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A New Dawn For Search: Why LLMs Reinvigorate The Sleepy Category

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By *Andy Triedman*

Search was the first grand prize of the internet, currently generating about $300 billion annually. For years, incumbents dominated through scale: more data improves search quality, and more users creates advertising leverage. Consumer challengers such as Neeva struggled to drive enough user adoption, and enterprise search generally failed entirely.

But large language models and innovations in agentic reasoning — such as DeepSeek-R1 and the recently launched deep research mode in Gemini and ChatGPT — transform what's possible in search. These advancements allow companies to build much more powerful products with much less data.
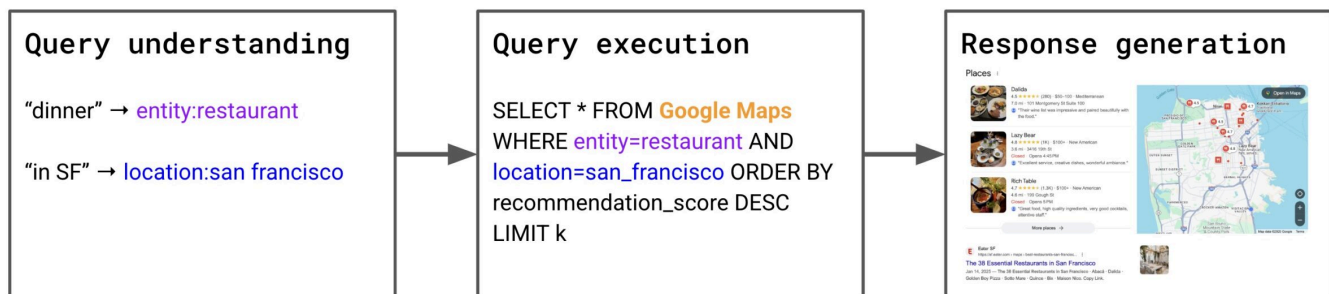
While Google isn't disappearing, the search market is about to change enormously — with exciting new opportunities in consumer advertising, domain-specific search and infrastructure.

How LLMs change what's possible in search

Traditional search engines rely on a multistep process of query understanding, query execution and response generation.


Charts courtesy of Theory Ventures.

Google has leveraged language modeling — specifically, semantic vector embeddings and transformers — in search for years. But modern LLMs pre-trained on the entirety of the internet have new capabilities around language comprehension, information retrieval and basic reasoning.

They allow search engines to:

- Understand complex queries beyond short keywords;

- Evaluate and rank results without complex knowledge graphs that rely on billions of users, instead leveraging LLM's world model to determine which data is best;

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- Synthesize responses to answer a user's question directly instead of providing multiple sources; and

