HACKHPC @ADMI26
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Title: FutureVision: An AI-Assisted Forecasting Platform for Biological Innovation

SGX3 award # 2231406

Abstract

We present *FutureVision*, an AI-assisted forecasting platform that uses Wikipedia as a large-scale, living knowledge graph to analyze how robotics concepts evolve over time. Our system identifies historical innovation patterns, detects cross-discipline convergence, and generates AI-supported forecasts of emerging robotics technologies. By combining graph analytics, recursive Wikipedia scraping, and Retrieval-Augmented Generation (RAG), we provide an accessible, open-source tool that helps researchers, educators, and students explore how robotics ideas connect and where future breakthroughs may occur

Research Question

How can historical data and innovation trends in robotics be analyzed to accurately forecast future technological developments in the field?

Methodology

An 8-stage pipeline including repository setup, biological seed dataset creation, knowledge graph construction, historical evolution analysis, convergence detection, RAG-based AI forecasting, and UX/UI design.

Possible Expansions

Detecting convergence in other scientific fields or incorporating alternative timeline analysis to see "what if" past innovations had occurred differently.

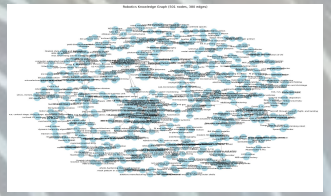
Goals

- Develop an AI-assisted forecasting platform using Wikipedia as a large-scale knowledge graph.
- Construct a robotics knowledge graph by extracting concepts and relationships from historical Wikipedia data.
- Analyze historical innovation patterns and identify technology convergence across robotics subfields.
- Use AI and graph analytics to forecast emerging robotics technologies and innovation opportunities.
- Present results through an interactive visualization and web dashboard for exploring predictions.

Resource Needs/List

Technologies used
Programming Languages
Python
JavaScript
AI Resources
Anthropic Claude Sonnet 4.6
ChatGPT (code assistance, debugging, and implementation support)
Libraries & Frameworks
NetworkX (knowledge graph construction and analysis)
Requests (Wikipedia API integration)
JSON (data serialization)
React
React Router
Data Sources
Wikipedia API
Article text

Diagram



Results

Evidence of completed milestones, such as the initial 10-article seed nodes and successful graph construction.

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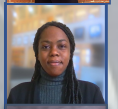

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MORE INFORMATION → https://hackhpc.github.io/admi26.