From LLM to Living Agents

The rise of Agentic AI in the real world

By
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About me

Principal Solution Architect at AT&T, Chief Data Office.

- Over 19 years of expertise in IT solutions from core Java/J2EE developer to Big Data applications in Telecom, Airline industries.

- Last 8 years exclusively into business transformation through AI/ML, GenAI, Agentic AI , natural language processing (NLP), and machine learning.

- Member/Contributor in several tech forums including IEEE.

- Contributed to the rollout of several well-acclaimed AI applications at AT&T.

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Traditional AI and Innovations at AT&T

Route Optimization tool

- Dispatch Learning Engine, an AI-powered platform that considers real-time information like traffic, fuel, technician skills and customer history to identify the best routes and schedules for each technician each day.

- With all the factors, there are 2.3 trillion options for every 300 jobs to assign

- AT&T has also reduced its miles traveled by more than 20% and saved 51 million pounds of CO_2 emissions by creating more efficient routes

- News Article by Forbes and NVIDIA

More such usecase: Fraud detection, Network optimization, Customer experience…
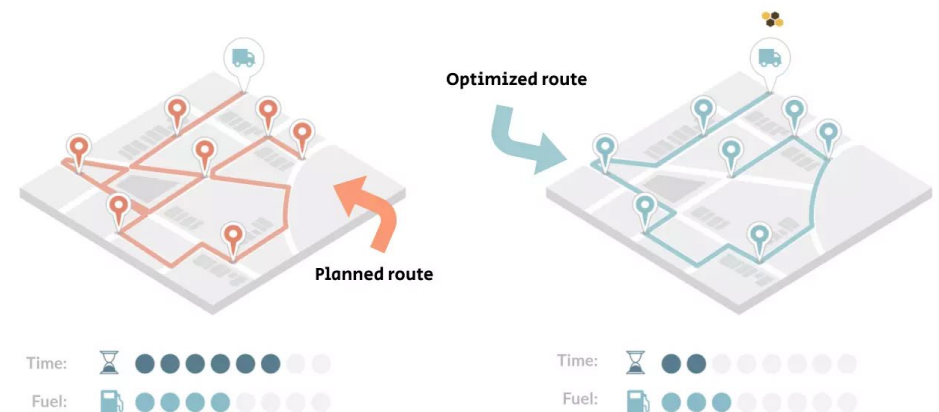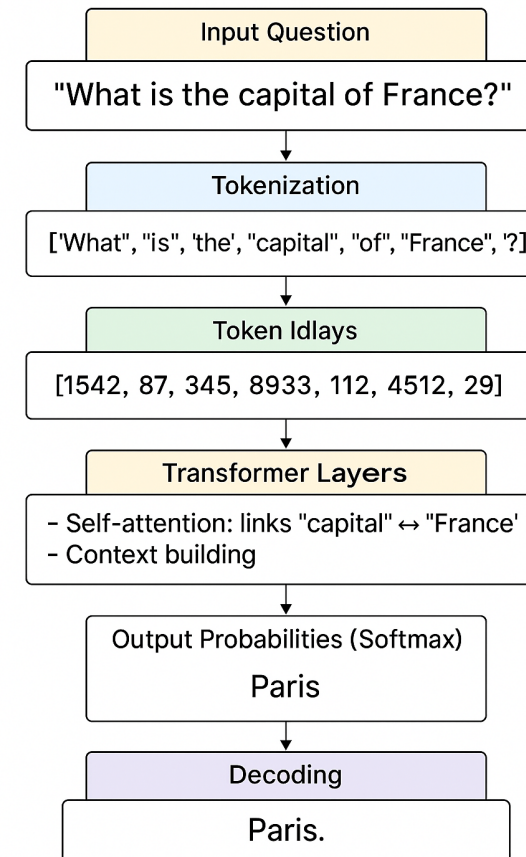
Let's start with LLMs

- Powerful AI model trained on vast amounts of text data and deep neural network technique designed to understand, generate, and manipulate human language

