



Exploration and practice of applying DeepSeek to marine disaster prevention and control along China's coast

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RESUME

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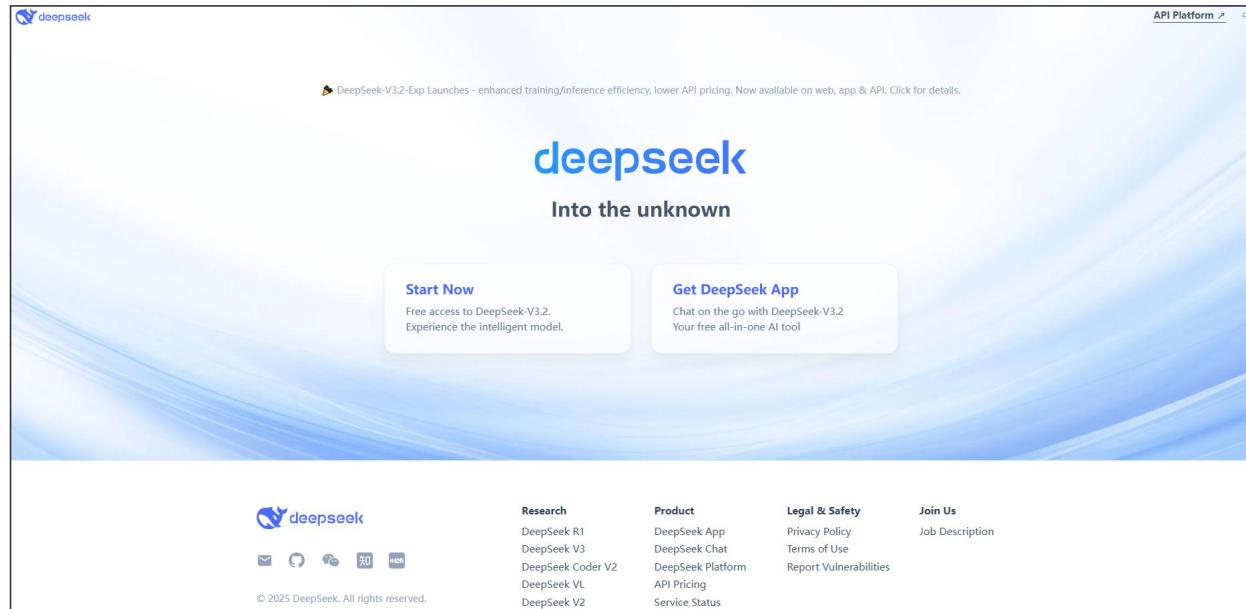
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What's DeepSeek

