



Evolving PITON: AI-Driven Conversations with IoT Data

AI Roundtable: Artificial Intelligence and Machine Learning
in Defense & Industry

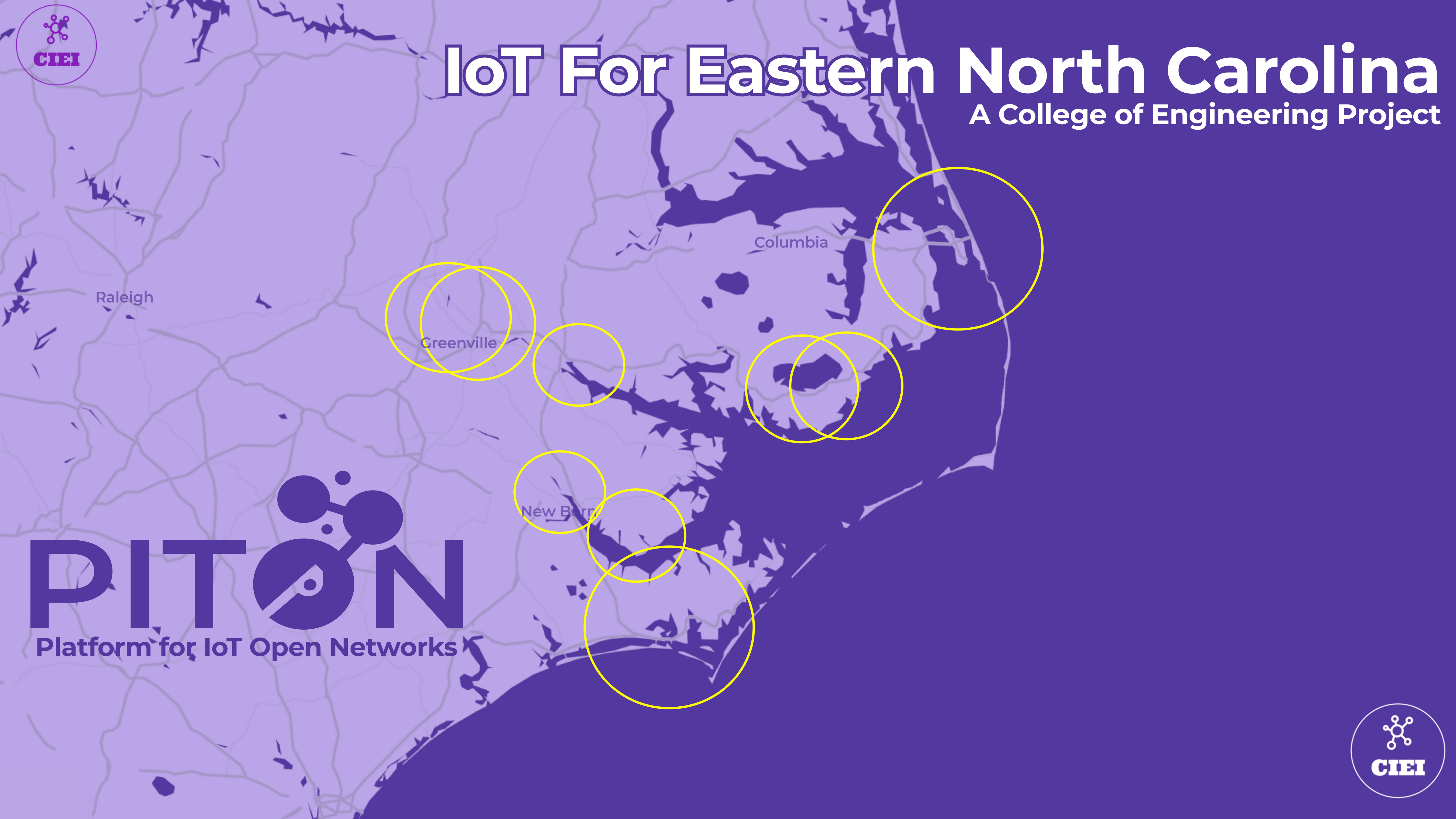


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IoT For Eastern North Carolina