- Extensively used in chatbots, virtual assistants, and content generation highly effective
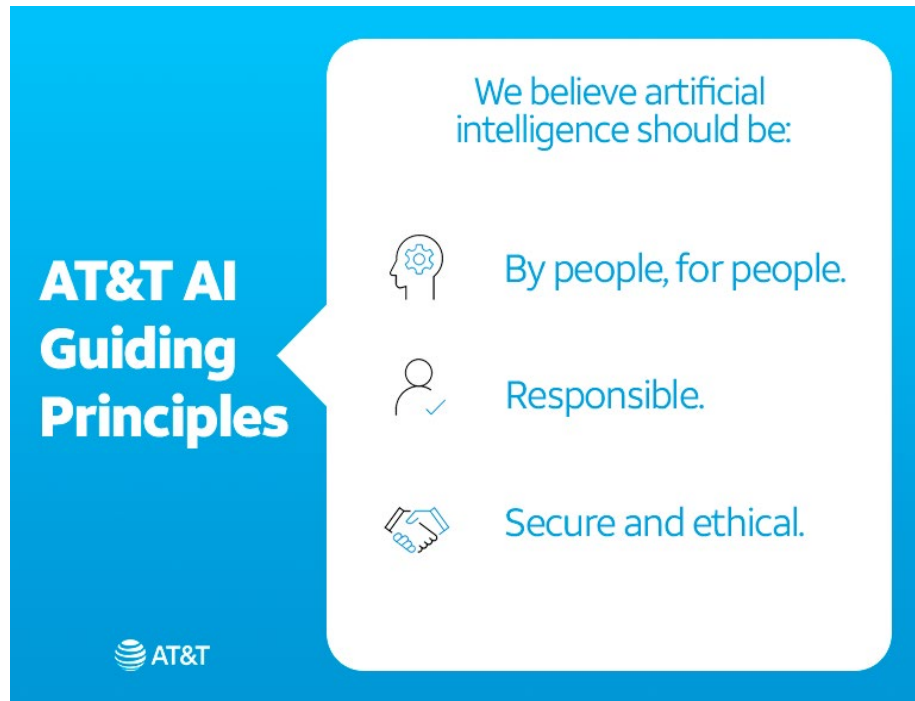
Few popular LLMs…

- OpenAI- GPT
- Meta AI – Llama
- Google - Gemini

One shot task

Input Question

"What is the capital of France?"

Tokenization

['What", "is", 'the', "capital", "of", "France", '?]

Token Idlays

[1542, 87, 345, 8933, 112, 4512, 29]