What's DeepSeek

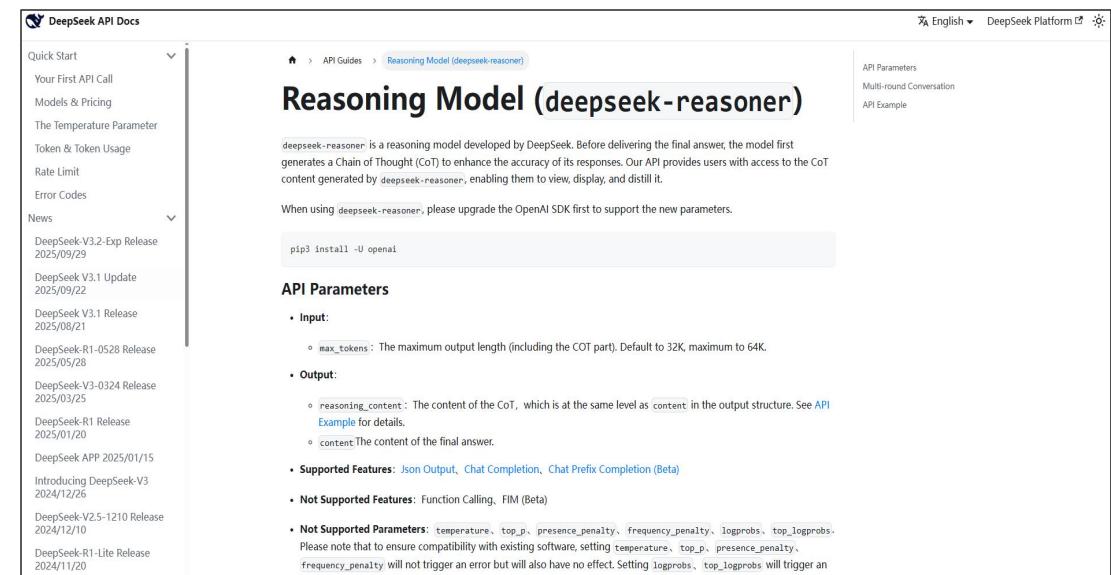
<https://www.deepseek.com/>



The homepage features a large 'deepseek' logo with the tagline 'Into the unknown'. Below the logo are two buttons: 'Start Now' and 'Get DeepSeek App'. The 'Start Now' button leads to the AI platform, while the 'Get DeepSeek App' button leads to the mobile application. The page also includes a sidebar with links to various DeepSeek products and services, as well as a footer with social media icons and copyright information.



The AI Platform interface is a clean, modern design. It features a search bar at the top with the placeholder '今天有什么可以帮到你?' (What can I help you with today?). Below the search bar are two buttons: '深度思考' (Deep Thinking) and '联网搜索' (Network Search). The main area is a large, light-colored box with rounded corners, likely for displaying AI-generated content or search results.



The API Docs page for the 'Reasoning Model (deepseek-reasoner)' is shown. It includes a sidebar with a timeline of releases and a main content area with sections for 'API Parameters', 'Input', 'Output', 'Supported Features', 'Not Supported Features', and 'Not Supported Parameters'. The 'API Parameters' section includes a command-line example: `pip3 install -U openapi`.

DeepSeek is an AI assistant

Launched by *DeepSeek AI Basic Technology Research Co., Ltd. (Hangzhou, China)*

It was officially launched on **January 15, 2025**



What's DeepSeek

DeepSeek

Large Language Model (LLM)

Low cost

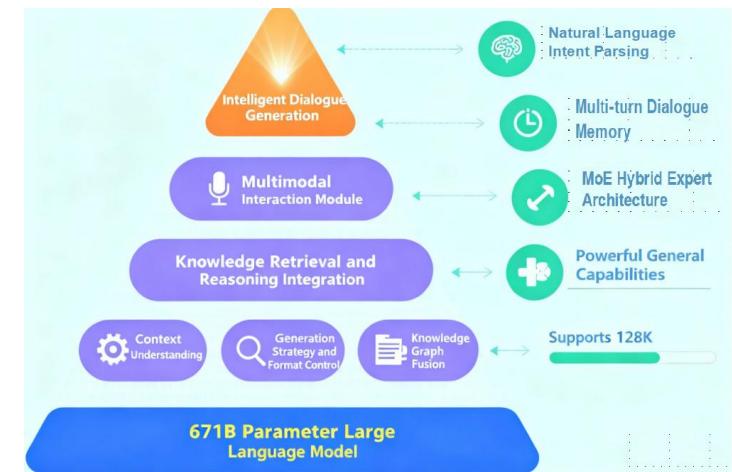
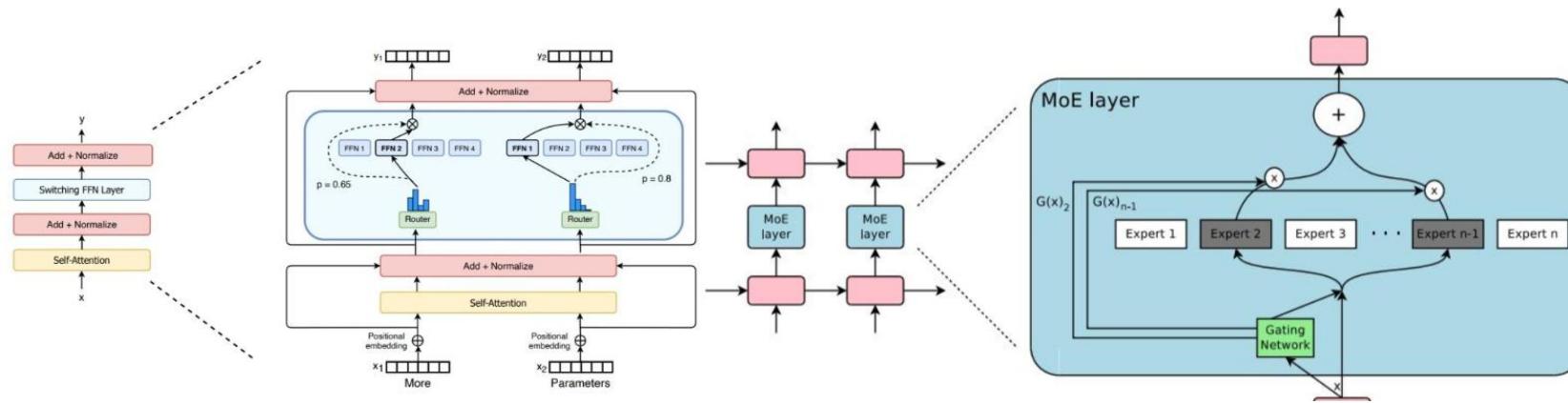
High performance