A College of Engineering Project



Raleigh

Greenville

Columbia

New Bern

PITON

Platform for IoT Open Networks



Our Goals



Plug & Play Platform



Easily Deploy and
Manage Sensors



Automatically collect and
curate real-time data



Access and Share
data



Implement Workflow
Automation



No-Code Applications

Smart City

Environment

Smart Agriculture

Smart Farm

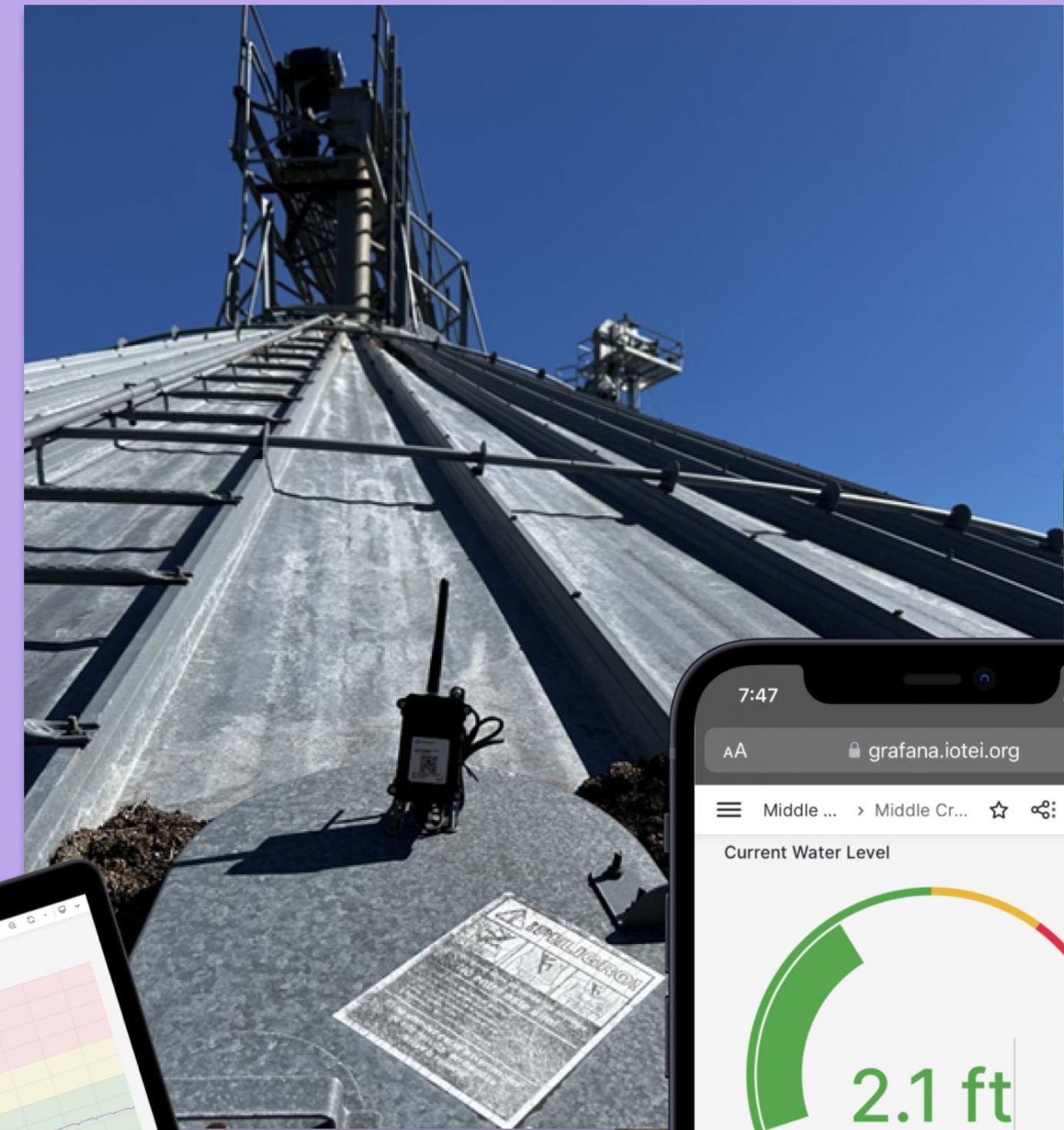
