# M3DocVQA: Multi-modal Multi-page Multi-document Understanding

Supplementary Material

## Appendix

In this appendix, we show additional qualitative examples (Appendix A) and ethical considerations (Appendix B).

## A. Additional Qualitative Examples

In Fig. 6 and Fig. 7, we provide additional qualitative examples of M3DocRAG (ColPali + Qwen2-VL 7B)'s question answering results on M3DocVQA examples. In Fig. 6, the question requires multi-hop reasoning across different pages/documents, and M3DocRAG could combine information from multiple retrieved pages. In Fig. 7, although ColPali did not retrieve the page that contains information about a team whose logo features a bat, Qwen-2 VL leverages its own knowledge 'Valencia CF has a logo featuring a bat', and could provide the final answer. Overall, the qualitative examples showcase that M3DocRAG can successfully tackle different questions whose answer sources exist in various modalities.

## B. Ethical Considerations

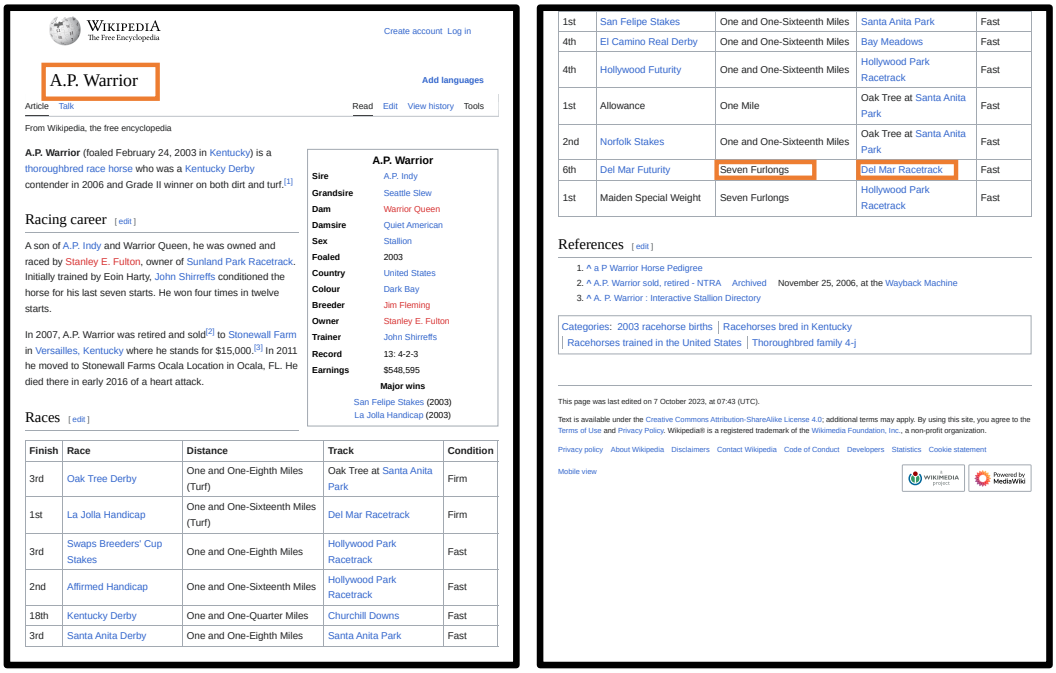
**Limitations.** Since our multimodal retrieval models and multimodal LMs were trained with English-heavy datasets, they might not understand prompts or documents written in non-English. While our M3DocRAG framework can benefit many document understanding applications, the model components could present false or biased information. Thus, the framework should be used with human supervision in real-world applications. M3DocRAG is designed with flexibility so that users can update or replace components as more accurate solutions for each element of the framework become available in the future.

**Data collection.** We do not involve human subjects during data collection. We do not claim ownership/rights of the Wikipedia documents, and we attribute the source Wikipedia document URLs to all pages.

Question: “What distance was the AP Warrior fast race at the Del Mar Racetrack?”

ColPali + Qwen2-VL 7B: “Seven Furlongs”

**Top 2 pages retrieved by ColPali**



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A.P. Warrior

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From Wikipedia, the free encyclopedia

**A.P. Warrior** (foaled February 24, 2003 in Kentucky) is a thoroughbred race horse who was a Kentucky Derby contender in 2006 and Grade II winner on both dirt and turf.[1]

**A.P. Warrior**

| | |
|---|---|
| **Sire** | A.P. Indy |
| **Grandsire** | Seattle Slew |
| **Dam** | Warrior Queen |
| **Damsire** | Quiet American |
| **Sex** | Stallion |
| **Foaled** | 2003 |
| **Country** | United States |
| **Colour** | Dark Bay |
| **Breeder** | Jim Fleming |
| **Owner** | Stanley E. Fulton |
| **Trainer** | John Shirreffs |
| **Record** | 13: 4-2-3 |
| **Earnings** | $548,595 |

**Major wins**

San Felipe Stakes (2003)
La Jolla Handicap (2003)

## Racing career [edit]

A son of A.P. Indy and Warrior Queen, he was owned and raced by Stanley E. Fulton, owner of Sunland Park Racetrack. Initially trained by Eoin Harty, John Shirreffs conditioned the horse for his last seven starts. He won four times in twelve starts.