Perfectly adapted to the Chinese language context

Parameter scale: 671 billion

API call fees: 0.5 CNY per million input tokens (cache hit), 2 CNY per million input tokens (cache miss) & 8 CNY per million output tokens

Core technology architecture: Mixture of Experts Architecture (MoE)



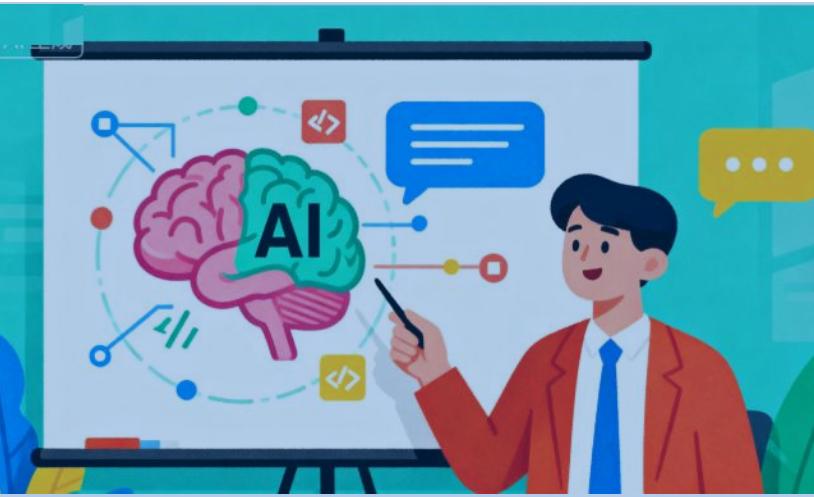
How can we use DeepSeek

How can we use DeepSeek

1. **It** can become our **work assistant**



Write technical reports



Make presentations



Write program code

How can we use DeepSeek

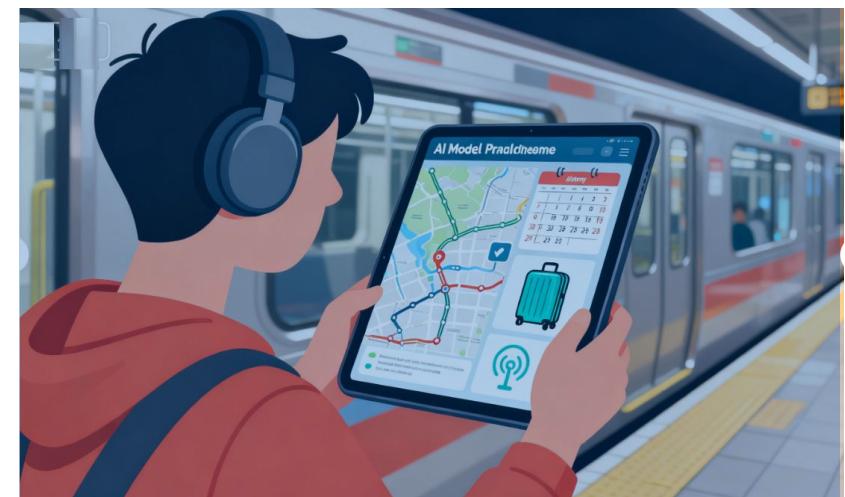
2. It can also become our life assistant



