

传统RAG搜索与browser-use搜索比较

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一句话总结：**Browser-use**在一般RAG系统中数据的准确性要高于传统RAG检索系统，不会引入干扰信息，但是效率远低于传统RAG检索，建议基于检索信息的重要性酌情使用**browser-use**搜索

方法定义

- 传统RAG搜索**：将用户查询分解为关键词，每个关键词独立检索，通常并行执行，类似于传统搜索引擎的关键词匹配。
- 浏览器使用模拟点击**：AI代理模拟人类在网页上的点击行为，根据页面内容判断相关性，逐步导航至所需信息，类似于语义搜索。

详细比较

效率分析

传统RAG搜索通过并行处理多个关键词检索，显著提高了效率。关键词搜索在简单查询中表现优异，适合快速响应需求。相比之下，浏览器使用模拟点击需要顺序加载和分析网页，速度较慢，可能达到分钟级别，效率明显低于传统方法。

数据相关性与准确性

浏览器使用模拟点击通过AI理解查询意图和网页上下文，提供更高相关性的结果。语义搜索能处理自然语言查询，减少无关信息，但也有可能会有数据不全的情况，但不会基本不会引入误导数据。而传统RAG搜索依赖关键词匹配，容易引入与查询无关的内容。

稳定性与复杂性

传统RAG搜索基于预索引数据，稳定性高，适合大规模应用。关键词搜索在一致性上表现优异。反之，浏览器使用模拟点击在复杂网页（如多按钮界面）时，AI可能误判导航路径，导致搜索结果不稳定，尤其在前端页面设计复杂时表现更差。

资源需求

传统RAG搜索资源需求较低，主要依赖索引系统和并行计算。而浏览器使用模拟点击需要模拟浏览器环境，涉及多模态数据处理（如图像和文本），资源消耗更高。

优劣势总结

以下表格总结了两者的优劣：

方面	传统RAG搜索	浏览器使用模拟点击
效率	高，适合快速检索	低，顺序导航较慢
数据相关性	较低，可能引入无关信息	高，AI能智能筛选
稳定性	高，基于预索引数据	低，复杂网页易误判
可扩展性	高，适合大规模数据	受限，顺序处理影响扩展
资源需求	低，计算成本较低	高，需多模态处理和模拟环境
可复现	高，搜索词或向量搜索可复现性高	低，基于大模型返回Action控制结果

