Intention Is All You Need to Create Your Own Hollywood Blockbuster Movies

Revolutionizing Filmmaking With Generative AI and Saga

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This article explores the transformative potential of generative artificial intelligence (AI) in democratizing filmmaking, focusing on Saga, an AI-powered platform designed to revolutionize every stage of the creative process, from scriptwriting to visual storyboarding and animation.

When asked why Hollywood feels stagnant, insiders often point to a lack of diverse, original stories and an overreliance on superhero blockbusters and franchises with built-in audiences.

"Hollywood's biggest problem is a lack of original content."

Attention is all that was needed to revolutionize machine learning and effectively invent generative AI, starting with transformers and large language models (LLMs). Today hundreds of millions of people use ChatGPT and Claude in their everyday work and life.

Meanwhile, technology continues to transform the motion picture industry. Generative artificial intelligence (AI), though still facing challenges like *consistency*, has advanced to produce both photo-realistic images and videos. While limitations remain—such as issues with the limited length of the videos, object action and physics, text, fingers, faces speaking, and realism—many are close to being solved.

Millions of people worldwide watch hours of video daily on platforms like TikTok, YouTube, Netflix, and Disney+. Affordable and easily accessible, video content dominates

our attention, with more creators producing content than ever before. Over 3 million YouTubers earn revenue from their channels, with top creators like Mr. Beast alone generating millions yearly. Gen-Z and Gen-Alpha are particularly passionate, with *one in three preteens* naming Video Content Creator "Influencer" as their dream job,[1] and teenagers as well.[2] The youth making a career in product-unboxing, stunts, and dance routines today could be the Academy Award winners of the future, with the right tools and direction.

Using tools like OpenAI Sora, Hailuo AI MiniMax, Metaphysic, and Flawless AI, creating Hollywood-quality films on an indie microbudget is becoming a reality. Small teams can now use multimodal AI to handle nearly every aspect of production, from writing and character creation to visual effects, sound, music, and even motion-capture performances—filming scenes with nothing more than their iPhones.

While not everyone with access to cutting-edge camera technology dreams of making feature films (or would ever want to try), the *opportunity* will soon be within everyone's reach. Generative AI filmmaking tools will empower aspiring creators to produce original content in various formats, from short films and television to music videos, anime, and more. By removing traditional barriers, these technologies promise to address the industry's need for fresh, high-quality stories, allowing anyone with a vision to bring their dream projects to life.

BACKGROUND

The inception of Saga (Figure 1) emerged from a blend of academic exploration, industry experience, and familial collaboration. During the COVID-19 lockdowns of 2020–2021, I had time to take several Stanford courses online under Dr. Ronjon Nag, a renowned AI expert and entrepreneur. These courses, including *Artificial Intelligence: Deep Learning, Human-Centered AI, and Beyond*, explored cutting-edge AI techniques and their practical applications.

As part of the curriculum, I wrote a paper analyzing how AI and machine learning could disrupt the Hollywood film industry—a topic inspired by my brother Andrew's extensive experience on Hollywood and indie movie and TV sets, in roles from *Production Assistant* to *Assistant Director* and *Producer*.[3] The premise was how AI could serve as a powerful *tool* for filmmakers instead of a replacement, a unique perspective in 2021 but now a commonly heard phrase in the AI art community. Discovering firsthand insights from Andrew and the nearly hundred colleagues we interviewed as part of our research, we focused on the industry's challenges that uncovered opportunities for AI-driven transformation. This formed the foundation for Saga's vision, and with Dr. Nag's encouragement we founded our startup in November 2021 among the first AI Media Tooling startups like Runway, Metaphysic, and OpenAI.

> "A+ grade. I really liked this vision on how one would use AI in the cinema industry. A really original commentary and great vision."— Dr. Ronjon Nag (Stanford)

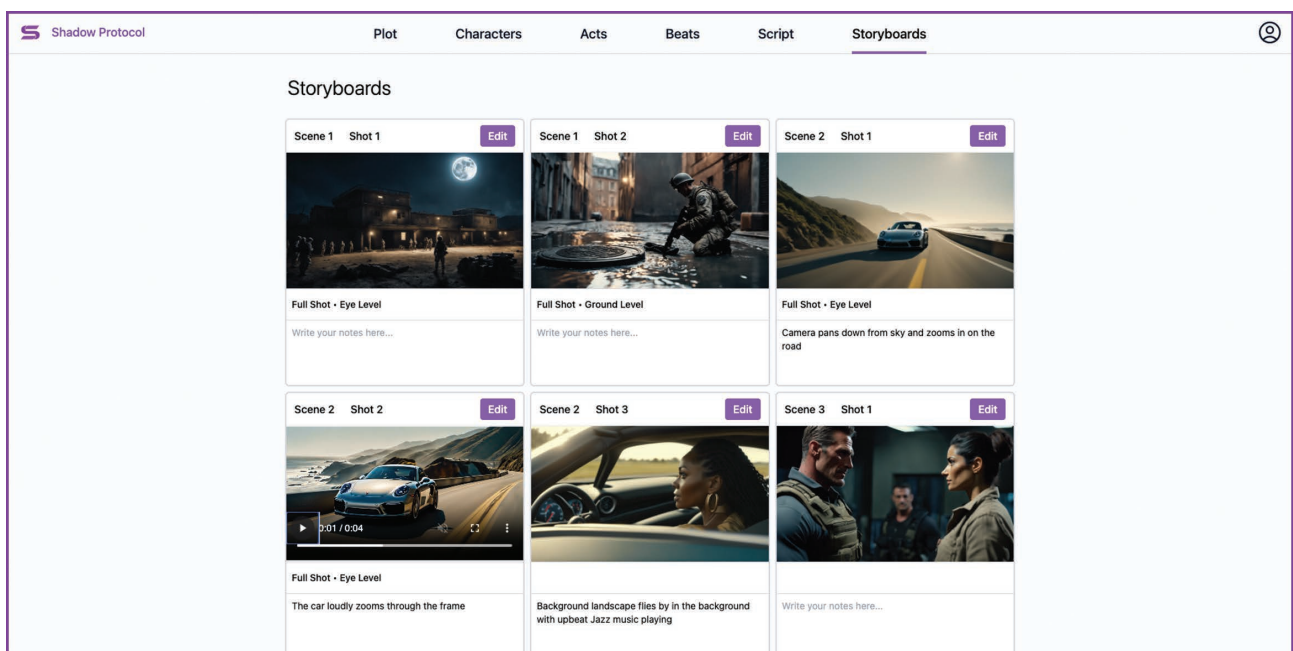Andrew's journey is equally remarkable. After earning a degree in

FIGURE 1. Storyboard page on the Saga app.

Computer Engineering, he pursued courses in film school, producing, and creative writing to deepen his understanding of cinematic storytelling and digital visual effects processes. This unique combination of technical expertise and creative vision paved the way for his role as cofounder and Chief Story Officer of Saga, and our founding vision.[4] Together, our experiences—my 15 years as an electrical engineer and computer scientist and AI product manager in Silicon Valley (with roles at Microsoft, Viv Labs AI, Samsung, and the JPMorgan Chase *AI Lab*), and Andrew's extensive on-set experience (shows like *The Boys* and *Suits*) and storytelling expertise—formed the perfect foundation for creating an AI-driven filmmaking platform which we've been evangelizing for years at conferences around the world.[5]

The convergence of these experiences, combined with rapid advancements in generative AI, highlighted the immense potential for AI to democratize and transform filmmaking. This realization sparked the creation of Saga—an application designed to empower creators by streamlining and enhancing every aspect of film production through AI.

The following sections explore Saga's architecture in detail, including its current technical stack, future development plans, and the ethical considerations of integrating AI into Hollywood's creative processes.

METHODOLOGY

Developing Saga required a multidisciplinary approach, combining expertise in artificial intelligence, software engineering, and filmmaking. Our methodology focused on creating a scalable, user-centric platform that leverages advanced AI models while ensuring that the creative process remains intuitive and filmmaker-friendly.