Language translation



Search for life-related information

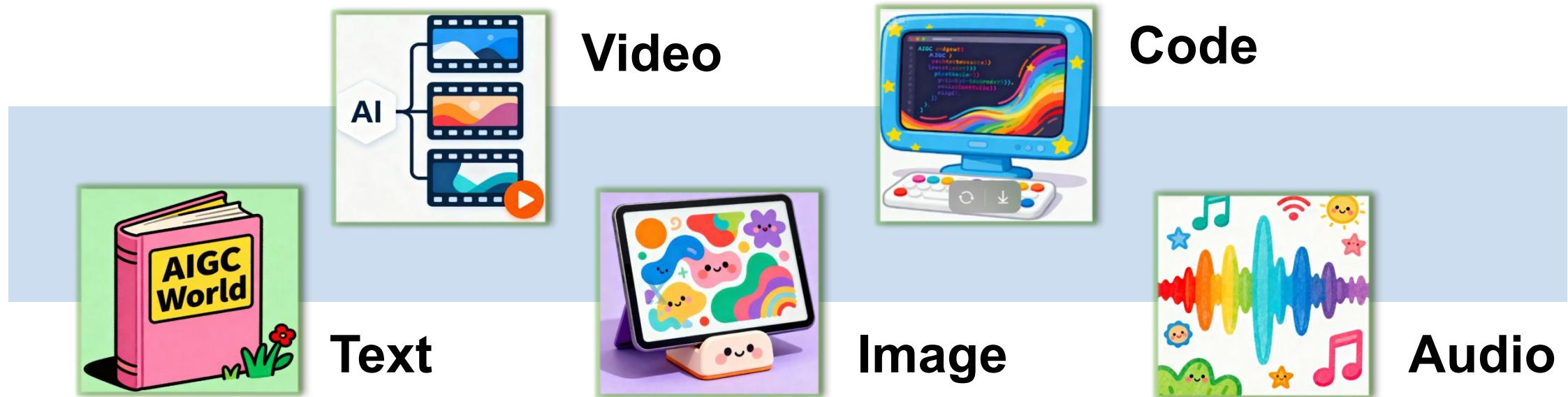


Formulate travel plans

How can we use DeepSeek

DeepSeek's capabilities are derived from AIGC:

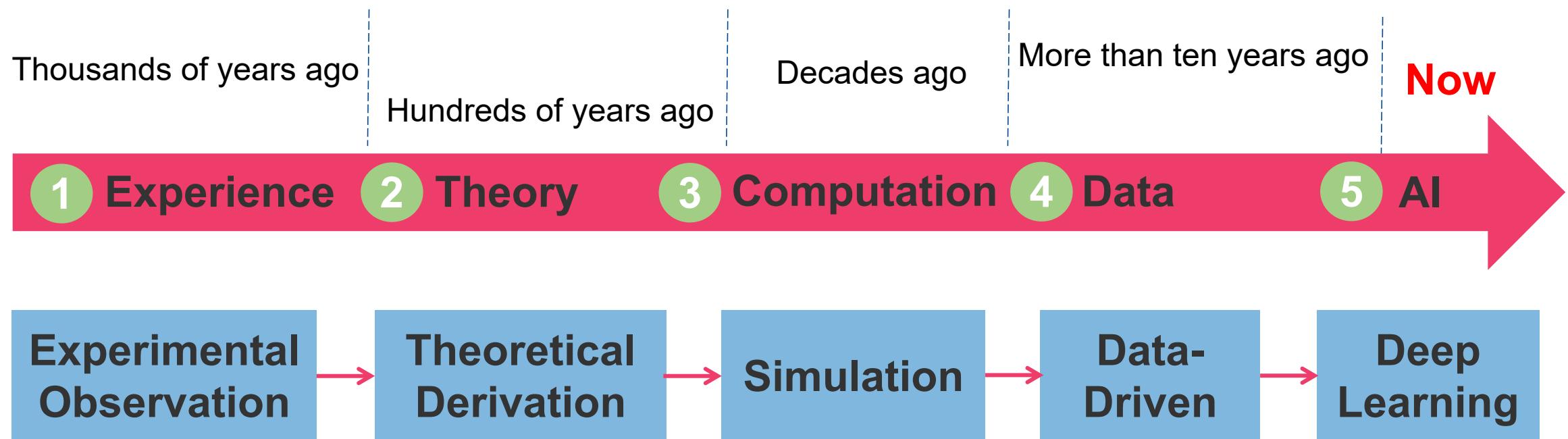
AIGC (Artificial Intelligence Generated Content) refers to the application of artificial intelligence technology in generative content creation.



How can we use DeepSeek

AI for Science:

Large models and generative AI drive **the fifth paradigm** of scientific research.



