AI Deep Researcher

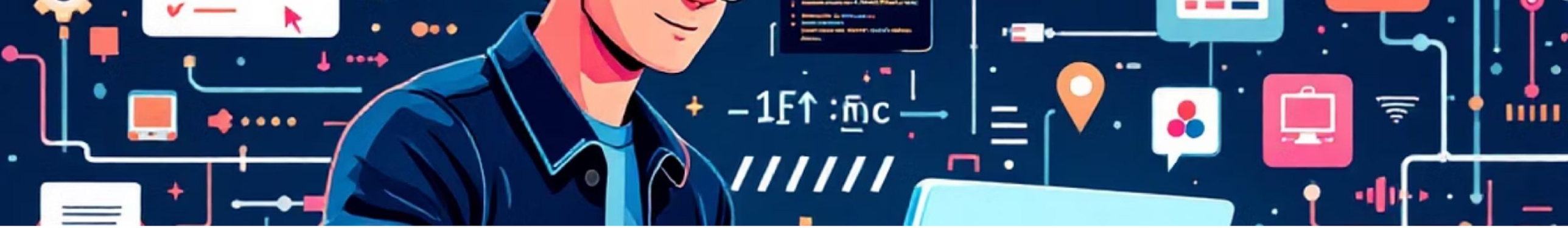
A Fully Autonomous Multi-Hop Multi-Agent Research Pipeline

Powered by LangGraph, OpenRouter & Tavily

Multi-Agent Architecture

Our system orchestrates 8 specialized AI agents working in concert to deliver comprehensive research intelligence. Each agent brings unique expertise to the research pipeline.

Made with GAMMA



Technology Stack

Core Frameworks

LangGraph orchestrates our multi-agent workflow with state management and conditional routing for complex research pipelines.

LangChain provides the foundation for agent interactions, memory management, and prompt engineering capabilities.

Streamlit delivers an intuitive interface for real-time research monitoring and result visualization.

AI & APIs

OpenRouter (GPT-4o) powers intelligent reasoning and natural language understanding across all agents.

Tavily enables advanced web search with semantic understanding and source credibility assessment.

arXiv integration provides direct access to cutting-edge academic research and scientific papers.

FAISS

Vector similarity search for efficient information retrieval

ReportLab

Professional PDF generation with custom formatting

Python

Robust backend processing and integration layer

Made with GAMMA

Research Workflow

Our end-to-end autonomous pipeline transforms queries into comprehensive, fact-checked research reports through intelligent orchestration of specialized agents.

Query

Input research question

Retrieval

Multi-source data gathering

Structuring

Entity extraction & claim mapping

01

Analysis

Deep examination of collected data with pattern recognition and relationship mapping

02

Fact Check

Rigorous verification against multiple authoritative sources

03

Expert Review

Domain-specific validation and accuracy assessment

04

Critique

Red-team evaluation identifying biases and gaps

05

Insights

Synthesis of findings into actionable intelligence

06

Final Report

Comprehensive documentation with citations and visualizations

Made with GAMMA

Key Features

1

Fully Autonomous Research

Zero human intervention required from query to final report. The system independently navigates research paths, makes decisions, and adapts strategies based on findings.

2

Multi-Source Intelligence

Seamlessly aggregates data from academic papers, web sources, and specialized databases. Cross-references information to ensure comprehensive coverage.

3

Built-in Quality Assurance

Multi-layer verification through fact-checking, expert review, and adversarial critique. Every claim is validated against authoritative sources.

4

Structured & Exportable Reports

Professional-grade documentation with citations, summaries, and visualizations. Export to PDF, Markdown, or JSON formats for easy integration.

5

Optimized Performance

Efficient parallel processing and intelligent caching reduce research time by up to 80%. Smart routing minimizes API costs while maximizing result quality.

Made with GAMMA

Use Cases

AI Deep Researcher accelerates intelligence gathering across industries, delivering verified insights in minutes instead of hours or days.

Academic & Scientific Research

Literature reviews, hypothesis validation, and multi-disciplinary research synthesis

Market & Investment Analysis

Competitive intelligence, market trends, and investment due diligence

Healthcare & Policy Research

Clinical evidence review, regulatory analysis, and policy impact assessment

Tech Due Diligence

Technology stack evaluation, security assessment, and vendor comparison

Journalism & Investigations

Fact-checking, source verification, and investigative research support

Made with GAMMA

Thank You

AI Deep Researcher

Ready for Demo!

Experience the future of autonomous research intelligence. Our multi-agent system is production-ready and scalable for enterprise deployment.

Built with cutting-edge technology

LangGraph • Streamlit • OpenRouter • Tavily

Made with GAMMA