Approach
Human-centered design:
› The platform was designed with filmmakers in mind, ensuring

that the tools align with real-world production workflows. Feedback from professional screenwriters, directors, and production teams played a key role in shaping the user interface and feature set.
› Cofounder and Chief Story Officer of Saga, Andrew Palmer, leveraged his film industry experience to bridge the gap between AI capabilities and creative storytelling. Through language and image model prompt engineering and fine-tuning, Saga functions like a filmmaker, using a structured, opinionated film school framework to address key storytelling challenges—such as crafting a B-story that reinforces the theme with secondary characters. Unlike traditional chatbots, which provide less coherent responses by drawing from several of the sometimes-incompatible frameworks it all knows, Saga's approach ensures more focused, consistent, and coherent results.

Iterative development:
› The product was built using agile methodologies, allowing us to incrementally add features, gather feedback from nearly 100 filmmakers, and refine functionality in response to real-world usage.
› Beta testing with dozens of early adopters from the filmmaking community helped validate our core features, including AI-assisted script generation and visual storyboarding.

Focus on scalability and accessibility:
› The architecture was designed to support filmmakers at every level, from film school students to large production studios, ensuring that the tools scale with project complexity.

Technical architecture of Saga
Saga is an AI-powered platform designed to revolutionize the filmmaking process by integrating advanced generative AI models into various stages of film development, including screenwriting, storyboarding, and previsualization animation (previz). Our platform leverages a combination of proprietary algorithms and prompts, with state-of-the-art LLMs and diffusion image and video models to assist filmmakers in crafting compelling narratives and visual content.

High-level system architecture:
1. User Interface (UI):
   a. A web-based application that provides an intuitive interface for users to input their ideas, develop scripts, create storyboards, and generate previz and animatic videos.
2. Application Layer:
   a. *Frontend*: Developed using modern web technologies to ensure responsiveness and seamless user experience.
   b. *Backend*: Implements business logic, manages user sessions, and handles requests between the frontend and the AI services.
   c. *Companion App*: Upcoming iOS iPad app for use on set to show the storyboard previz animations and animatic videos.
3. AI Services Layer:
   a. *Text Generation*: Utilizes LLMs such as OpenAI's GPT-4, Anthropic's Claude 3.5, and open-source models like Meta's Llama to generate and refine screenwriting content. We use different models for different tasks, depending on which is best suited for each task, their cost to run, and to provide users more variety of options for each idea generated inside Saga.
   b. *Image Generation*: Employs generative AI models to create visual content for storyboards, including OpenAI's DALL-E 3 and Stability AI's Stable Diffusion XL. We use multiple

models to provide our users with a varied selection of options, with each model using its own tailored prompt for best results with that model, adding inputs from the user around character description, style, camera level, size, shot type, and more.

c. *Video Generation*: Generates text-and-or-image-to-video using models including Luma Labs AI Dream Machine, for 5-s photo-realistic storyboard pre-viz and soon 40–60-s animatic video clips launching in 2025.

4. Data Storage:
   a. Secure databases store user inputs, generated content, and project metadata, ensuring data integrity and privacy. Our users and their movie projects are completely private, and our users don't even need to mention they used our app.

Workflow overview:
1. Idea Input: Users enter their initial concepts, character details, and plot outlines through the UI.
2. Script Development:
   a. The application processes user inputs and, through the AI services layer, generates script suggestions, dialogue options, scene descriptions, or whatever the user asks for.
   b. Users can iteratively refine the script with AI-assisted recommendations, or by inputting director notes in natural language for fast rewrite options.
3. Storyboarding:
   a. Based on the developed script, the AI models generate visual representations of scenes, assisting in the creation of detailed storyboards, with the user in control selecting from lists of common shot types and camera levels.
4. Pre-visualization and animatics:
   a. The platform offers previz features, allowing users to animate scenes and visualize camera movements, enhancing the planning of complex shots.

AI large language models. Language models we experimented with, and in some cases are integrating now (or soon) with Saga (Table 1).

AI image generator diffusion models. Image models we experimented with, and in some cases are integrating now (or soon) with Saga (Table 2).

AI sound generator models. Sound models we experimented with, and in some cases are integrating now (or soon) with Saga (Table 3).

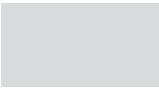**AI video generator diffusion models.** Video models we experimented with, and in some cases are integrating now (or soon) with Saga. (Table 4).

AI model customization. We continue to use cutting-edge methods to derive the highest-quality results from our multimodal AI generation for filmmakers. This includes trying new scientific approaches, including the following options:

Fine-tuning
We tested fine-tuning of GPT-3 in 2021 on OpenAI's then-new Beta feature. We hand-crafted over 50 data files consisting of top movie synopses and character sheets, effectively filling

TABLE 1. Language models we experimented with.

	Version	Notes
OpenAI GPT	4	
Anthropic Claude	Sonnet 3.5	15+ Languages
Mistral	Large 2	Open source, 12+ Languages
Google Gemini	1.5	100+ Languages
Meta Llama	3.3	Open source, 30 Languages
Hugging Face BLOOM	176B	Open source, 46 Languages
Stability AI Stable LM	2	Open source, 7 Languages

TABLE 2. Image models we experimented with.

	Version	Notes
OpenAI DALL-E	3	
Stability AI Stable Diffusion	XL	Open source
Black Forest Labs FLUX	FLUX.1 [pro]	Open source [dev]
Luma	Photon	
Leonardo	Flux	
Google Gemini	Imagen 2	

TABLE 3. Sound models we experimented with.

	Version	Notes
ElevenLabs	Multilingual v2	Voice in 30+ Languages
Suno	v4	Music

out Saga's UI structure with existing quality movie plots to put the outputs on rails to fit our app structure. However, it seemed to tilt the model in a worse direction. We would likely have needed tens-of-thousands of such files, with our only option being to generate "synthetic data" movie synopses, and having to personally review each of the, for example, 50,000 movie synopses individually for quality. We also weren't sure if the generative pre-trained transformer (GPT) training set already *included* the script and synopsis for every movie publicly available. When GPT-3.5 launched, this seemed to confirm that answer and remove the need for fine-tuning. The high cost of retraining models to fine-tune them does not seem to be worth the price, especially for early-stage startups, given that running fine-tuned models is orders of magnitude more expensive than running the base models which work fine for our use case.

In the future, we want to experiment more with fine-tuning, ideally using datasets of movie scripts (acquired legally, through purchase where necessary) and to create our own rating scale based on combinations of online scores, award nominations and box office success, and other factors. We would try to over-weight the neural network for the best movies, as opposed to, for example, OpenAI's GPT training set which probably includes every script ever published (both the good and bad ones), knowing in the world there are fewer great scripts than bad ones. We believe this is why ChatGPT movie ideas are often cliché and middle-of-the-road in terms of quality because they are the average of all movies written—the lowest common denominator for ideas you could simply get from an amatuer writer at a coffee shop in Silver Lake. While we build on GPT, our goal is to customize it for our vertical use case to improve on its generated results.

Retrieval-augmented generation
We have experimented with retrieval-augmented generation (RAG) especially for our Saga GPT,[6] a first in the ChatGPT Store, which contains RAG documents of Saga's lists of definitions like our opinionated *Character Arcs, Archetypes, Story Types, Beats*, and more.

We don't prefer RAG currently because it doesn't *retrain* the base AI GPT model, it simply gives it a way to pick out existing answers when people ask directly for something contained in one of the documents. As noted previously, building a custom RAG system to include a few documents of ours does not seem to be cost efficient for us at the moment. It *could* be for a well-resourced studio like A24 or Lionsgate [who is working with Runway to train a custom AI model on their proprietary intellectual property (IP)] to build their own custom fine-tuned and RAG AI applications since they have countless quality scripts and video files with more resources.

Prompt engineering
A lot of our success in putting generative AI models on rails has come through prompt engineering. This is considered our own IP [as no one can see our private custom application programming interface (API) calls]. Our business strategy is in constantly refining the model prompts we use across app use cases, as we're constantly testing and verifying which prompts get the best results. We save our users from the hassle of mastering prompt engineering (a role we don't even see existing in the future as chatbots and LLMs get better at understanding what users are looking for). Using Saga is simple, and there is no need to figure out, for example, Discord slash commands to use Midjourney, or learn ComfyUI and LoRAs or other cutting-edge workflows that might not even be relevant in the coming years as the user apps progress. On Saga you can use industry terminology and our simple UI to get what you need, as if you were leaning over the shoulder of an artist at their easel describing what you are looking for.