What are we doing now

What are we doing now

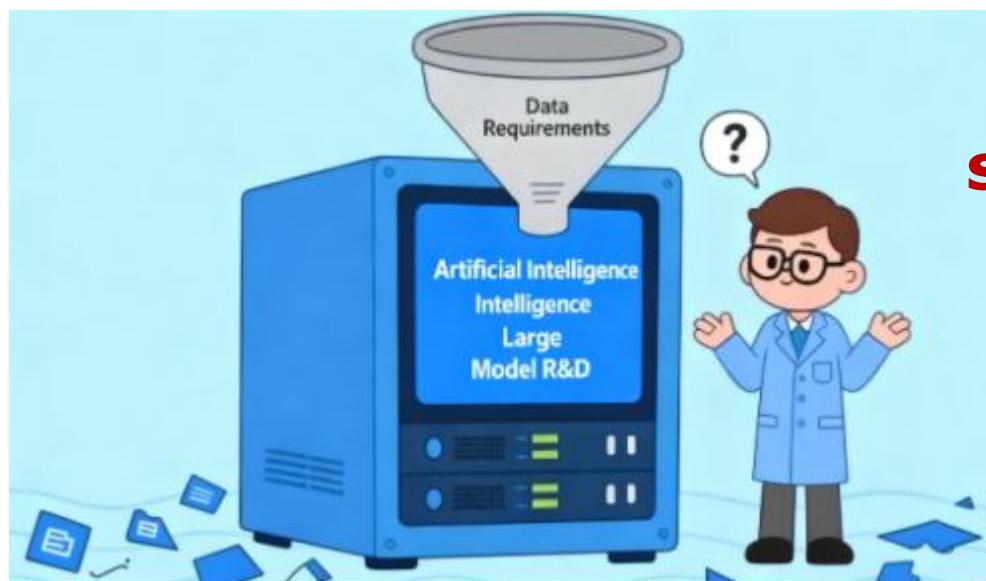
1. Constructing **a high quality instruction fine-tuning dataset** for intelligent prediction of marine disasters with **AIGC**



Marine disaster prevention and mitigation involves interdisciplinary integration



Dataset processing incurs high time and labor costs



oceanography

meteorology

geology

social sciences

.....



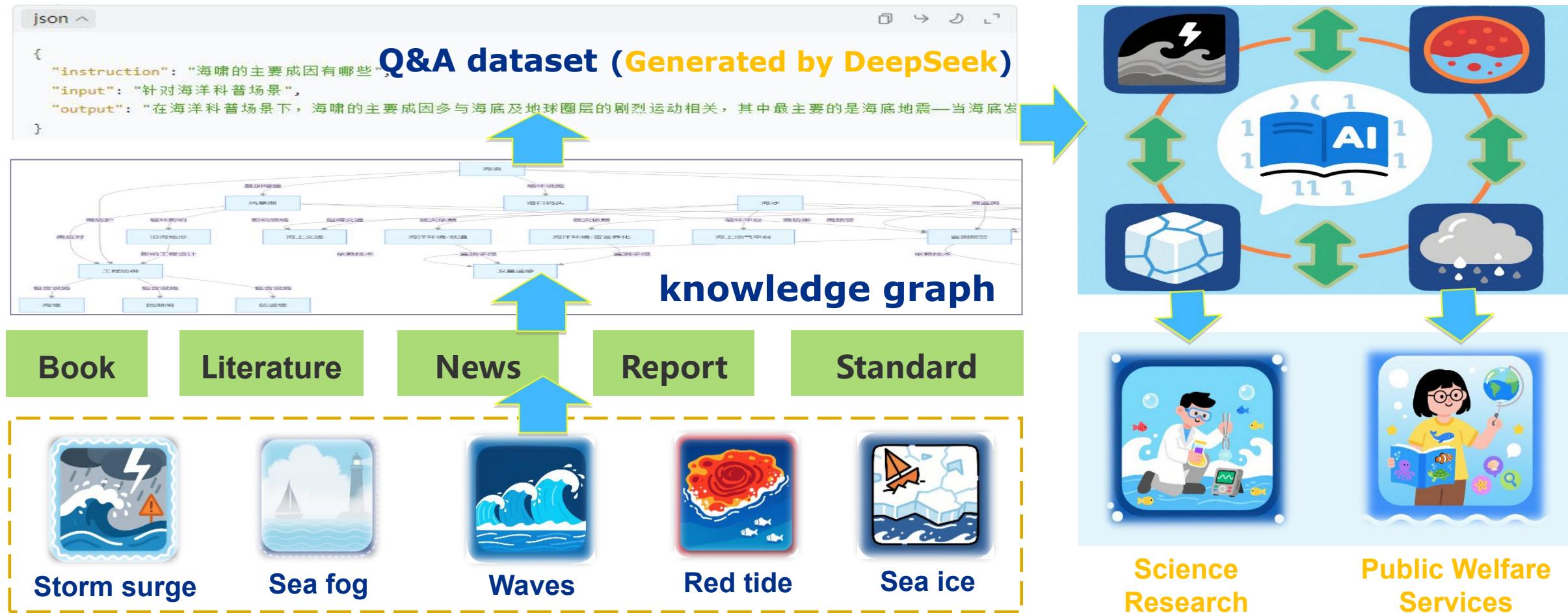
supply gap

Professional personnel
In-depth involvement
Collection and sorting
Cleaning and annotation