Demo

- 问句： 帮我找找中国近10年的GDP数据
- 成功案例：

```
帮我找找中国近10年的GDP数据

INFO      [agent] 📍 Step 1
INFO      [agent] ⚠️ Eval: Failed - I am still on a new tab page and haven't searched yet.
INFO      [agent] 🧠 Memory: Starting with the new task. I have completed 1/10 steps. Previous attempt failed to initiate a search for GDP data.
INFO      [agent] 🎯 Next goal: Input search query for China GDP data.
INFO      [agent] 🛠️ Action 1/2: {"input_text":{"index":0,"text":"中国 近 10年 GDP 数据"}}
INFO      [agent] 🛠️ Action 2/2: {"send_keys":{"keys":"Enter"}}
INFO      [controller] 🖱️ Input 中国 近 10年 GDP 数据 into index 0
INFO      [controller] 🖱️ Sent keys: Enter
INFO      [agent] 📍 Step 2
INFO      [agent] 👍 Eval: Success - The search results are displayed
INFO      [agent] 🧠 Memory: Completed the search for "中国 近 10年 GDP 数据" and found various resources.
INFO      [agent] 🎯 Next goal: Extract GDP data from one of the search results.
INFO      [agent] 🛠️ Action 1/1: {"click_element":{"index":19}}
INFO      [controller] 🖱️ Clicked button with index 19:
INFO      [agent] 📍 Step 3
INFO      [agent] 👍 Eval: Success - I have landed on a relevant page for GDP data.
INFO      [agent] 🧠 Memory: Accessed GDP data from a World Bank link, need to extract data for the last 10 years.
INFO      [agent] 🎯 Next goal: Extract the GDP data from the page.
INFO      [agent] 🛠️ Action 1/1: {"extract_content":{"goal":"Extract GDP data for China for the last 10 years."}}
INFO      [controller] 📄 Extracted from page
```

```
: ```json
{
  "goal": "Extract GDP data for China for the last 10 years.",
  "data": {
    "2013": {
      "gdp": "600,660.4",
      "gdp_growth_rate": "7.7%"
    },
    "2014": {
      "gdp": "655,782.9",
      "gdp_growth_rate": "7.3%"
    },
    "2015": {
      "gdp": "702,511.5",
      "gdp_growth_rate": "6.9%"
    },
    "2016": {
      "gdp": "761,193",
      "gdp_growth_rate": "6.7%"
    },
    "2017": {
      "gdp": "847,382.9",
      "gdp_growth_rate": "6.9%"
    },
    "2018": {
      "gdp": "936,010.1",
      "gdp_growth_rate": "6.6%"
    },
    "2019": {
      "gdp": "100,5872.4",
      "gdp_growth_rate": "6.0%"
    },
    "2020": {
      "gdp": "103,4867.6",
      "gdp_growth_rate": "2.3%"
    },
    "2021": {
      "gdp": "117,3823",
      "gdp_growth_rate": "8.1%"
    },
    "2022": {
      "gdp": "121,1277",
      "gdp_growth_rate": "3.0%"
    },
    "2023": {
      "gdp": "Estimated growth with expected recovery",
      "gdp_growth_rate": "Anticipated around 5%"
    }
  }
}
```
```

INFO [agent] 📌 Step 4

INFO [agent] 👍 Eval: Success - Retrieved GDP data for China over the last 10 years.

INFO [agent] 🧠 Memory: Collected comprehensive GDP data for China from 2013 to 2023 including growth rates and GDP values.

INFO [agent] 🎯 Next goal: Complete the task and report the results.

INFO [agent] 🛠️ Action 1/1: {"done":{"text":"The GDP data for China over the past 10 years has been extracted successfully:\n\n- \*\*2013\*\*: GDP - 600,660.4 billion CNY, Growth Rate - 7.7%\n- \*\*2014\*\*: GDP - 655,782.9 billion CNY, Growth Rate - 7.3%\n- \*\*2015\*\*: GDP - 702,511.5 billion CNY, Growth Rate - 6.9%\n- \*\*2016\*\*: GDP - 761,193 billion CNY, Growth Rate - 6.7%\n- \*\*2017\*\*: GDP - 847,382.9 billion CNY, Growth Rate - 6.9%\n- \*\*2018\*\*: GDP - 936,010.1 billion CNY, Growth Rate - 6.6%\n- \*\*2019\*\*: GDP - 1,005,872.4 billion CNY, Growth Rate - 6.0%\n- \*\*2020\*\*: GDP - 1,034,867.6 billion CNY, Growth Rate - 2.3%\n- \*\*2021\*\*: GDP - 1,173,823 billion CNY, Growth Rate - 8.1%\n- \*\*2022\*\*: GDP - 1,211,277 billion CNY, Growth Rate - 3.0%\n- \*\*2023\*\*: Estimated growth with an expected recovery, anticipated around 5%."},"success":true}}

INFO [agent] 📄 Result: The GDP data for China over the past 10 years has been extracted successfully:

- \*\*2013\*\*: GDP - 600,660.4 billion CNY, Growth Rate - 7.7%
- \*\*2014\*\*: GDP - 655,782.9 billion CNY, Growth Rate - 7.3%
- \*\*2015\*\*: GDP - 702,511.5 billion CNY, Growth Rate - 6.9%
- \*\*2016\*\*: GDP - 761,193 billion CNY, Growth Rate - 6.7%
- \*\*2017\*\*: GDP - 847,382.9 billion CNY, Growth Rate - 6.9%
- \*\*2018\*\*: GDP - 936,010.1 billion CNY, Growth Rate - 6.6%
- \*\*2019\*\*: GDP - 1,005,872.4 billion CNY, Growth Rate - 6.0%
- \*\*2020\*\*: GDP - 1,034,867.6 billion CNY, Growth Rate - 2.3%
- \*\*2021\*\*: GDP - 1,173,823 billion CNY, Growth Rate - 8.1%
- \*\*2022\*\*: GDP - 1,211,277 billion CNY, Growth Rate - 3.0%
- \*\*2023\*\*: Estimated growth with an expected recovery, anticipated around 5%.

INFO [agent] ✅ Task completed

INFO [agent] ✅ Successfully

## • 失败案例

帮我找找中国近10年的GDP数据

INFO [agent] 📌 Step 1

INFO [agent] 🤖 Eval: Unknown - I need to search for GDP data now

INFO [agent] 🧠 Memory: Starting with the new task. I have completed 1/10 steps

INFO [agent] 🎯 Next goal: Search for China GDP data for the last 10 years

INFO [agent] 🛠️ Action 1/2: {"input\_text":{"index":0,"text":"China GDP data for the last 10 years"}}

INFO [agent] 🛠️ Action 2/2: {"click\_element":{"index":0}}

INFO [controller] 📄 Input China GDP data for the last 10 years into index 0

INFO [agent] Something new appeared after action 1 / 2

INFO [agent] 📌 Step 2

INFO [agent] 👍 Eval: Success - I found search results for GDP data

INFO [agent] 🧠 Memory: Starting with the new task. I have completed 2/10 steps. I have initiated a search for China GDP data for the last 10 years

INFO [agent] 🎯 Next goal: Click on the first search result to get the GDP data  
INFO [agent] 🛠️ Action 1/1: {"click\_element":{"index":4}}  
INFO [controller] 📄 Clicked button with index 4:  
INFO [agent] 📌 Step 3  
INFO [agent] 👍 Eval: Success - I reached a page with GDP data options  
INFO [agent] 🧠 Memory: Starting with the new task. I have completed 3/10 steps.  
I accessed search results for China GDP data

INFO [agent] 🎯 Next goal: Click on the link for Trading Economics to see GDP data  
INFO [agent] 🛠️ Action 1/1: {"click\_element":{"index":20}}  
INFO [controller] 📄 Clicked button with index 20:  
INFO [agent] 📌 Step 4  
INFO [agent] 👍 Eval: Success - I found the GDP value for 2023  
INFO [agent] 🧠 Memory: Starting with the new task. I have completed 4/10 steps.  
I reached the page with GDP data for China

INFO [agent] 🎯 Next goal: Extract the relevant GDP data for the past 10 years  
INFO [agent] 🛠️ Action 1/1: {"extract\_content":{"goal":"Extract GDP data for China over the last 10 years"}}

INFO [controller] 📄 Extracted from page