Multimodel approach
We've learned over the years that, at any given time, certain AI models will be better than others at specific tasks, and that this leaderboard can change from week to week. For example, when we were researching Anthropic Claude, we discovered that they had fostered a large creative writing community, with hundreds of fiction authors and novelists on Discord and other online forums. They would profess that Claude could easily beat GPT at creative writing, until with one version release it couldn't and there was outrage in their writing community. Every day, we read blogs comparing use cases, and reviewing the top models, to make sure we have the best in Saga so our users don't need to keep up on the latest model versions and can trust us to provide them with the best always.

Every quarter, ChatGPT achieves new benchmarks for testing on mathematics, medicine, and law. Our business imperative is to be at the forefront

TABLE 4. Video models we experimented with.

	Version	Notes
Luma	Dream Machine	
Runway	Gen-3	
Google	Veo 2	
Stability AI	SVD	Open source
Hailuo AI	MiniMax	
Kling AI	1.6	

of testing and integrating the top models, and one of our unique design decisions is that *we don't make the user pick which models to use*. Saga will generate multiple options across models for anything they want, be it a storyboard image or a character's name, and we let the user decide which is best across all integrated models. By collecting the data of model preference across user selections, we can learn which models are preferred and continue to optimize and offer the best experience to our users, dropping models that aren't among the top performers and swapping in new ones.

Character consistency

In Saga, when generating storyboards, our users can simply select shot types and camera levels, the size and style they are going for, and even reference characters by name, to which references their likeness from our character page when drawing each new shot. This saves them from having to redescribe each character in every shot prompt, which can number in the thousands for dozens of scenes across a 90-min feature film. We do this from prompt-injecting the character's *physical description* based on fuzzy name matching. A new feature in our Beta launching soon will allow users to upload (or generate) images of the character, including portrait headshots and images wearing all of their main costumes and outfits. We're adding the same for voices, so you can select a character voice to use in our *virtual table reads* and *rehearsal partner* features launching this year. The same will go for set locations, allowing location scouts and artistic directors to upload (or generate) reference images of scene locations, props, and more that reappear throughout the production and name them when generating storyboards.

This is currently limited through model APIs that only allow upload of one image to edit, but we're working with leading AI companies to increase the number of images allowed to upload in an API call (such as the previous shots in a scene) to enhance consistency. If this feature does not become available from them, we plan to build it using open source image generators which allow us to write custom code, in this case allowing for multiple reference images to provide as context when drawing new storyboard images.

RESULTS

In developing the first generative AI application for screenwriters and filmmakers almost four years ago and following the industry closely since the advent of machine learning, we find that despite the rhetoric on social media and in the news, filmmakers tell us that they'll use any tool in their arsenal to succeed, and that they find these AI models for language, image, sound, and video to be extraordinary tools that help them make more of their best work faster. Due to the negotiations between guilds and studios, most choose to remain anonymous in their use of the tools for fear of retaliation and retribution, but this public quote from Paul Schrader (screenwriter of Scorsese's classics *Taxi Driver* and *Raging Bull*) illustrates the point:

> "I'm stunned. Every idea AI came up with (in a few seconds) was good. And original. And fleshed out. Why should writers sit around for months searching for a good idea when AI can provide one in seconds?" *(Deadline. com—19 January 2025)*

Next, we provide qualitative feedback from real Saga users, quotes from our mentors including the co-founder of Netflix and producer of *Breaking Bad*, and an (unscientific) case study showing how fast a screenwriter can use Saga to complete their best work, with evidence of a portion of the written script and a behind-the-scenes video livestreaming the process.

We find that our app can help with what creatives need most: the story and character ideation, planning the structure and beat sheet to build on, and finishing their first rough draft. This makes them more creative, more efficient, and more successful as human filmmakers.

We've heard through nearly 100 public and private interviews that nearly *everyone* in Hollywood and the film industry is testing AI, and that if people *can* use it they will. Hollywood is a lucrative and competitive industry, and especially those "under-the-line" have told us they will use whatever tools are available to help them achieve their dream because the current system is broken and no longer a meritocracy. They prefer using technology to their advantage like self-publishing on YouTube to grow their fanbase and get discovered, as opposed to endless networking and even sometimes suffering abuse at the hands of Los Angeles power players and kingmakers. This is the democratization of filmmaking—not a tool we should try to ban but to use selectively to help produce Hollywood blockbuster-quality films affordably, to tell the world new diverse and original stories, as to paraphrase Scorsese, *everyone has one to tell*.

Saga users are spending over 30 min per session, which can be more than new writers spend typing on a word processor when they first force themselves to sit down and "just write," all while staring at a blank page. Not everyone who uses AI to create a movie will be successful, or be able to create an award-winning work of art. Most of the "AI films" we see today are pointless, lacking in story or characters, are poor quality, and tend to rip off existing franchises or make fake movie trailers for clout. When we premiere our own AI-assisted films, we may decide not to mention that AI tools were even used, to avoid any knee-jerk reactions and partisan reviews, although we believe it's fine for award ceremonies to have separate categories between human-only and AI-assisted works—at least for the time being and to give everyone a fair shot before the industry transforms completely. We also write about this topic on our blog, in the
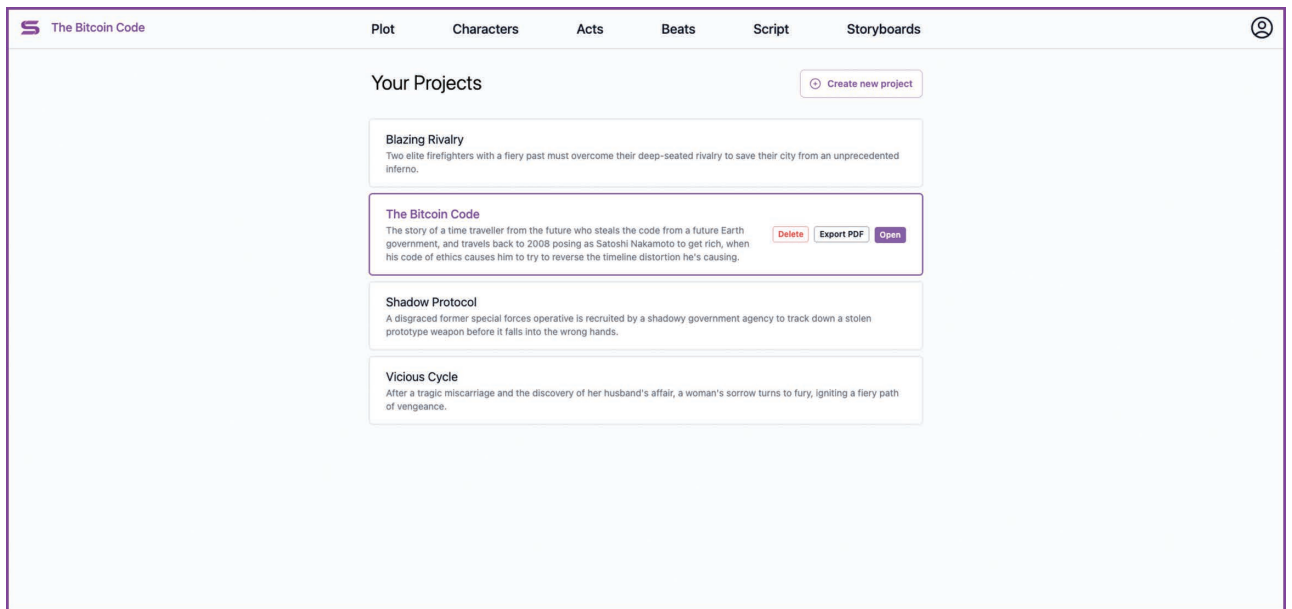
FIGURE 2. Saga Web app home page in the browser.