Transformer Layers

- Self-attention: links "capital" ↔ "France'
- Context building

Output Probabilities (Softmax)
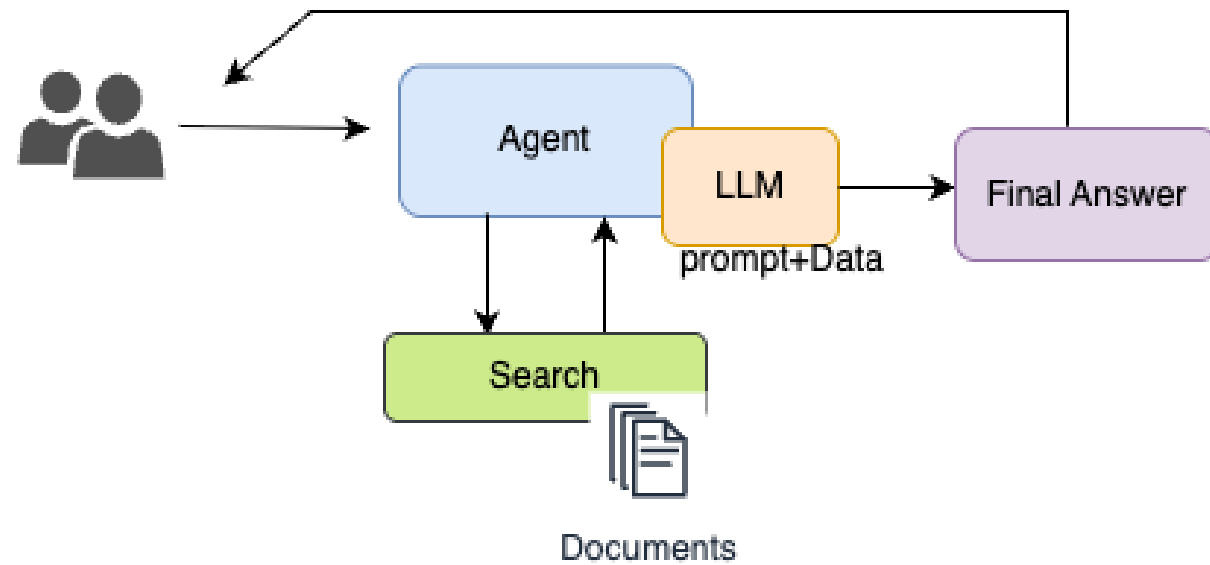
Paris

Decoding

Paris.

Ask AT&T – AT&T's GenAI Tool

- In 2023, the company launched Ask AT&T- an internal tool using gen AI and LLMs to help developers write and refine code at a faster pace.

- Using the tool to summarize phone calls and documents

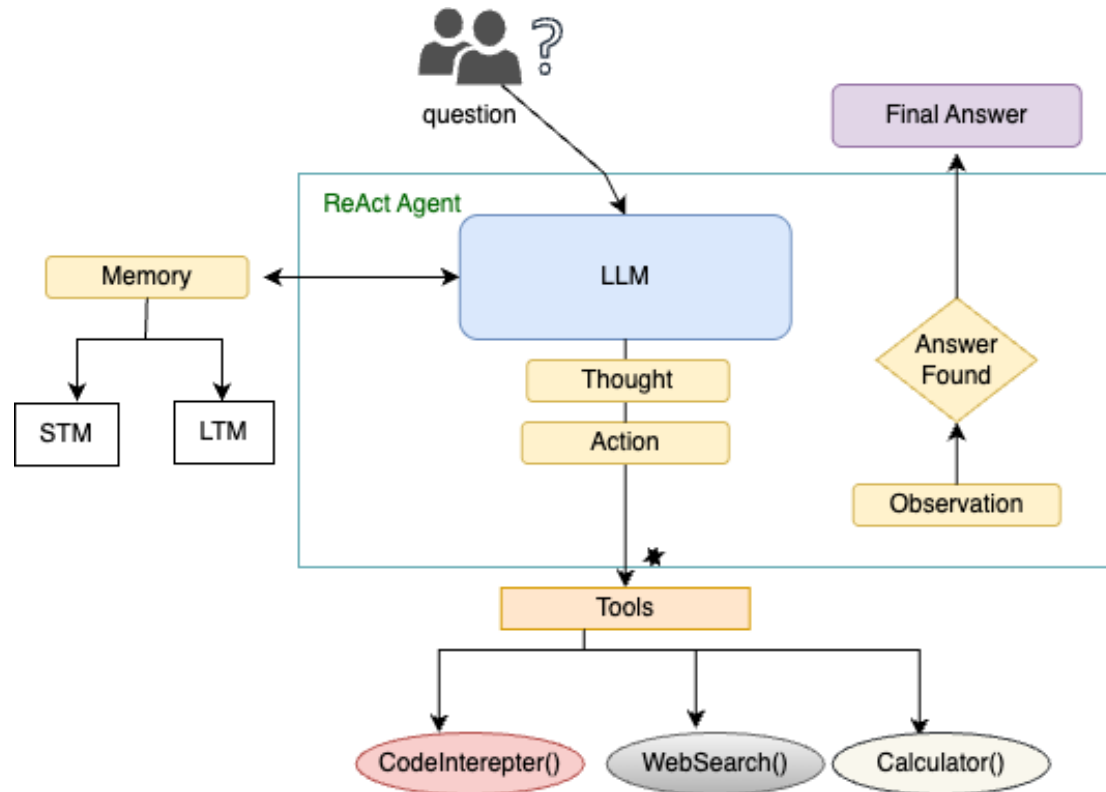Reference: https://tech.yahoo.com/ai/articles/ts-ai-tool-fast-tracking-170859271.html?guccounter=1