What are we doing now

1. Constructing **a high quality instruction fine-tuning dataset** for intelligent prediction of marine disasters with **AIGC**



What are we doing now

2. Constructing a **spatial visualization agent** for intelligent analysis of marine disasters with **LLM**



Information silo caused by poor conversion compatibility of data sharing and exchange tools



The bottlenecks in data semantic parsing and visual expression are hard to overcome

◆ CHINA: CHINESE

◆ JAPAN: JAPANESE

◆ USA: ENGLISH

◆



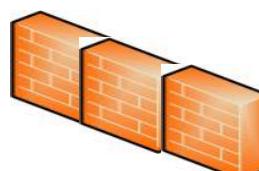
- Terminology
- Naming convention
- Algorithm model
- ...

LANGUAGE-1



Marine Data

LANGUAGE-2



Marine Data

LANGUAGE-3



Marine Data

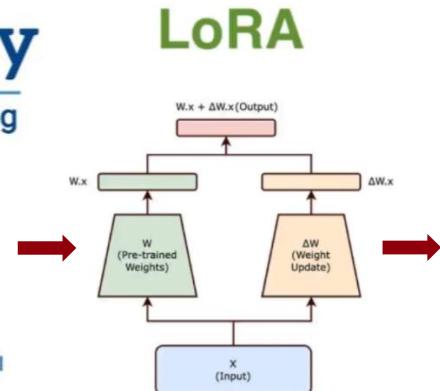
What are we doing now

2. Constructing **a spatial visualization agent** for intelligent analysis of marine disasters with **LLM**



0 Stars 46k last commit yesterday contributors 158 tests passing pypi v0.9.2 citation 349 PRs welcome
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Open in Colab Open in PAI-DSW Open in Spaces ModelScope Open in Studios SageMaker Open in AWS

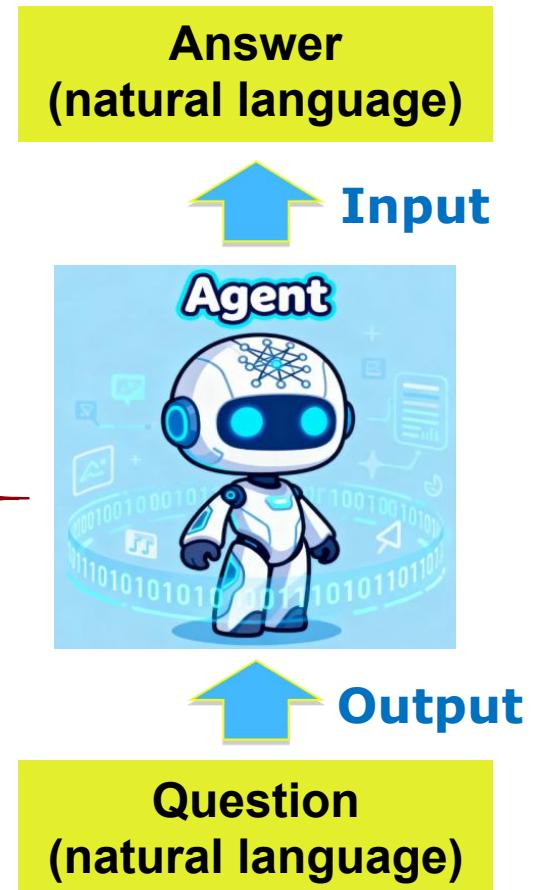
Easily fine-tune 100+ large language models with zero-code [CLI](#) and [Web UI](#)



Fine-tuned LLM
DeepSeek



Instruction Fine-tuning Dataset (Q&A dataset)