- Create agentic search, which decomposes a user question into multiple queries, iteratively analyzes each result, and provides a refined answer. This approach can replace entire research workflows that previously would have taken many separate searches.
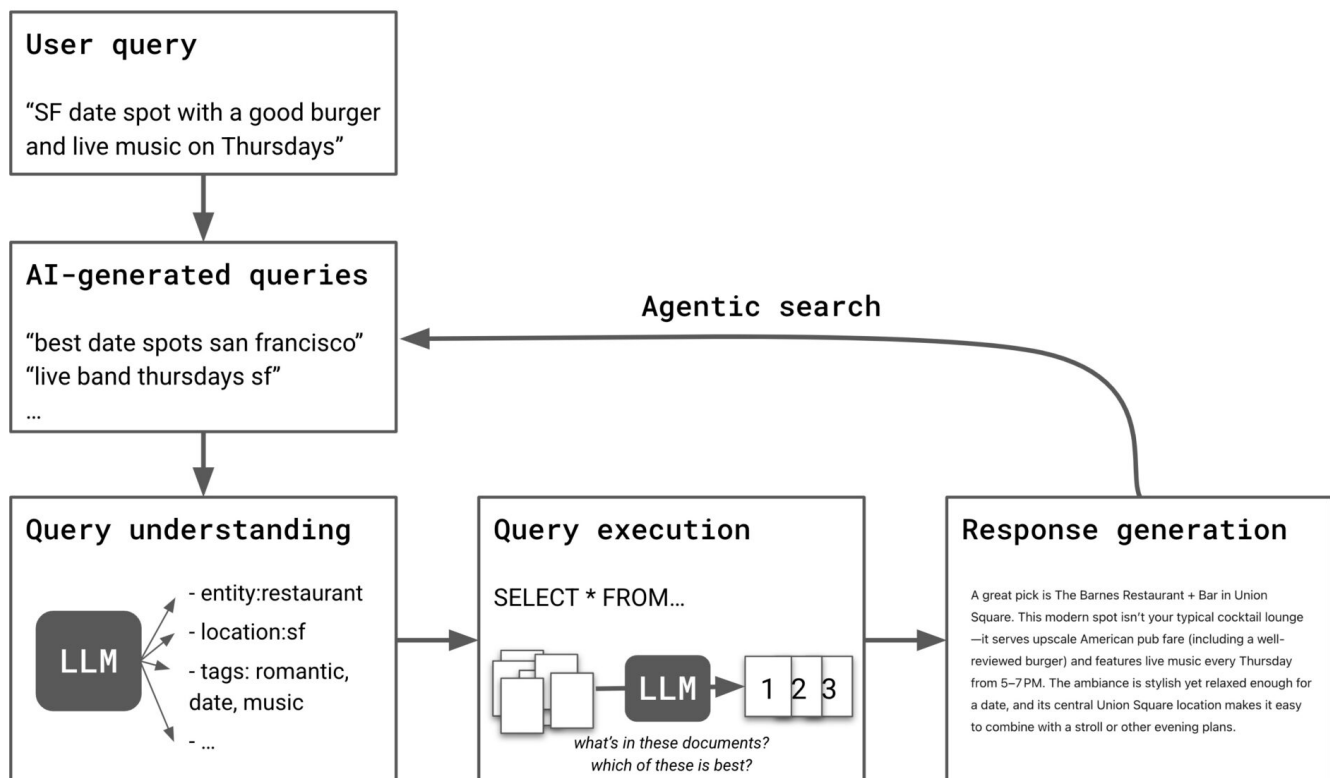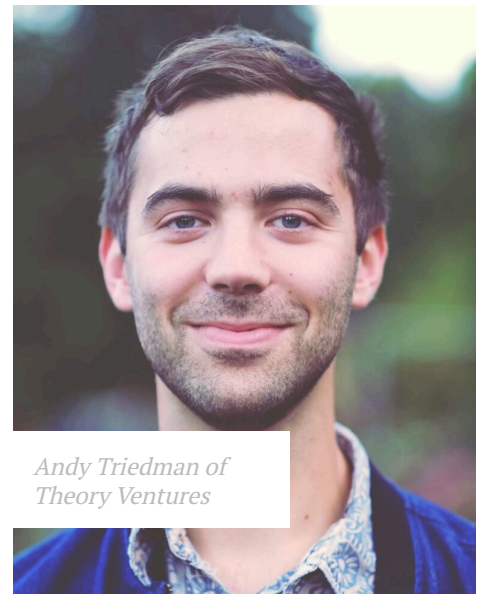
New market opportunities in LLM-powered search

LLM-powered search will create new market opportunities in three key areas.

Transforming consumer search and advertising: Consumer expectations change quickly. After asking an AI assistant an open-ended request or receiving a simple yes/no response, it's painful to go back to keyword-based search and navigate a page full of links. Consumer search will soon be fully open-ended and multimodal in both inputs and outputs.

Incumbents will maintain an advantage through the breadth and scale of general search, first-party data (e.g. Google Maps), and massive distribution; but the advertising and SEO ecosystem around them will change.

When the result for "what are the best shoes?" changes from a series of links to a generated recommendation, shoe companies will need new ways to do SEO. When you ask an assistant to "book me a hotel for the weekend," hotel brands will need interfaces/applets for the agent to query availability and for the user to look at photos of their options.

Proliferation of domain-specific and enterprise search: Because traditional search is data-hungry, expensive and complex to build, most domain-specific and enterprise search tools have underperformed. Across industries, LLM-powered startups can disrupt legacy systems such as LexisNexis, FactSet and PubMed by automating complex research workflows. For example, in medicine, they can find dozens of relevant clinical trials, filter them based on study criteria, then synthesize the findings.

LLMs will also make enterprise search finally work. Glean is an early leader in general internal search, but there are numerous opportunities to build workflow-

specific solutions around core systems of record (ERP, CRM, SIEM), functions (security, operations, finance) or customer-facing applications (product search).

New infrastructure to serve the exploding search market: As more companies build LLM-powered search, infrastructure demands will grow, including in retrieval systems for other AI products (see: retrieval is just search). Areas of opportunity will include:

1. Databases and query engines — optimized for hybrid and multimodal search, with high-throughput and low-latency retrieval at scale;

2. Neural information retrieval — tooling and models to support embedding, indexing and retrieval for different use cases (e.g., Theory Ventures' portfolio company Superlinked); and

3. Search orchestration — query planning and decomposition, multistep retrieval orchestration, ranking/re-ranking, fact verification and more.

The evolution of search is already underway, making now the perfect moment for startups to build solutions redefining how information is accessed and utilized in an LLM-powered age.

Andy Triedman is a partner at Theory Ventures, where he invests in early-stage AI, data and ML companies. His background is both as an operator and investor: He was the first product manager at Replica — a Founders Fund-backed startup creating synthetic data products for the public sector — and a machine learning investor at Innovation Endeavors. Triedman started his career at Bain & Co. and studied computational neuroscience at Brown University, where he built brain-computer interfaces and trained machine learning algorithms on neural data.

Illustration: Li-Anne Dias