Agents

- Agents=LLMs with access to tool and memory

Clearly scoped
Iterative task

ReAct Agents

- AI Agent that has Reasoning and Acting(ReAct) framework.

- It combines Chain of thought(CoT) reasoning with tool use.

Ask Data - ReAct Agent at AT&T

> Which stores in this region had the biggest increase in foot traffic last week?

AskData tool translates plain text queries into SQL programming language

AskData currently ranks number 1 in the world on the GenAI BIRD leaderboard

About BIRD

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BIRD (**BI**g Bench for La**R**ge-scale **D**atabase Grounded Text-to-SQL Evaluation) represents a pioneering, cross-domain dataset that examines the impact of extensive database contents on text-to-SQL parsing. BIRD contains over **12,751** unique question-SQL pairs, **95** big databases with a total size of **33.4 GB**. It also covers more than **37** professional domains, such as blockchain, hockey, healthcare and education, etc.

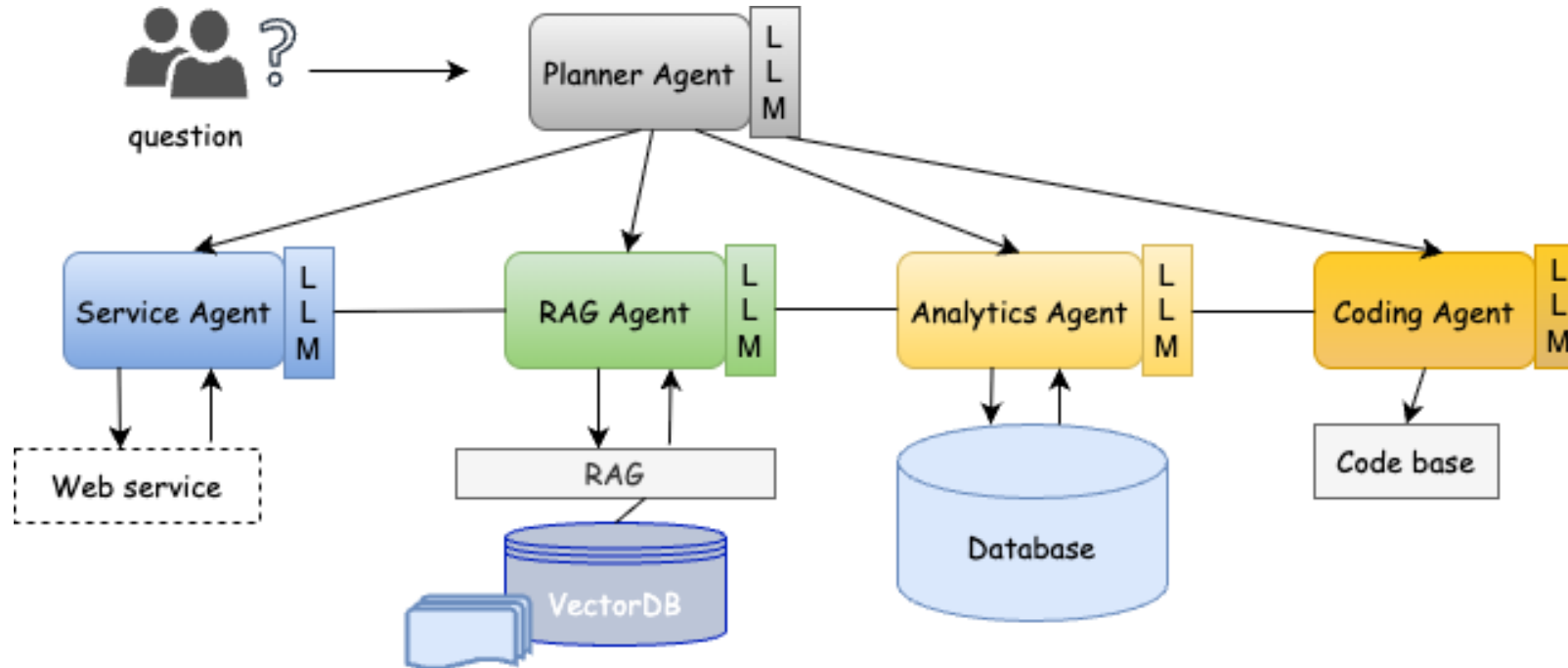| Paper |
| Code |
| Mini-Dev (500) |
| BIRD-CRITIC 1.0 (SQL) |

