

Gener(AI)ting the future



Robert Engels

Head of Generative AI lab

Robert is the Head of Caggemini's Global AI lab. Before that, he founded a startup, worked with angel investors, designed and built AI-driven architectures for museums and broadcasters, and built Norway's first road-legal electric motorcycle (2009). He holds a PhD in artificial intelligence and machine learning from the Technical University of Karlsruhe (now KIT).

GENERATIVE AI: THE ART OF THE POSSIBLE

Generative AI is gaining in adoption. Companies across industries are leveraging Gen AI across functions. While most use cases are driving up efficiency or saving costs, there's a whole other category of emerging use cases that many innovative startups are focused on. Let's take a look at some of these most exciting Gen AI startups.

Content creation

Synthesia:

Synthesia is a video communications platform whose AI video generator software enables users to turn any document or webpage into a video that is hosted by an AI-generated realistic avatar. The avatar can change its expression based on the content and can also resemble either the user, or, with appropriate licenses, a celebrity. <https://www.synthesia.io>

Jasper:

Jasper calls itself a copilot for enterprise marketing teams. The company, founded in 2021, aims to reduce the efforts of marketers by asking extensive prompts and giving detailed step-by-step guidance, helping in content creation. It adopts a chatbot interface. The company is valued at over a billion dollars. <https://www.jasper.ai>

Soundraw:

Soundraw is an AI-powered music generator that creates royalty-free music for individuals and enterprises to use in their projects. The company creates original in-house music to train its AI model. This helps them step aside the contentious challenge of potentially relying on copyrighted content. <https://soundraw.io/>

Inworld:

Inworld AI develops and manages AI-driven characters for virtual worlds, gaming, and interactive media. These characters engage in dynamic conversations, exhibit lifelike behaviors, and adapt to real-time user interactions using advanced natural language processing and machine learning techniques. www.inworld.ai

Alternative compute

Mythic:

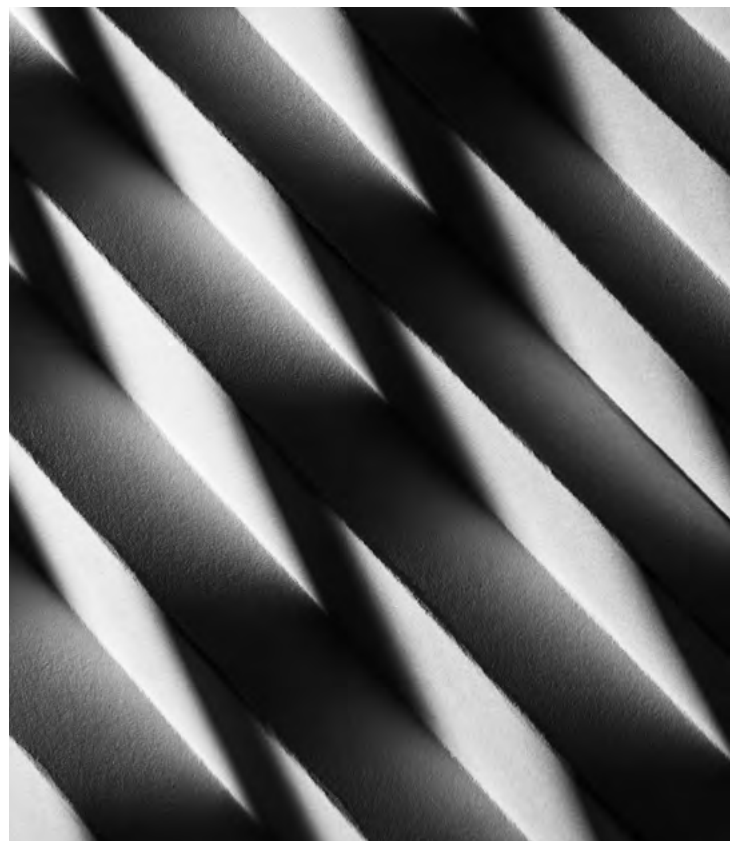
Mythic is working on building analog chips. The company promises exceptional performance on specific types of AI calculations, such as matrix multiplications and signal processing, by going from digital chips (0/1 based) to analog - continuous voltage signals. This higher parallelism and efficiency leads to faster calculations and a lower energy footprint. <https://www.mythic.ai>

Groq:

Groq designs and produces AI-optimized chips called language processing units (LPUs). These chips are not designed for the initial training of an AI model but are optimized to run fast web services for large language models (LLMs). Groq claims that they are 10x faster and 10x cheaper than GPUs that are typically used. <https://www.groq.ai>

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Turbocharge your software engineering

Generative AI is beginning to play a role in software engineering. Many startups are going beyond coding assistance, ranging from test case generation to business requirements/demand analysis and writing to legacy code modernization.