Smart Building

Smart Agriculture

Empowering ENC Farmers through IoT



Automating Farming Workflows



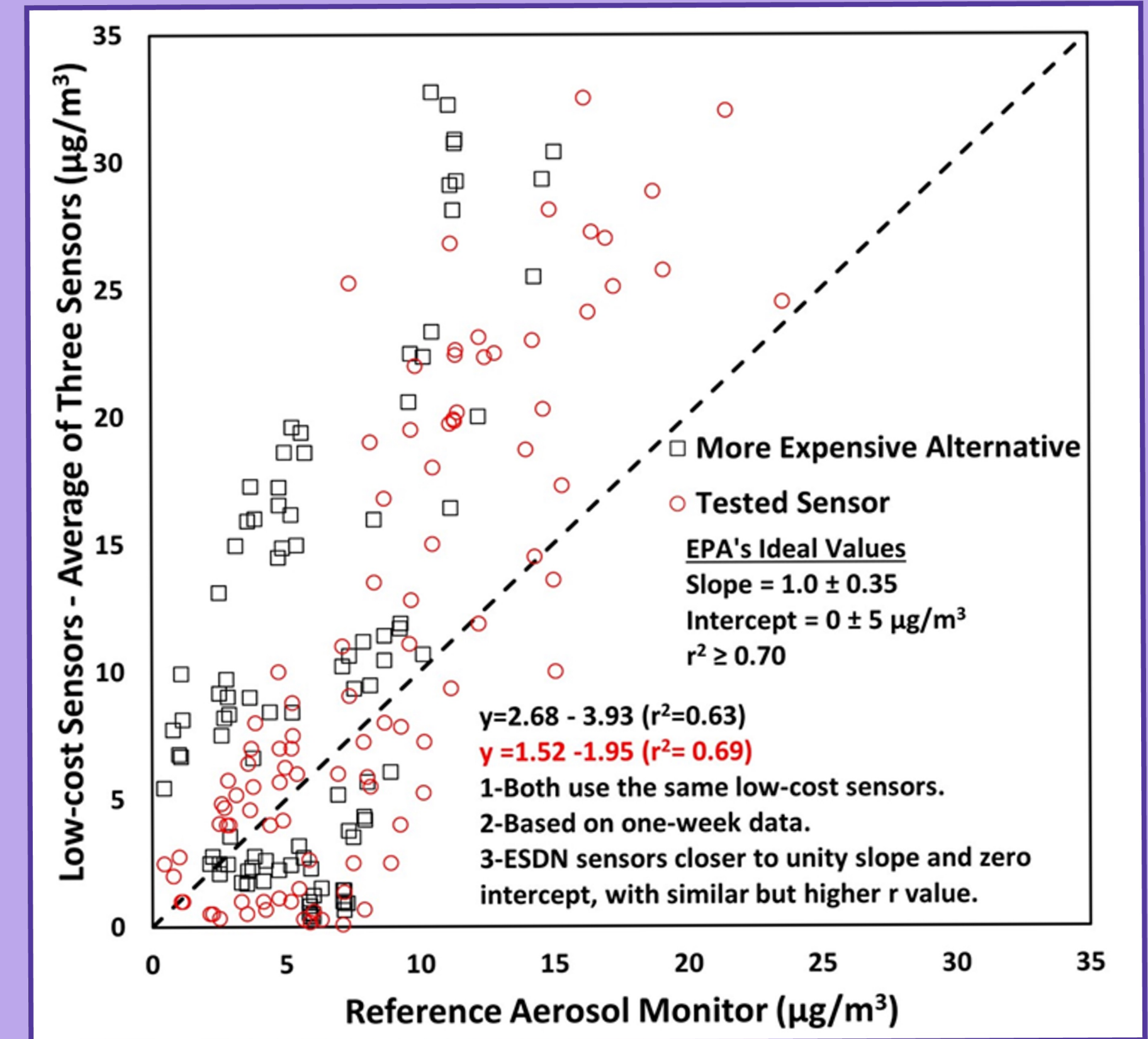
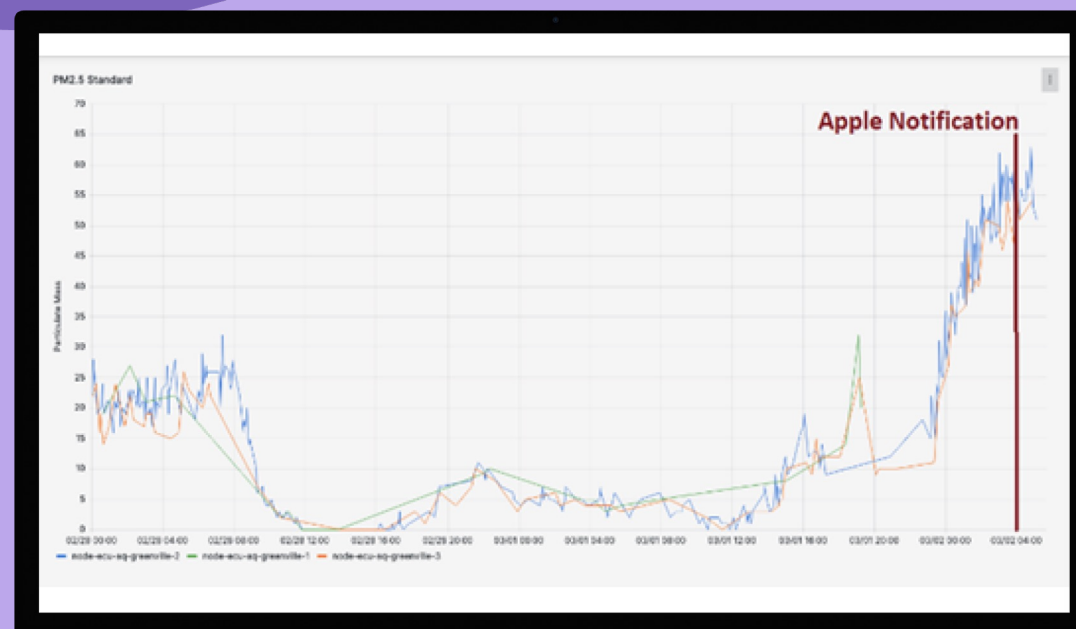
Want to learn more?

