

# Synergizing Human and LLM Capabilities: a LLM-Augmented Retrieval (LAR) Assistant

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**Motivation:** Search engines and their users face challenges in complex search tasks due to limited task-specific knowledge. We explore the collaborative relationship between human searchers and LLMs in task-based complex searches, where LLMs can assist human searchers by supplying both the **task specific knowledge** and **note-taking capabilities**.

*Step 2: Combine search outcomes with user feedback and insights to refine LLM's recommendations for tasks.*

*Step 3: LLM organizes results from search to support decision-making.*

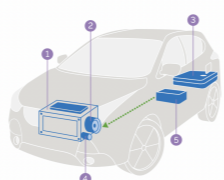

*Step 1: LLM helps to identify meaningful search steps and suitable queries for the task*



Can you summarize all these information into a table so I can find a hybrid car model that fits my budget and requirement

**What is a hybrid car and how does it work?**

- Engine** – Powers the vehicle when driving at speeds above 15 mph
- Electric Motor** – Powers the vehicle up to 15 mph, and assists engine when accelerating

This website <https://www.truecar.com/best-cars-trucks/> is useful. **Let's remember it!**

Sure! I've noted down the website "<https://www.truecar.com/best-cars-trucks/>" for reference. If you have any further questions or tasks related to it, just let me know!

**Honda hybrid cars under \$25,000 in 2023.**

**Negative:** there is no car in Honda 2023 hybrid under 25,000\$

Given this information, we might need to consider other manufacturers or look at **older models** of Honda hybrids that might fit within the \$25,000 budget. If you'd like, I can help you explore other options or provide alternative suggestions.

| Feature/Criteria    | Ford Maverick Hybrid  | Toyota Corolla Hybrid                                       |
|---------------------|---|---|
| Fuel Efficiency     | Hybrid: 37 mpg  | 44-50 mpg combined  |
| Performance & Drive | Remote engine start<br>Standard turbocharged engine; optional hybrid                                    | 0-60 mph in 9.6 seconds. Buzzy gas engine at higher speeds. |
| Interior Comfort    | Cloth upholstery (base) Leather-wrapped steering wheel, dual-zone climate control, rear air vents (SEL) | Comfortable seats. Quiet except for engine noise.           |
| Price               | SEL: \$26,785   | LE: \$24,001  |

**Can LLM be a good assistant?** Yes, LLM can effectively complement with human in task-based searches by providing task-specific knowledge and a note space for storing and summarizing task outcomes.

**Will searcher has better search experience?** Through task decomposition suggested by LLM, searcher has easier time to perform effective search, learn about task and context, and receive concise search outcome summary, searcher is happy.

**Is LLM perfect already?** No, better **alignment with user expectations** and more accurate handling of **key details**.

**General Information on Hybrid Cars:**  
"What is a hybrid car and how does it work?"

**Hybrid Car Models within the Budget:**  
"Best/Honda/Ford/Toyota hybrid cars under \$25,000 in 2023."

Human perform search with the suggested queries.

**Task Automation:** Transitioning from manual to automatically identifying user search tasks and delivering relevant results.

**Intelligent Decomposition:** For complex queries, the system will smartly break down tasks, focusing on each detail.

Future work