article The Content Turing Test.[8] We believe movies should succeed on their own merit, not because AI was used as a gimmick to impress people with the state of the art.
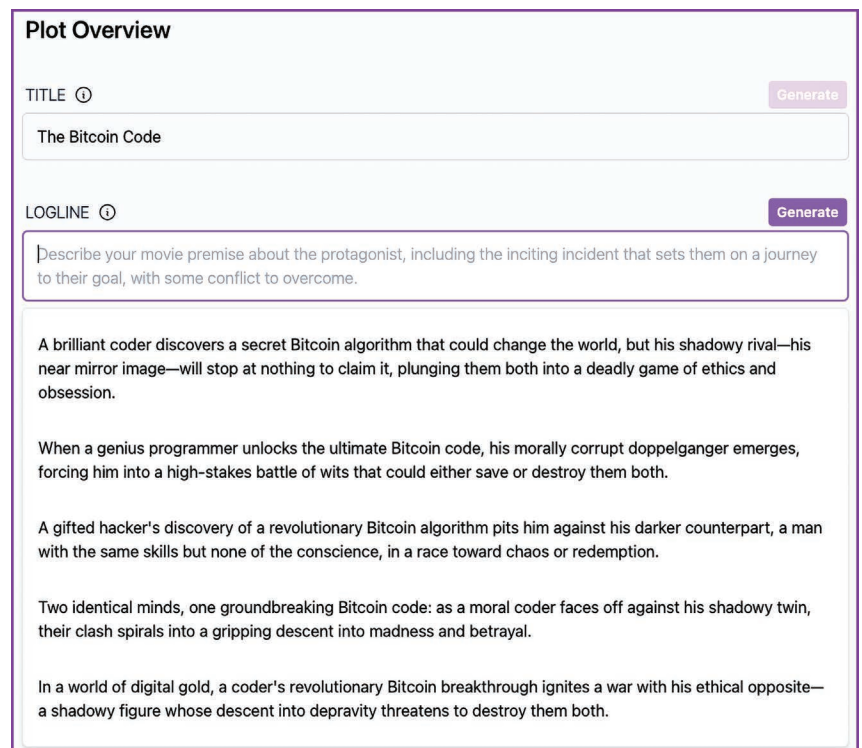
Our goal is to match the quality of top Hollywood professionals, including screenwriters and directors. We achieve this by putting the AI models on rails through expert prompt engineering, ensuring that it adheres to best practices used in the top blockbuster US$250 million movies.

Feature demo

When you open Saga, you begin on the Projects page (Figure 2), where you can select which of your existing movies to work on, or create a new project.

The pages of the app are ordered from left to right, traversing the typical ideation steps incubating a film idea. This structure is based on best practices and previously done using analog cue cards on cork or whiteboards. The first page helps ideate Plot (with *Logline, Theme,* and *B-Story*) see Figures 3 and 4, then Characters (Figure 5), then Acts and a Beat sheet.

Saga uses GPT-4 and will continue adding new models such as Mistral, helping add variety to the generated text and allowing expanded content ratings (up to R-rated) and additional languages. This enables support for new markets including Japanese and Hindi-speakers (that is, for Anime and Bollywood films), to expand our user base to markets worldwide.

FIGURE 3. Saga generating five ideas for a movie Logline based on the Title.

This includes providing a wide range of archetypes to address one of the current shortcomings with our competitor apps – which seem limited to one dimensional characters, such as the typical villain. We offer extensive lists of antagonist and villain archetype traits, allowing for deeper, more complex characters—even secondary ones—making their character development fast and worth the time investment to improve the depth of your story.

Additionally, we make it easy to combine different story types, drawing from patterns that have been used since the Ancient Greeks and beyond. You can select from examples to create a pitch like "Titanic meets Jaws" and teach the AI what you're going for, a common way professionals pitch ideas in Hollywood and around the world.

When you start writing or upload a script, we automatically classify all of the scenes for easy and quick access (Figure 6).

Our state-of-the-art Script Editor is like Final Draft but with enhanced features, offering all of the styles and hotkeys screenwriters are used to. Scripts can be uploaded in various text formats, including Final Draft (.FDX) and .Fountain. You can select existing scenes and ask Saga to help rewrite them based on natural language instructions, such as "make this longer and funnier" (Figure 7).

Select any line in your script and click "Rewrite" to enter your feedback or notes from others (Figures 8 and 9).

You cannot generate a 100-page screenplay with a single click in Saga, but based on our research, the vast majority of writers don't *want* their entire script written *for* them. Instead, our app generates partial scenes one at a time, giving you the option to accept ideas, edit them, and make the writing truly your own (Figure 10).

If you're stuck with writer's block at a blank line or page, simply click "Generate" to get a boost from Saga and keep moving forward with fresh text and ideas that you can easily edit. "Just write" is common advice in the industry, and we see AI as a tool to keep you pushing forward, filling more pages with your creativity. Our goal is for you to love and own your movie ideas, using Saga to accelerate your creative process with ideas and first drafts that you can refine and curate.

Here's a 3 min demo video[7] showing how a typical user gets ideas for a movie on Saga: https://www.youtube.com/watch?v=iQ6JhAqeU-g (Figure 11).

Our storyboarding feature was built on the first DALL-E API back in November 2022 and now integrates

FIGURE 4. Selecting from common story types with examples.

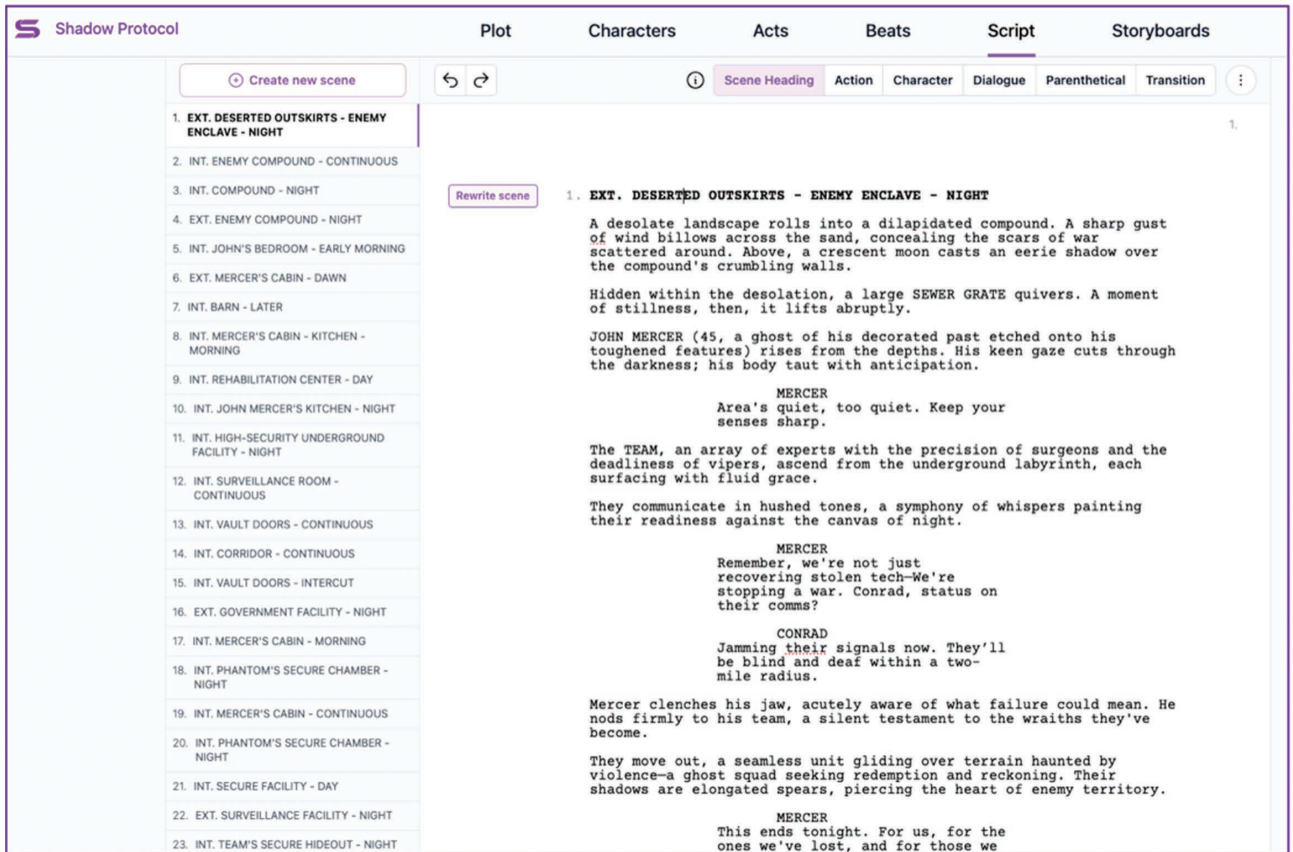**FIGURE 5.** Selecting from common character archetypes with examples.