Air Quality Management

Impact
\$770,00

PittCounty
North Carolina

Greenville
NORTH CAROLINA



Project managed by Sinan Sousan

Facilities Management



Predictive
Building
Management



CIVIL~MILITARY INNOVATION INSTITUTE



Project led by Carol Massarra



Meet,



Conversational Retrieval-Augmented Generation

CRAG, empowers subject matter experts and communities with streamlined access to big data queries, simplifying complex information retrieval through its advanced, conversational natural language interface.

Getting Started:

Start chatting with Crag by typing your question in the text field and clicking "Chat" or pressing Enter.

Crag remembers your conversation within this session for seamless follow-ups, though chats are not saved afterwards for your privacy.

Climb on!



Hello, I'm Crag! How can I help?



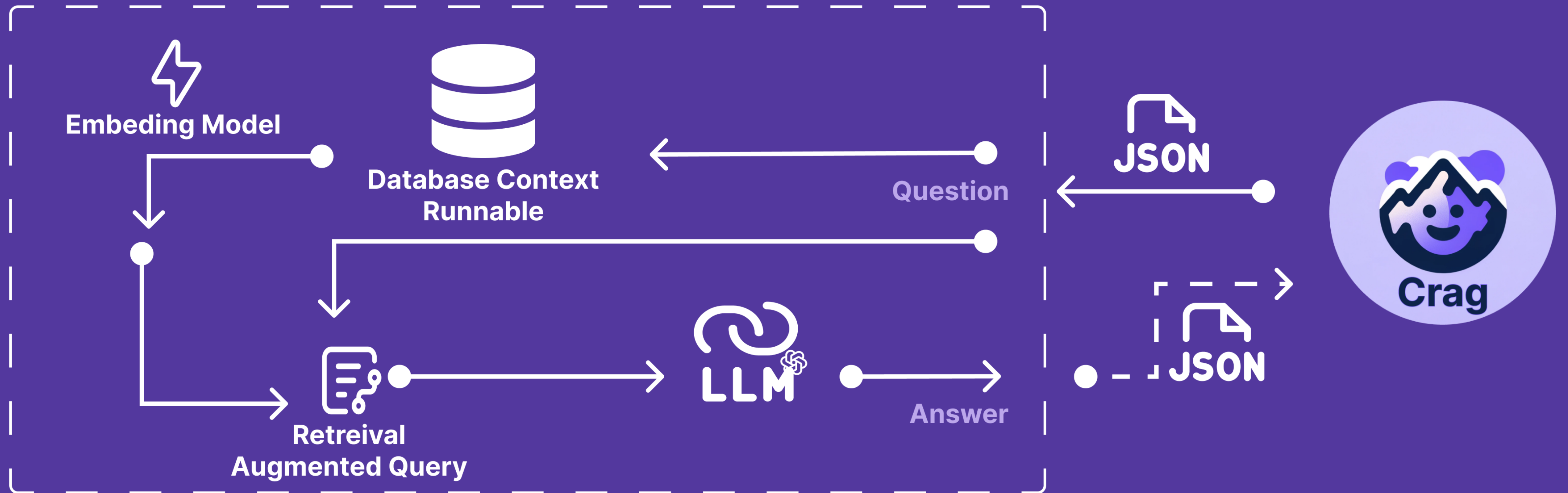
Question:

Type to begin talking to Crag

Chat >

Crag: RAG Concept

RAG: Retrieval Augmented Generation



Crag: Fine Tuning

Fine Tuning: Adjusting the parameters of a pre-trained LLM to a specific task

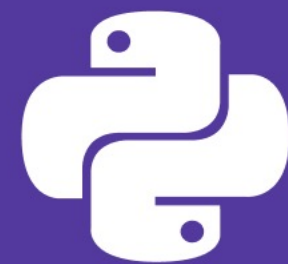


Crag: Retrievers

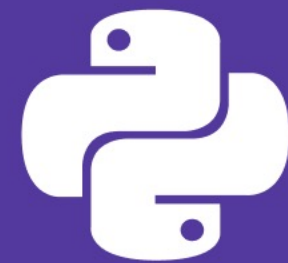
Retrievers: Executable code intended to collect, organize and present LLM-consumable information



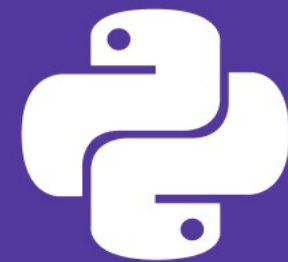
Database Context
Runnable



```
if (database):  
    return database.all_data()
```



```
if (database):  
    return database.query_data(query)
```



```
if not (database):  
    return database.connect()
```



PITON Database

Crag: Prompt Engineering

Prompt Engineering: Strategically crafting inputs to guide a LLM in producing specific and more effective responses for a given task.