```
: ```json
{
 "GDP_data": {
 "2023": 17794.78,
 "2022": 17881.78,
 "2021": null,
 "2020": null,
 "2019": null,
 "2018": null,
 "2017": null,
 "2016": null,
 "2015": null,
 "2014": null,
 "2013": null
 },
 "total_average_GDP": {
 "average": 3291.24,
 "range": "1960-2023",
 "highest": 17881.78,
 "lowest": 47.21
 },
 "projections": {
 "2025": 18685.00,
 "2026": 19563.00,
 "2027": 20502.00
 }
}
```
```

INFO [agent] 📌 Step 5
INFO [agent] 👍 Eval: Success - I successfully extracted GDP data for the last 10 years

```

INFO      [agent] 🧠 Memory: Starting with the new task. I have completed 5/10 steps.
I have extracted the GDP data for China over the last 10 years
INFO      [agent] 🎯 Next goal: Provide the extracted GDP data
INFO      [agent] 🛠️ Action 1/1: {"done":{"text":"The extracted GDP data for China
over the last 10 years is as follows:\n- 2023: 17794.78 billion USD\n- 2022: 17881.78
billion USD\n- 2021: Data not available\n- 2020: Data not available\n- 2019: Data not
available\n- 2018: Data not available\n- 2017: Data not available\n- 2016: Data not
available\n- 2015: Data not available\n- 2014: Data not available\n- 2013: Data not
available.\n\nPlease note that the data for many of the previous years is not
available."},"success":true}}
INFO      [agent] 📄 Result: The extracted GDP data for China over the last 10 years
is as follows:
- 2023: 17794.78 billion USD
- 2022: 17881.78 billion USD
- 2021: Data not available
- 2020: Data not available
- 2019: Data not available
- 2018: Data not available
- 2017: Data not available
- 2016: Data not available
- 2015: Data not available
- 2014: Data not available
- 2013: Data not available

Please note that the data for many of the previous years is not available.
INFO      [agent] ✅ Task completed
INFO      [agent] ✅ Successfully

```

- 输出数据样例:

```

{
  "result": [
    {
      "is_done": true,
      "success": true,
      "extracted_content": "The GDP data for China over the past 10 years has
been extracted successfully:\n\n- **2013**: GDP - 600,660.4 billion CNY, Growth Rate
- 7.7%\n- **2014**: GDP - 655,782.9 billion CNY, Growth Rate - 7.3%\n- **2015**: GDP
- 702,511.5 billion CNY, Growth Rate - 6.9%\n- **2016**: GDP - 761,193 billion CNY,
Growth Rate - 6.7%\n- **2017**: GDP - 847,382.9 billion CNY, Growth Rate - 6.9%\n-
**2018**: GDP - 936,010.1 billion CNY, Growth Rate - 6.6%\n- **2019**: GDP -
1,005,872.4 billion CNY, Growth Rate - 6.0%\n- **2020**: GDP - 1,034,867.6 billion
CNY, Growth Rate - 2.3%\n- **2021**: GDP - 1,173,823 billion CNY, Growth Rate -
8.1%\n- **2022**: GDP - 1,211,277 billion CNY, Growth Rate - 3.0%\n- **2023**:
Estimated growth with an expected recovery, anticipated around 5%.",
      "include_in_memory": false
    }
  ],
  "metadata": {
    "step_start_time": 1743062414.5739672,
    "step_end_time": 1743062423.026506,
  }
}

```

```
    "input_tokens": 5173,  
    "step_number": 5  
  }  
}
```

结论与建议

传统RAG搜索适合需要快速响应的简单查询场景，但其缺点在于可能引入无关信息，影响准确性。浏览器使用模拟点击在复杂查询中表现更好，数据相关性高，但速度慢且稳定性不足，特别在前端页面复杂时表现不佳。建议根据具体需求选择：对于实时性要求高的场景选择传统RAG搜索；对于需要深层上下文理解的场景，选择浏览器使用模拟点击。此外，混合方法（如先关键词检索后AI筛选）可能提供最佳平衡。