What are we doing now

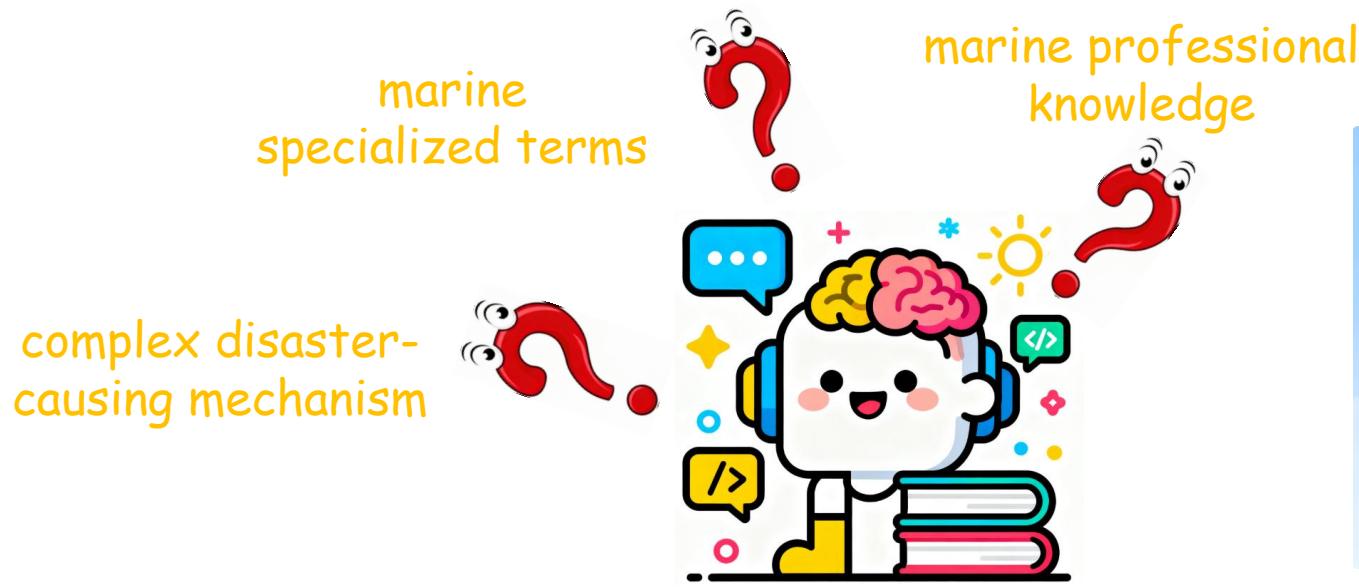
3. Developing **an intelligent Q&A tool** for coastal marine disaster prevention and control in China with **DeepSeek**



General LLM lack in professional knowledge in the marine industry, can't understand marine professional terms and complex hazard-causing mechanisms very well



Existing Q&A tools lack sufficient accuracy in query results, tend to generate incorrect information, and lack the ability to visually display the marine environment



