topics could use a bit more depth."	"Yes, the site provided a balanced amount of content."	"There was adequate content."	"Yes"
Is there anything you do not like about the website's layout?	"Some sections felt a bit cluttered with too many visuals."	"The font size in some areas was a bit small for comfortable reading for me."	"A search option would be beneficial."	"No search option"	"There was a lot of room on the sides I felt could be used to spread the content out more."
Was navigating the website intuitive and easy?	"It was straightforward to navigate; I found what I needed quickly."	"Yes, but the menu could be more descriptive."	"I found it very user-friendly and intuitive."	"It was easy to navigate, but a search bar would improve usability."	"Navigation was simple, though having a search feature would be nice."
Do you feel as though the information was relevant to the topic of AI use within creative fields?	"I think the information was spot-on for discussing AI in creative fields."	"Yes, the content stayed focused on AI's role with art and creation."	"The site covered all key areas of AI use in the arts."	"Yes, it was highly relevant and insightful."	"Yes, it aligned perfectly with the focus on AI in creative fields."

Overall, the responses seem positive in respect to content and layout. There are some notable features like a search bar I could look into introducing for ease of searching key words, though I do not see the option to do so within Google Sites.

Social Change

Artificial Intelligence (AI) is transforming the arts and creative industries by enabling unprecedented capabilities for expression, innovation, and customization. Generative AI tools offer creators new ways to expand their visions and audiences. The integration of AI in these domains, however, raises significant ethical and social concerns. For example, AI models trained on copyrighted material without consent run the risk of infringing on the rights of creators and communities. Addressing these issues involves developing transparent systems and advocating for fair data usage.

Designing AI systems for the arts requires placing the user—whether an artist, consumer, or stakeholder— at the center of the solution. This involves creating tools that enhance the creative process without overshadowing or replacing the unique contributions of human ingenuity. User-centric systems prioritize transparency and providing clear information on how AI process data, its limitations, and its creative contributions. Accessibility and inclusivity are also crucial in ensuring that users of all skill levels and backgrounds can engage with AI tools.

In my design and development process, ethical and social considerations were major contributors to the content that shaped creating guidelines for the responsible use of generative AI in the arts. The project's goal aimed to respect creators' rights by integrating opt-out options for datasets, emphasizing attribution, and advocating for transparency in AI's role in the creative process. These measures address ethical challenges of copyright infringement and data misuse, ensuring fair treatment of human and AI contributions. Socially, the project recognized the transformative potential of AI and provides tools that are accessible, adaptable, and aligned with ethical principles and fosters a creative ecosystem where technology amplifies human expression rather than replacing it.

Conclusion

This capstone project took on many changes from its initial conception. Initially the goal was to create a “pocket-guide” for guidelines concerning responsible use of generative AI in the arts and other creative fields. It then turned to focus more on being a resource website to promote responsible use of generative AI while also explaining the technology and how to protect your works and respect other artists’ content as well. The first version of the website lacked the ability to host an expansive amount of content and had limited scalability if more content wanted to be added in the future. The first version using Figma’s prototyping also resulted in the website looking more like an interactive PowerPoint than a clear and concise resource guide. The second, or in this project’s case the third, and final version was moved to use Google Sites. Switching to this medium allowed me to create a more traditional website that was easier to access and was more intuitive to the user. The final product was also able to host more media content to support the content provided which enhances the overall user experience and educational quality. When testing the first and second versions, I got the same response from my participants that there was not enough content and the content that was there was very crowded. Once I switched to Google Sites those pain points went away, and they appreciated the advancements in design and aesthetics it provided as well as the simplicity of navigation.

Overall, this project was a challenge as I was not very familiar with the mechanics of generative AI, web design, and video editing. Throughout the course I really had to put effort into teaching myself a new technology and how to successfully portray the information I wanted to publish in my final product. I learned a lot of skills throughout this project and developed an interest in generative AI that I plan to expand upon in the future. Lastly, the professor was a vital

source of support and guidance throughout the whole process and the success of this project hinged upon her continuous support throughout the whole process.

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