Overall Leaderboard | Single-Model Leaderboard

Leaderboard - Execution Accuracy (EX)

	Model	Code	Size	Oracle Knowledge	Dev (%)	Test (%)
	Human Performance *Data Engineers + DB Students*			✓		92.96
🏆1 Mar 11, 2025	AskData + GPT-4o *AT&T CDO - DSAIR* [Shkapenyuk et al. '25]		UNK	✓	75.36	**77.14**
🥈2 Apr 16, 2025	CHASE-SQL + Gemini *Google Cloud* [Pourreza et al. '24]		UNK	✓	74.90	76.02
🥉3 May 30, 2025	TCDataAgent-SQL *Tencent Cloud*		UNK	✓	74.12	75.74

ATT Blogs

https://bird-bench.github.io/

Agentic AI

Sample use cases:
Intelligent customer retention Agent
Telecom customer experience platform

Wide scope complex usecase

LLM vs AI Agent Vs Agentic AI
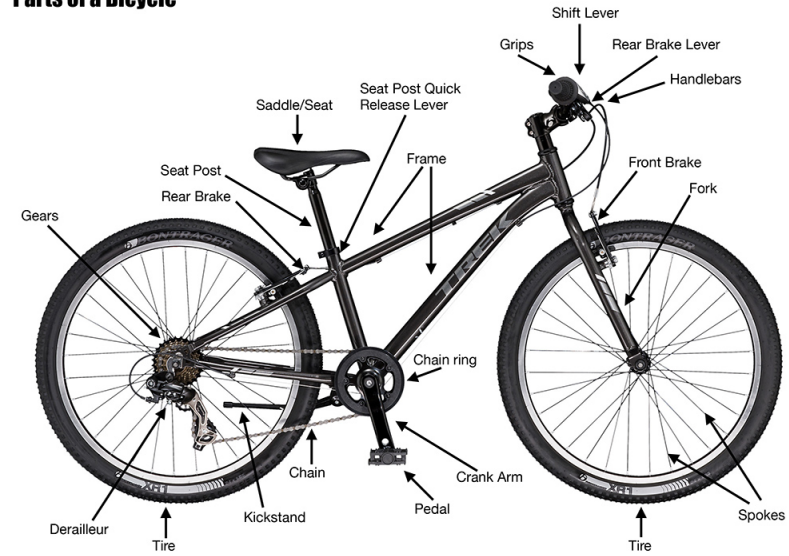
When Not to Use Generative AI

GenAI   Other technique

Clear deterministic rules
Transaction approvals
Compliance checks
Inventory Updates

❌   ✅

Judgement calls
Processing feedback
Unstructured data
Summarize dataset
Call transcripts

✅   ❌

Agentic AI is a fantastic tool, but its not a hammer for every nail

Optimization

Rules/heuristics

Simulation

AI is a broad space with many different techniques and practices.

Nongenerative machine learning

Generative models
One out of many AI practices

Graphs