RWrite: Agentic Research Writer

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**Abstract**

In the ever‑evolving landscape of academic publishing, researchers face mounting pressure to produce high‑quality papers quickly and accurately. **RWrite** is an agentic AI platform that orchestrates a team of specialized agents—planners, writers, architects, and reviewers—to automate and streamline every phase of research writing. Users simply enter a topic prompt and configure parameters such as journal format (IEEE, Springer, ACM), column layout (single or double), and domain (Computer Science, Electronics, Materials, Medical, Networking, etc.). Behind the scenes, RWrite’s multi‑agent system dynamically plans section outlines, mines relevant citations, drafts content with open‑source LLMs (LLaMA, Mistral), formats LaTeX documents via Overleaf integration, and performs grammar and plagiarism checks through LanguageTool. All inference runs on the Groq Cloud Console for sub‑second responsiveness. By fusing agentic workflows with cloud‑scale inference, RWrite empowers researchers to focus on ideas—while its AI crew handles structure, style, and compliance.

**Key Features**

* **Agentic Multi‑Agent Pipeline**  
  Dynamic collaboration between Planner, Research Architect, Section Mapper, Executor, Critic, and Proofreader agents.
* **Flexible Formatting**  
  Output ready for IEEE, Springer, ACM, or custom templates; choose single‑ or double‑column layouts.
* **Citation & Reference Mining**  
  Automatic lookup and BibTeX generation via Travily, with inline citation insertion.
* **Cloud‑Powered Inference**  
  Ultra‑fast LLM calls on Groq Cloud for real‑time draft generation and editing.
* **Interactive Prompt Interface**  
  Live “playground” style prompt bar at the bottom, streaming agent responses in an output canvas.
* **Quality Assurance**  
  Integrated grammar checks, plagiarism detection, and logical critique for publication‑ready text.
* **Export & Collaboration**  
  Save drafts, export to LaTeX/PDF, and invite co‑authors for review and joint editing.

**Technologies Used**

* **Agent Framework:** CrewAI
* **LLMs:** LLaMA, Mistral (via langchain\_groq)
* **Cloud Inference:** Groq Cloud Console
* **Citation Miner:** Travily API
* **Document Structuring:** Overleaf (LaTeX)
* **Grammar & Plagiarism:** LanguageTool
* **Frontend:** Tailwind CSS, JavaScript
* **Backend:** Node.js / Express (future integration)

**Roles and Responsibilities**

Girish –

* Responsible for creating Demo page and
* Pricing Page
* Site Responsiveness
* Ideation and
* concept Proofing.

Harishankar Binu Nair –

* Developed Front Page
* login popup
* contact us popup
* form validation
* JS Event Listeners handling
* Theme Styling and Animation