What are we doing now

3. Developing **an intelligent Q&A tool** for coastal marine disaster prevention and control in China with **DeepSeek**

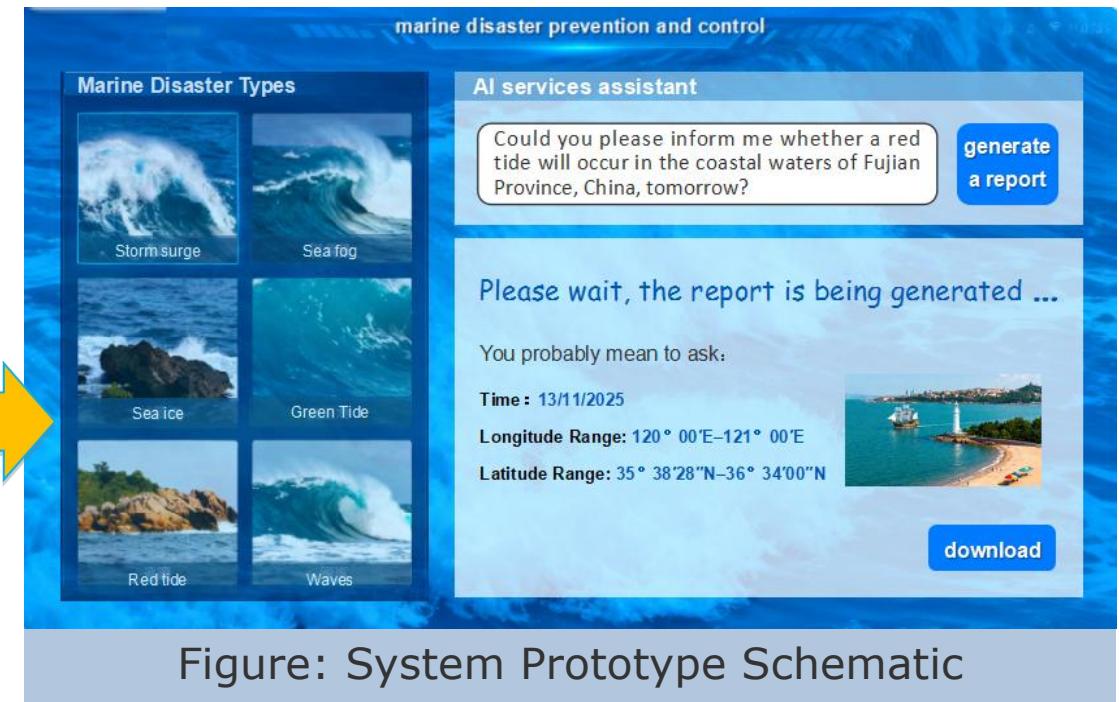
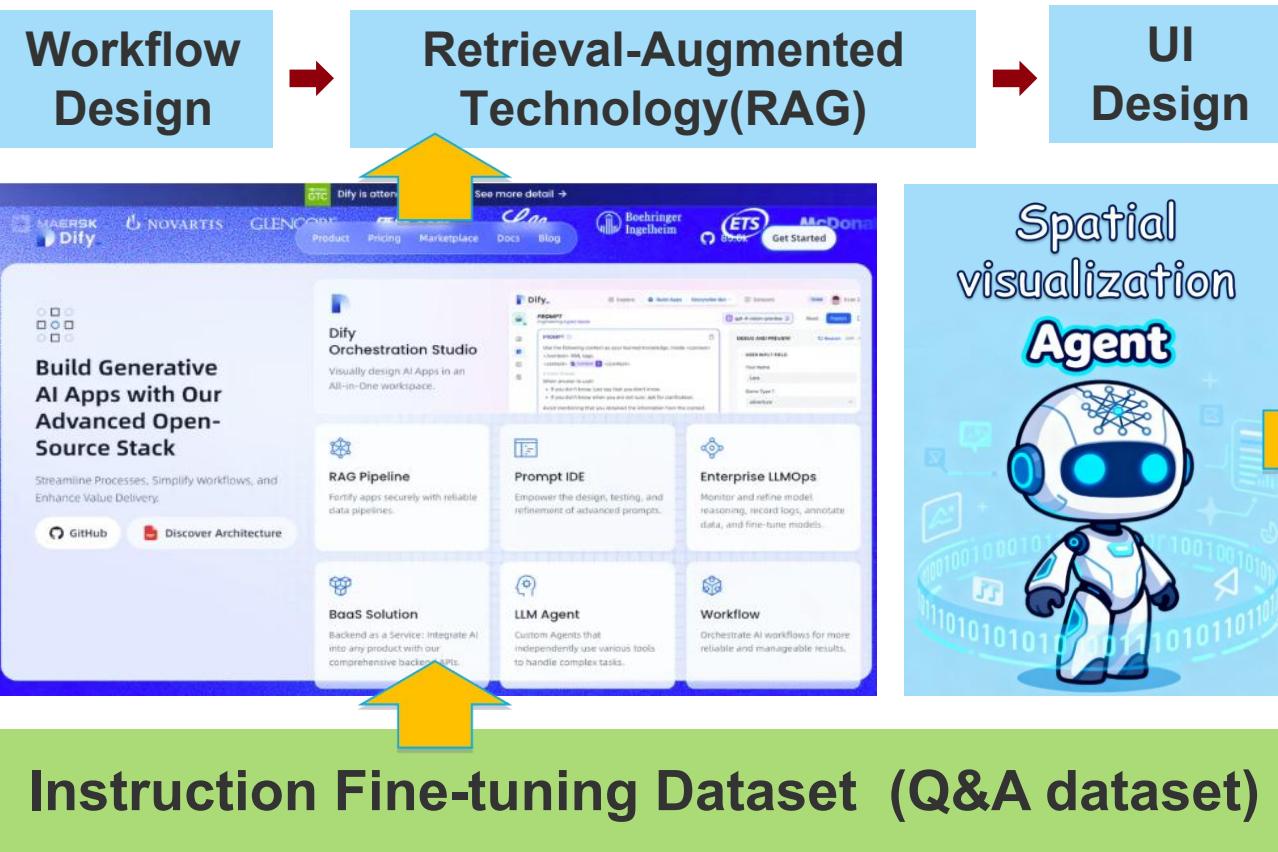


Figure: System Prototype Schematic

THANK YOU !



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