FIGURE 6. The Saga Script editor.

other image models, including Stable Diffusion XL (Figure 12). We continually add new models, such as the cutting-edge FLUX.1, and soon, Sora from OpenAI.

This provides our users multiple options in one place, eliminating the need to personally test each image generator's latest model—something creatives typically want to avoid. We keep Saga updated with the latest and most advanced image and video models (Figures 13 and 14), all fine-tuned for cinema. It's one subscription, with all

of the best models, in one app. The following link is a video[9] showing the car animation from Figure 13 (7 s): https://bit.ly/sagavideo.

Our helpful prompt engineering means our users can simply *ask* for what they want using industry terminology they are used to, with helpful teaching guides so anyone can learn and apply new skills like cinematography (Figure 15). Writers enjoy illustrating the scenes as imagined in their head when writing. Saga's animation feature will soon expand to longer

previz animation clips, adding sound and voice, with music scoring, animatics, and finally photo-realistic computer-generated imagery scenes.
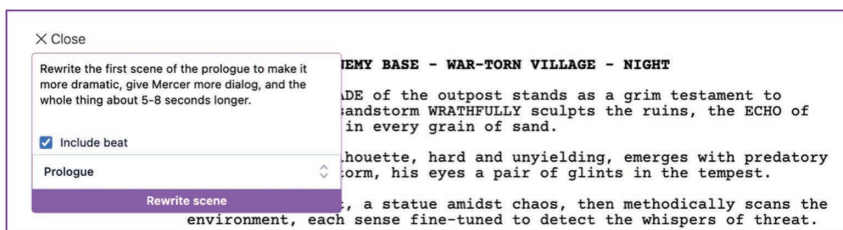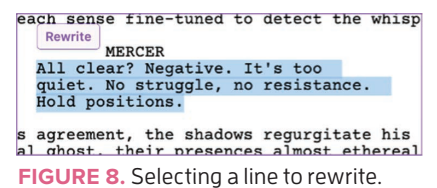

FIGURE 8. Selecting a line to rewrite.

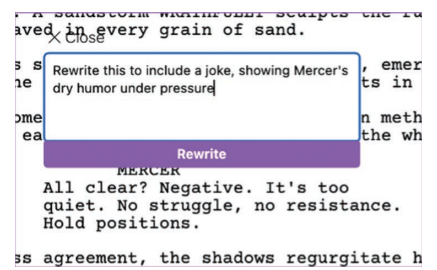**FIGURE 9.** Inputting notes from the director for quick rewrites powered by AI with the full movie script and context.

FIGURE 7. Using natural language instruction prompts to ask Saga to rewrite a scene.

Audio

Our Beta users are already enjoying voice features like Virtual Table Reads, where they can hear the characters bring the script to life, helping them feel the dynamic of exchange and pacing of the material. Music will be introduced later, with new models as available from Suno, Udio, and others, allowing filmmakers to score their movies with an original soundtrack that perfectly matches the emotion and tempo of each scene.

FIGURE 10. A Script page generated by Saga which users can accept and edit.
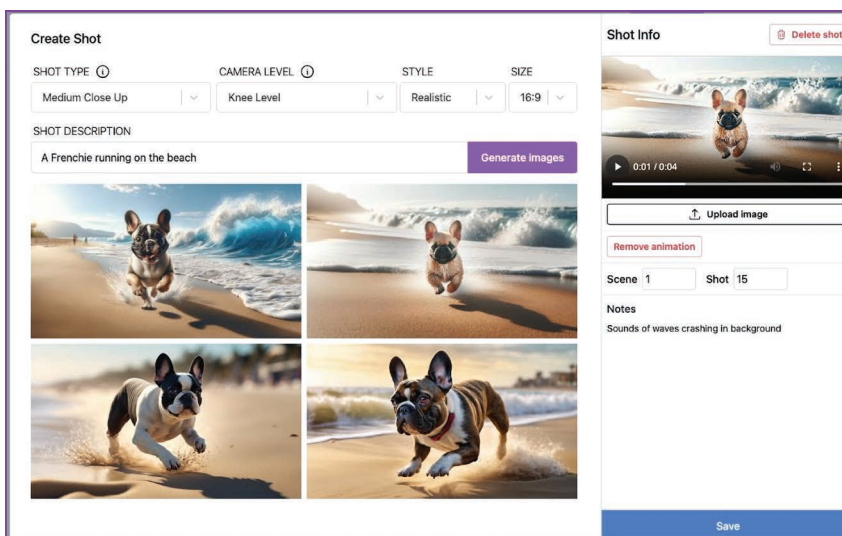
FIGURE 11. Sage 3-min demo video on YouTube cover art.

CUSTOMER TESTIMONIALS

"The app is useful overall and the Logline component and Script tab was quite helpful. The UI was nice to have everything in a centralized place. Interesting suggestions in the Acts that sparked ideas."—Kenny Geiler (indie filmmaker)

"The storyboarding feature is amazing. I loved playing around with it. With a little time spent on prompt engineering/tweaking it captured my vision with ease. It almost distracted me from the writing."—Jared Levine (BS Cinematic Arts at USC)

"First, thanks a lot for Saga, it's an amazing tool. I love it, really. The language, the dialogues, the actions are more reliable than ChatGPT."—Vincent T. (writer)

"The script writer works very well taking Beats and generating scenes, I definitely feel like I could spend hours working on a script now, and if I have writer's block, use to come up with ideas."

"I gotta say, I really like the way it sparks those outside-the-box ideas. In terms of storylining, it's really helpful."

"Saga is next level thank you so much! Honestly what you guys are doing is beyond comprehension. Understanding your background and how it was all set up gives more clarity. I managed to create from idea to concept and process it into a finished product with advanced concepts and good consistency through the generations, creative and amazing outputs. And this was a blitz test. I have been testing as much as I can with various platforms... this is the most impressive thing
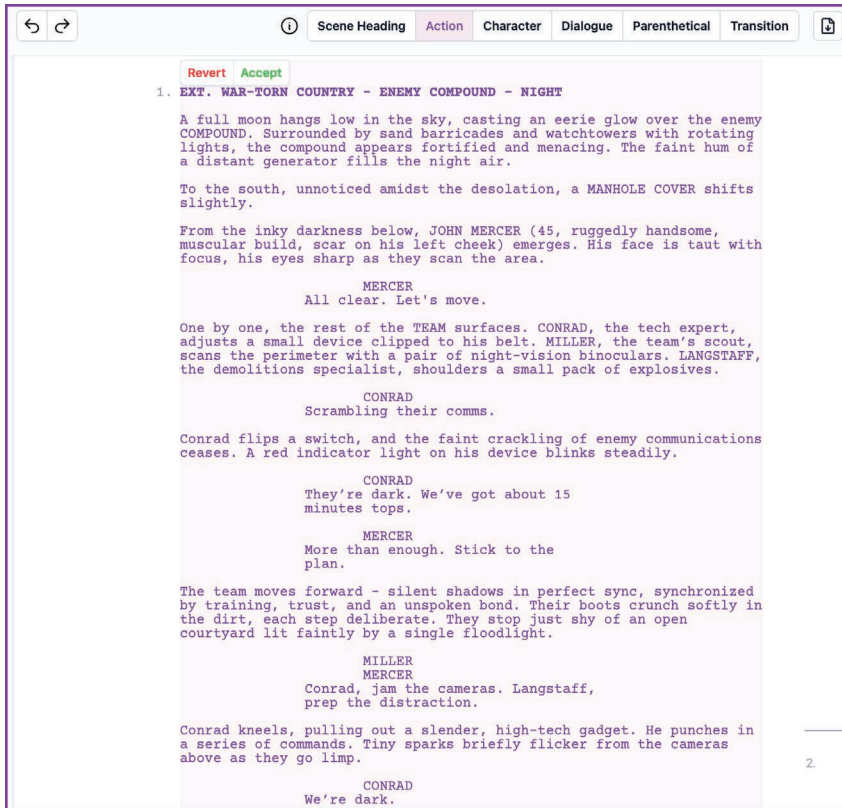
FIGURE 12. Creating a new shot on the Storyboard page.