Table 1: Startups leveraging Gen AI across the software development lifecycle (SDLC)

SDLC phase	Tools and description
Business demand analysis	8base's Archie for ideation, blueprint generation, detailed requirements writing, and architecture design support. GPT-powered tools like PRD wizard, and WritemyPRD for product requirements documentation.
Design	Eraser's DiagramGPT to create data flow diagrams, architecture diagrams, etc. Mintlify to generate code documentation.
Testing	Diffblue for writing test cases. Deepcode's Synk for securing code. Sapient for generating test cases.
Deployment and maintenance	Grit for generating release notes by analyzing commits, issues, and differences; dependency upgrades.
Legacy code modernization	Bloop AI to help teams modernize and understand their legacy code.
DevOps	OpenText™ DevOps Aviator for faster application delivery.

Small is big

Large, do-it-all foundation models (LLMs) with moderate performance across various tasks are being replaced by smaller, highly specialized models. These new models are extensively trained on specific tasks, resulting in high performance, reduced resource consumption, and faster execution. Many models, including open-source options, are now available, from startups to established hyperscalers. These models can run on a laptop within minutes using open-source frameworks like Ollama.

Liquid AI:

Liquid AI is a spin-off from MIT, and is co-founded by leading roboticist Daniela Rus. The startup wants to build a new generation of foundation models. The models will be based on liquid neural networks. GPT-3 had about 175 billion parameters and 50,000 neurons. In contrast, a liquid neural network that has been trained for a task such as drone navigation can contain as few as 20,000 parameters and less than 20 neurons . <https://www.liquid.ai>

Arcee:

Arcee develops secure, small language models for enterprises, specifically in highly regulated industries such as legal, healthcare, insurance, and financial services. Arcee's platform helps organizations in these industries with proprietary data to build and operate their own specialized models securely within their own cloud environment. <https://www.arcee.ai>

Multi-agent AI systems and ecosystems

Some generative AI startups are already working towards a world where small, highly specialized and precise models work together on more complicated tasks. This is a typical scenario for multi-agent systems. A multi-agent system consists of AI agents with different capabilities.

1. Various companies are building multi-agent systems (MAS). A good example of such a MAS with integrated learning and AI capabilities is MASDIMA , a multi-agent system for disruption management for airlines and airports. For the latter, generic frameworks like Relevance AI and Crew AI help build custom systems with AI Agents. They are easy to use, claim to be low/no-code, and show how well agents can work together to solve complex tasks better.
2. Built on LangChain, LangGraph is another powerful multi-agent framework for creating multi-actor applications with LLMs. It coordinates and checkpoints multiple chains in cyclic steps using Python or JavaScript, with an interface like NetworkX, ideal for adding cycles and persistence to LLM applications.
3. VoiceFlow is another AI agent-building platform designed to efficiently create, develop, and launch large-scale chat and voice experiences.

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Synthetic data

Syntho AI:

Syntho AI tackles data access challenges by generating synthetic data that mirrors original datasets. It ensures privacy by de-identifying personally identifiable information (PII) and enhances test data management with realistic datasets, promoting data privacy and accuracy. <https://www.syntho.ai/>

Hybrid AI

Hybrid AI combines the strengths of different AI approaches to create more powerful and effective systems. In the context of generative AI, hybrid approaches can leverage the strengths of symbolic, crisp, and easy-to-execute rule-based systems and machine learning to create more accurate and efficient models.

Neo4J:

Neo4J works on knowledge graphs which can play a key role in explainability and preventing hallucinations. The knowledge graph acts as a bridge, translating user intent into specific, actionable queries the LLM can execute with increased accuracy and reliability. By allowing any user – regardless of technical knowledge – to inspect how the LLM arrived at its answers, people can validate the information sources themselves. <https://www.neo4j.com>

Wren AI:

Wren AI builds text-to-SQL with semantic models. This framework helps add metadata, semantics and relationships to lower hallucinations and get crisp outcomes. It also includes self-learning feedback. <https://www.getwren.ai/>



Generative AI and marketing

Generative AI is impacting marketing with its potential to drive personalization at scale and create content across mediums.



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Cuebric:

Cuebric helps brands streamline background production in their ads. It leverages generative AI to produce ready-to-shoot cinematic renders, thereby accelerating the process while cutting down the cost. <https://www.cuebric.com>

ConvAI:

Convai helps brands build lifelike 3D avatars powered by generative AI with the ability to mimic human speech, gestures, and intelligence. The startup creates embodied AI characters for virtual worlds, leveraging conversational generative AI. <https://www.convai.com>

These are just a sample of some of the exciting startups that are pushing the limits of generative AI. Powerful new combinations of Gen AI with graph tech, logical systems, neuromorphic architectures and new ways of computes will arise, while generative AI continues to develop and mature. We are going to see many more innovative new applications and use cases.