In 2007, A.P. Warrior was retired and sold[2] to Stonewall Farm in Versailles, Kentucky where he stands for $15,000.[3] In 2011 he moved to Stonewall Farms Ocala Location in Ocala, FL. He died there in early 2016 of a heart attack.

## Races [edit]

| Finish | Race | Distance | Track | Condition |
|---|---|---|---|---|
| 3rd | Oak Tree Derby | One and One-Eighth Miles (Turf) | Oak Tree at Santa Anita Park | Firm |
| 1st | La Jolla Handicap | One and One-Sixteenth Miles (Turf) | Del Mar Racetrack | Firm |
| 3rd | Swaps Breeders' Cup Stakes | One and One-Eighth Miles | Hollywood Park Racetrack | Fast |
| 2nd | Affirmed Handicap | One and One-Sixteenth Miles | Hollywood Park Racetrack | Fast |
| 18th | Kentucky Derby | One and One-Quarter Miles | Churchill Downs | Fast |
| 3rd | Santa Anita Derby | One and One-Eighth Miles | Santa Anita Park | Fast |

| | | | | |
|---|---|---|---|---|
| 1st | San Felipe Stakes | One and One-Sixteenth Miles | Santa Anita Park | Fast |
| 4th | El Camino Real Derby | One and One-Sixteenth Miles | Bay Meadows | Fast |
| 4th | Hollywood Futurity | One and One-Sixteenth Miles | Hollywood Park Racetrack | Fast |
| 1st | Allowance | One Mile | Oak Tree at Santa Anita Park | Fast |
| 2nd | Norfolk Stakes | One and One-Sixteenth Miles | Oak Tree at Santa Anita Park | Fast |
| 6th | Del Mar Futurity | Seven Furlongs | Del Mar Racetrack | Fast |
| 1st | Maiden Special Weight | Seven Furlongs | Hollywood Park Racetrack | Fast |

## References [edit]

1. ^ a P Warrior Horse Pedigree
2. ^ A.P. Warrior sold, retired - NTRA Archived November 25, 2006, at the Wayback Machine
3. ^ A. P. Warrior : Interactive Stallion Directory

Categories: 2003 racehorse births | Racehorses bred in Kentucky | Racehorses trained in the United States | Thoroughbred family 4-j

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Figure 6. Qualitative example of ColPali + Qwen2-VL 7B on M3DocVQA. Image regions relevant to the question/answer are highlighted with orange boxes. The question requires multi-page/document reasoning.

Question: “What date was a player transferred in to Lorca FC in the 2017-18 season from the club with a logo featuring a bat?”

ColPali + Qwen2-VL 7B: “11 July 2017”

**Top 1 page retrieved by ColPali**

| No. | Pos. | Nation | Player | No. | Pos. | Nation | Player |
|---|---|---|---|---|---|---|---|
| 1 | GK | ESP | Jaume Valens | 15 | DF | SWE | Markus Holgersson |
| 2 | DF | ESP | Juan Pedro Pina (*Captain*) | 16 | MF | ESP | Sito *(on loan from Valencia)* |
| 3 | DF | ESP | Carlos Pomares | 17 | FW | ESP | Manel Martínez *(on loan from Girona)* |
| 4 | DF | ESP | Fran Cruz | 18 | DF | ESP | Molo |
| 5 | MF | ESP | Eugeni *(on loan from Valencia)* | 19 | FW | URU | Miguel Merentiel *(on loan from Peñarol)* |
| 6 | MF | ESP | Haritz Albisua | 20 | DF | ESP | Carlos Peña |
| 7 | MF | ESP | Carlos Martínez | 21 | FW | ESP | Dani Ojeda |
| 8 | MF | ESP | Tropi *(on loan from Valencia)* | 22 | MF | ESP | Adán Gurdiel |
| 9 | FW | ESP | Chumbi | 23 | MF | ESP | Abel Gómez |
| 10 | MF | ESP | Alberto Noguera | 24 | MF | ESP | Javi Muñoz *(on loan from Real Madrid)* |
| 11 | FW | ESP | Manuel Onwu | 25 | GK | URU | Franco Torgnascioli |
| 12 | MF | ESP | Nando *(on loan from Alavés)* | 26 | DF | ESP | José Carlos *(on loan from Betis)* |
| 13 | GK | ESP | Francisco Dorronsoro | 28 | FW | NGA | Manu Apeh |
| 14 | MF | ESP | Cristian Bustos | — | DF | ESP | Antonio López |

**Transfers** [ edit ]

- List of Spanish football transfers summer 2017#Lorca FC

**In** [ edit ]

| Date | Player | From | Type | Fee | Ref |
|---|---|---|---|---|---|
| 30 June 2017 | Samu Martínez | Hospitalet | Loan return | Free | |
| 30 June 2017 | Haritz Albisua | Lleida Esportiu | Loan return | Free | |
| 30 June 2017 | Mikel Fernández | Lleida Esportiu | Loan return | Free | |
| 6 July 2017 | Jaume Valens | Mallorca B | Transfer | Free | [1] |
| 11 July 2017 | Tropi | Valencia | Loan | Free | [2] |

Figure 7. Qualitative example of ColPali + Qwen2-VL 7B on M3DocVQA. Image regions relevant to the question/answer are highlighted with orange boxes. The VQA component could combine both the retrieved knowledge (Tropi was transferred on 11 July 2017) and its own knowledge (Valencia CF has a logo with a bat) to provide the final answer.