I have come across FULL STOP. The time and quality of the generations along with the ease of bringing an idea together are seamless... getting access to Saga Cyber Film AI is a game changer!! So much going on this is a beautiful time to be alive."

"I love all the different variables and options that are available to users, and the UI/UX look fantastic, minimal with a leading design, helping the users continue to navigate their story."

"So far Saga is great. I'm fairly new to screenwriting so it's been a huge help."

"I love the options and variety Saga generates that sometimes other AI generated kinda rephrase the words mashed up and I wanted better action verbs or better character development. Also, love hovering over the text to be reminded of certain definitions is nice."

Mentor feedback

"Love it. It asks the questions you need the answers for."—Stew
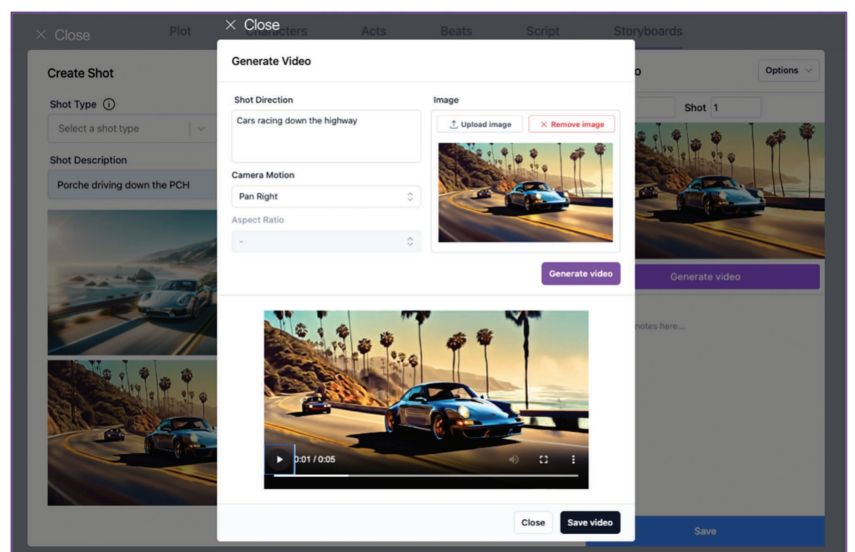
FIGURE 13. Creating previz animation for a shot on the storyboard page.

Lyons (Producer of Breaking Bad, Better Call Saul, Everybody Loves Raymond)

"I tested out your amazing SAGA program and was really impressed with how it works—pretty amazing tool for story development for filmmakers."—Tim Peternel (American Psycho, Buffalo '66)

"The app helped me put together a better story than I could have done alone. It helped me play the what–if game in ways I couldn't have imagined."—Rhys Ryan (Cocreator of Scenechronize)

"This is really intriguing, because you are correct that almost all storytelling (movies, books, tv commercials, plays, speeches) uses a similar structure that has evolved over thousands of years. I would love to play with it. I can't help it. This is just such a cool use case for AI."—Marc Randolph (Cofounder CEO of Netflix)

FIGURE 14. Storyboards that come to life with previz panes inline.

Discussion

Interpreting the results of our metrics, our interviews and usability studies with filmmakers, and our inbound feedback, people love what we're building. They request countless new features every week, such as
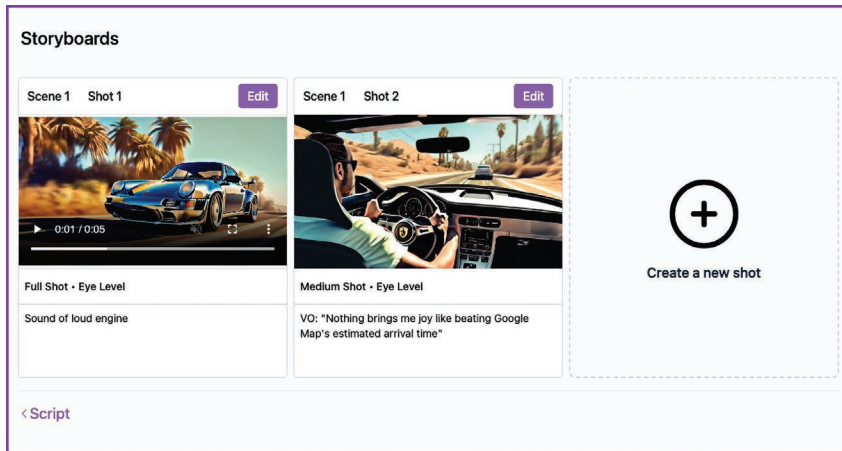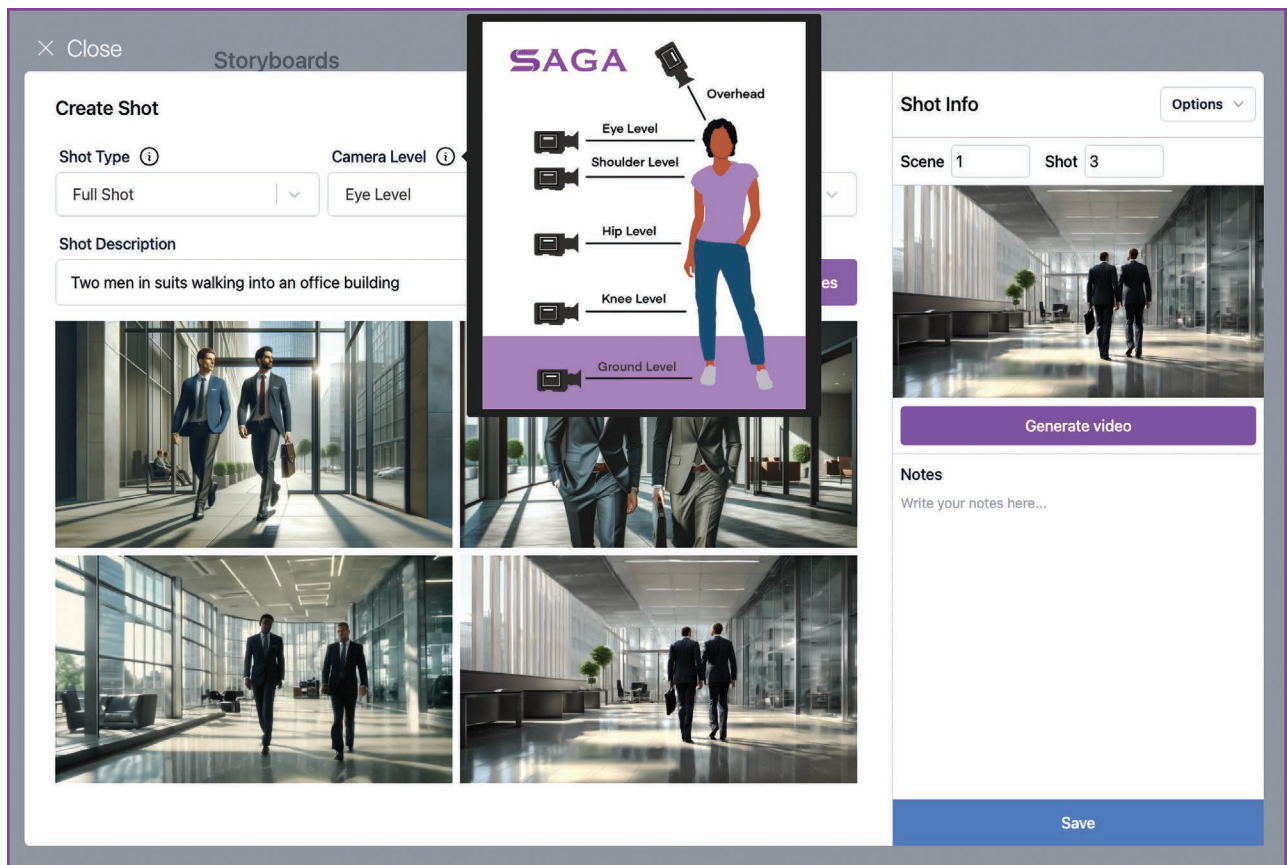

FIGURE 15. Simple teaching guides to explain the various Shot Types and Camera Levels used in cinema.

new templates for writing TV series or commercial advertisements, new languages, and of course longer and more consistent video generation.

Unlike competitor apps that launched soon after Saga resembling our design and roadmap, we have the advantage of years of customer interviews, app Beta tests, and real relationships with Los Angeles-based A-List creators. Our roadmap comes from requests by real filmmakers like them, who want upgrades such as allowing R-rated content (which we're adding through Mistral Mixtral and open source LLMs where we can set our own content filters).

We're launching a custom Chatbot that users can brainstorm ideas with, outside the structure of our app pages. We're adding new styles and formats for Anime, Manga, and other graphic novels, interactive virtual reality storytelling and game experiences, and are even discussing our own streaming service which would take less of a cut from our creators to deliver them more profit. AI translation and lip sync will allow anyone to sell their movie to 8 billion people. Virtual performances will save impressionable young actors from filming scenes of rape and violence, which studies show impact their mental health. Stunts will be safer, as Hollywood has a long history of the untimely demise of stunt performers on set. Actors can play younger or older versions of themselves, even interacting with their clones on screen. Older actors who pass away mid-production can have their final work finished on their behalf and with their permission, and the legacy of voices like James Earl Jones as Darth Vader can live on for generations to come (as he had granted permission before his passing). The 2023 strikes made it clear that artists don't trust—and in some cases have personal animosity—toward studio executives. As artists and filmmakers ourselves, we don't want to see AI abused by executives either, or any jobs lost. As Gandhi said "be the change you want to see in the world," and we're hoping through our leadership that Saga and AI can have a positive

impact on the film industry, with new movies and forms of entertainment that set new standards for quality, originality, and diversity—rather than degrade the art form to bland generic "slop" as some fear.

Case Study

Our cofounder Andrew is a skilled writer, having published multiple original novels on Amazon and authored several screenplays. As a case study, he transformed a colleague's idea for a screenplay premise into a completed 100-page script in just 10 days—writing only part-time—using Saga. This demonstrates the remarkable efficiency and creativity that Saga enables for writers and filmmakers.

"I put some of the beats in the Generate tool, and the stuff it was coming up with was great. It's much faster and to the point, plus sometimes it comes up with unique ideas. With AI it has a cool way of growing into an organic story. The great thing is that usually I would have to go through a script a few times before I did

polish pieces, but now I'm kind of polishing it when I'm writing it because of the speed with which I can generate new pieces, so I find SAGA really efficient with writing."—Andrew Palmer

He typically takes two or more years to complete a typical 100-page screenplay for a 90-min feature film. Using Saga is over 70 times faster, while achieving the same- *or better*-quality writing (Table 5).

You can see a livestream recording of Andrew writing a dozen pages in this video,[10] with a selection of pages included for download in the description: https://bit.ly/sagawriting (YouTube—12:16 min) (Figure 16).

You can see more case study videos from others on our YouTube channel @writeonsaga.

ETHICAL CONSIDERATIONS

Machine learning is one of the most transformative inventions of the century. Like previous groundbreaking technologies—such as electricity and atomics—it requires careful attention and regulation. Unlike these past discoveries,

TABLE 5. Using Saga to speed up writing.

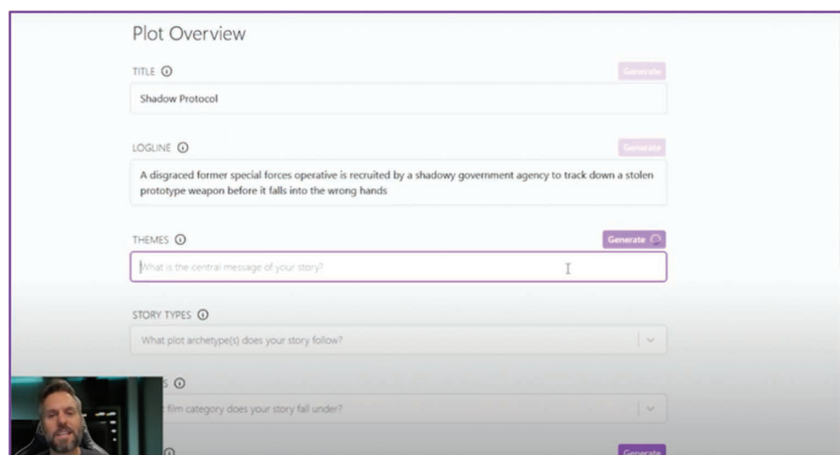|	Pages Written	Time
Before Saga	100	2 years
Using Saga	100	10 days

FIGURE 16. YouTube video showing how to write a feature film in Saga.

however, AI introduces a new challenge: the potential for independent goals and intentions, should it ever achieve the ability to think autonomously.

While much has been written about AI ethics, including issues like representation in datasets, we highlight specific challenges within the entertainment industry. For example, when using datasets such as Academy Award nominations, how do we address the underrepresentation and biases evident in earlier decades of the 1920s and 1930s? These historical biases could influence AI-generated outcomes if not critically examined and corrected.

Ethically sourced datasets

The most popular image generators today often rely on datasets like LAION-5b, a vast repository of images sourced from the Internet. While the World Wide Web is intended for image sharing, many creators showcase their work online (such as photography) with the intent of generating income through paid downloads. Watermarks are commonly used to explicitly indicate ownership and a right to copy these images, yet these datasets can include watermarked images, typically under the premise of research—a fair use case.

Fair use is generally accepted for nonprofit research purposes. However, the commercial applications of these training datasets by for-profit companies raise important legal and ethical questions. Should copyright laws and courts reassess their stance on the use of such content in for-profit AI training? Copyright laws, many of which were written long before the advent of modern technology, may need to be updated to better balance protecting intellectual property and encouraging the creation of new content in the 21st century.

Consent, control, and compensation

The Hollywood strikes in 2023 highlighted three essential demands from artists: consent, control, and compensation. We addressed this in our blog post Artists Rights—Getting Paid for your Work in an Age of AI,[11] and proposed a partial solution.

This solution involves creating an opt-in, dividend-paying dataset used to train AI models of for-profit apps—akin to "ethically sourced coffee beans," where contributors are treated and compensated fairly, with the consumer paying extra but knowing they are supporting the artists or bean farmers. It could also include works from the public domain. By integrating this dataset easily by building on open source image-generation reducing further development costs, artists' contributions could be tracked publicly and at mega-scale via blockchain and compensated perpetually through smart contracts on Web3 technologies like Solana.

For this system to succeed, opt-in participation must be respected by all parties – with potential guild and industry boycotts for datasets and apps that break this trust. Another option we were the first to propose back in 2022 could be used for extra assurance, a new or re-purposed opt-out mechanism like robots.txt (e.g. notraining.txt) which has opted websites out of Search Crawlers like Google for decades, and could be used to opt out of AI Training Crawlers to keep content out of their datasets (especially for websites like Getty with watermarked images). This allows content owners who *need* to put their work online to opt out. Both can simply be ignored, especially by bad actors, so we're sure to see open source projects and adversarial countries develop generative AI that does not respect these policies, but if a majority of the world gets behind these new systems with the power and leverage of the Hollywood guilds, it could stand a chance as Starbucks does selling fair-trade coffee beans at a premium.

Our cofounder, Andrew Palmer, is a proud member of the Canadian Writers, Directors, and Producers guilds. This deep connection to the creative industries is part of our founder DNA, driving us to build the kind of AI company we believe the film world needs.

Copyright exists to ensure creators and their estates retain ownership of their works during their lifetimes and for a period afterward, with works eventually entering the public domain. Generative AI, predicted by leading analysts at Goldman and McKinsey to contribute trillions in gross domestic product growth over the coming decade, offers an unprecedented opportunity to direct this value back to the creators and estates whose work is used to create AI, preserving artistic legacies for generations with new revenue streams.

However, if the worst-case scenario unfolds—where human artists abandon creating new works due to disruptions caused by AI, and future training sets consist mostly of outdated human works and piles of AI-generated "synthetic data"—the richness of art and culture risks becoming stagnant and unappealing. Supporting creators and ensuring fair compensation may be the only sustainable path forward for generative AI to foster enduring artistic innovation.

Deepfakes

The term *deepfake* has become infamous due to its association with illicit content, prompting the industry to adopt alternatives like "virtual performances." Tools like Flawless AI have introduced remarkable workflows for virtual reshoots[12] with actor consent and compensation, building innovative features for dubbing, translation, and lip sync, helping studios save millions of dollars and countless hours.

In April 2022, we explored this topic in our series On Actors and Deepfakes,[13] examining both the challenges and opportunities presented by this technology. Our goal is to shed light on the ethical implications, potential benefits, and actionable steps creators and audiences can take to navigate the evolving landscape of virtual performances.

New laws and regulations

It's one thing to meet the bare legal requirements for outdated laws, but it's another to adopt a proactive, artist-friendly approach in our business

practices. At Saga, we are committed to supporting filmmakers, which is why we encourage our users to explore and develop their own ideas, not have AI do all of the work for them. In some instances, we may choose to block certain names in user prompts, such as "Write an Aaron Sorkin-style script," out of respect for living artists—a value we share as writers ourselves.

Our company decided when we were founded to give our users 100% ownership of their work, as opposed to artist-unfriendly practices like sneaking ownership clauses in the terms of service so they own your work or a percentage of box-office revenue (as some of our competitors chose to do). Years later during the strikes of 2023 this became a clause in the Writers Guild of America agreement with studios, but it's something we've followed and believed in all along.

Our competitors also make claims on their user's work to retrain the company's AI models and use it to improve ideas for their other users, which is another practice we do not and will not follow at Saga. We believe to be artist-friendly we need to give security and privacy to our users, above and beyond what the law requires, and will continue to push for fair practices through our conference panels, blog writing, and industry evangelism.

I n conclusion, while there are risks associated with AI that must be managed, Generative AI tools can help storytellers and filmmakers create more of their best work faster. Self-distribution on platforms like YouTube will allow new creators to showcase their work, build audiences, and possibly get discovered by Hollywood studios to work on bigger-budget films next.

Silicon Valley has seemingly lost the world's trust through a number of recent scandals, from Theranos to FTX. Crypto and Web3 never lived up to the promises evangelized by its proponents in recent years. Though a completely separate technology (that already has a track record of delivering real value), generative AI seems to be caught up in the anger, suffering from a lack of trust and fear it will destroy the film industry as we know it. Technology companies "move fast and break things," and by training their models on copyrighted content, started off on the wrong foot with the art community. Billionaire technology moguls are no longer admired as they once were and are becoming despised (especially as they enter the political sphere). Who wants to see *another* billionaire control Hollywood (simply replacing the old billionaires), while firing all of the artists and below-the-line workers to replace them with robots? Not us.

We started building Saga in 2021 when all anyone would talk about were nonfungible tokens (NFTS) and Bitcoin, refusing to get distracted from our mission. This was long before ChatGPT launched, before "generative AI" was even a term, and before the Hollywood strikes. We've never wavered in our mission to build tools for aspiring filmmakers like us, not so the youth don't need to learn skills or practice writing, but simply to let them make a movie that looks great—as Andrew and I always dreamed of.

There used to be limited space on the shelf at Blockbuster, and a limited number of movie theaters and screens in every neighborhood (in the days before streaming). It made sense for the executives and tastemakers to decide on a limited number of pictures to produce, and make safe bets on proven stars and built-in franchise audiences. Now with everything in the cloud, there is no upper limit to the number of films that can be made every year. With AI preference microtargeting, even with 100 new movies a day releasing on Netflix, each and every one can find its own niche targeted audience—*increasing* the pie of movies and people who create them professionally.

Machine learning will improve so much in the next few years as we approach AGI, that they will not only master the story structures of today, they will use this training to create new ones, plot twists and characters of the likes we've never seen before, and humans will use these to produce some of the highest-quality cinema ever seen.

We believe a multimodal, multimodel app like Saga will continue to be used by filmmakers to reduce the cost and time of producing movies, increase global sales with dubbing and translation, and grow the number of jobs in the film industry.

To reach out to the founders for questions, partnerships, or express interest in their upcoming Seed Round for investment, e-mail CEO Russell Palmer at russellp@cyberfilm.ai or use the Contact form on our website. We are building a strong investor and advisory board,[a] and partnerships with studios and other AI companies.

You can also sign up for Saga and try it for free on our site: https://www.writeonsaga.com

COMMENTS?

I f you have comments about this article, or topics or references I should have cited or you want to rant back to me on why what I say is nonsense, I want to hear. Every time we finish one of these columns, and it goes to print, what I'm going to do is get it up online and maybe point to it at my Facebook (mikezyda) and my LinkedIn (mikezyda) pages so that I can receive comments from you. Maybe we'll react to some of those comments in future columns or online to enlighten you in real time! This is the "Games" column. You have a wonderful day.
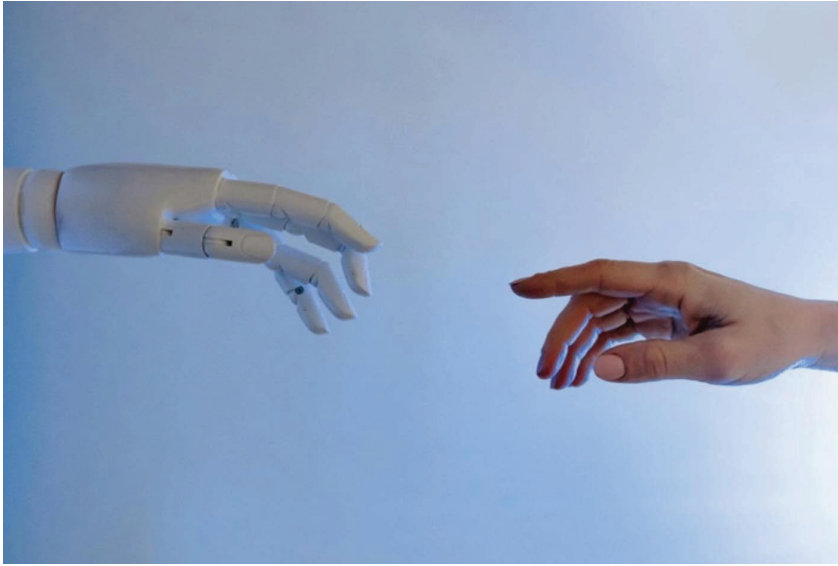
FUTURE 17. Image of a robot touching a human hand in homage to Michelangelo.[14]

Use the following code to test our Premium version free for one month (new accounts only), as our gift to you for reading this far: IEEEFreeMonthSaga

In closing, we chose the image in Figure 17 for our founding vision post nearly four years ago,[4] and posited that "AI is a tool" not a replacement. After millions of views across Silicon Valley, Hollywood, and around the world, this image and statement both seem to have taken off, and we're now hearing it all over the world. The famous image of hands touching in Michelangelo's *Creation of Adam* has come to represent the discussion of human creativity meeting AI, a spark of life given to a creation made in its own image. This meme has since been used by dozens if not hundreds of AI news articles, tech conference logos, and others in various formats, and we're hoping our vision for ethical AI filmmaking can impact the world as well. You can follow Saga on YouTube (https://www.youtube.com/@writeonsaga), Twitter/X (https://x.com/writeonsaga), Instagram (https://www.instagram.com/writeonsaga/), TikTok (https://www.tiktok.com/@writeonsaga), and LinkedIn (https://www.linkedin.com/company/cyberfilm-ai/products/). ▪

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