Pre-Trained LLM

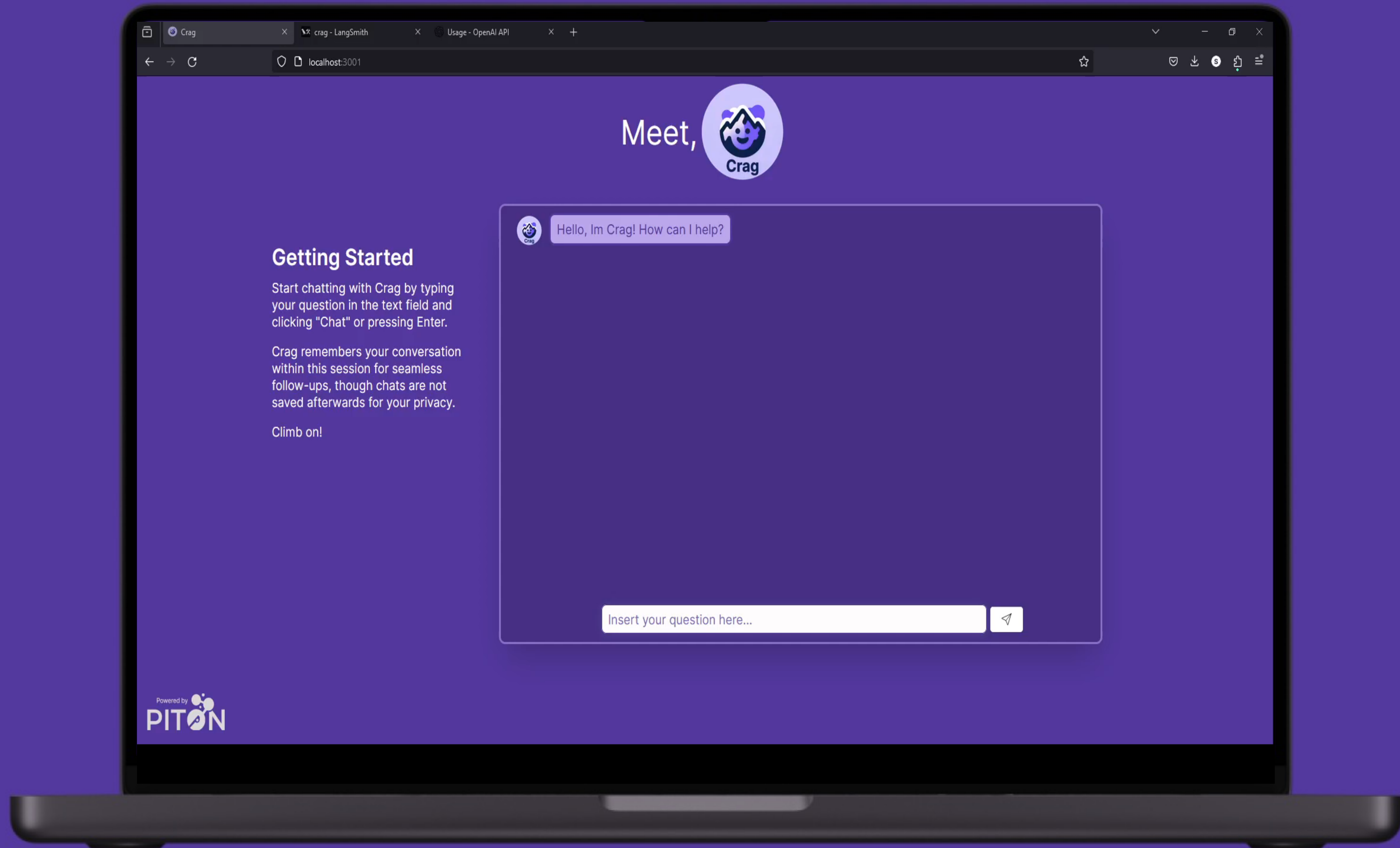
“Your name is Crag, your role is to assist users”



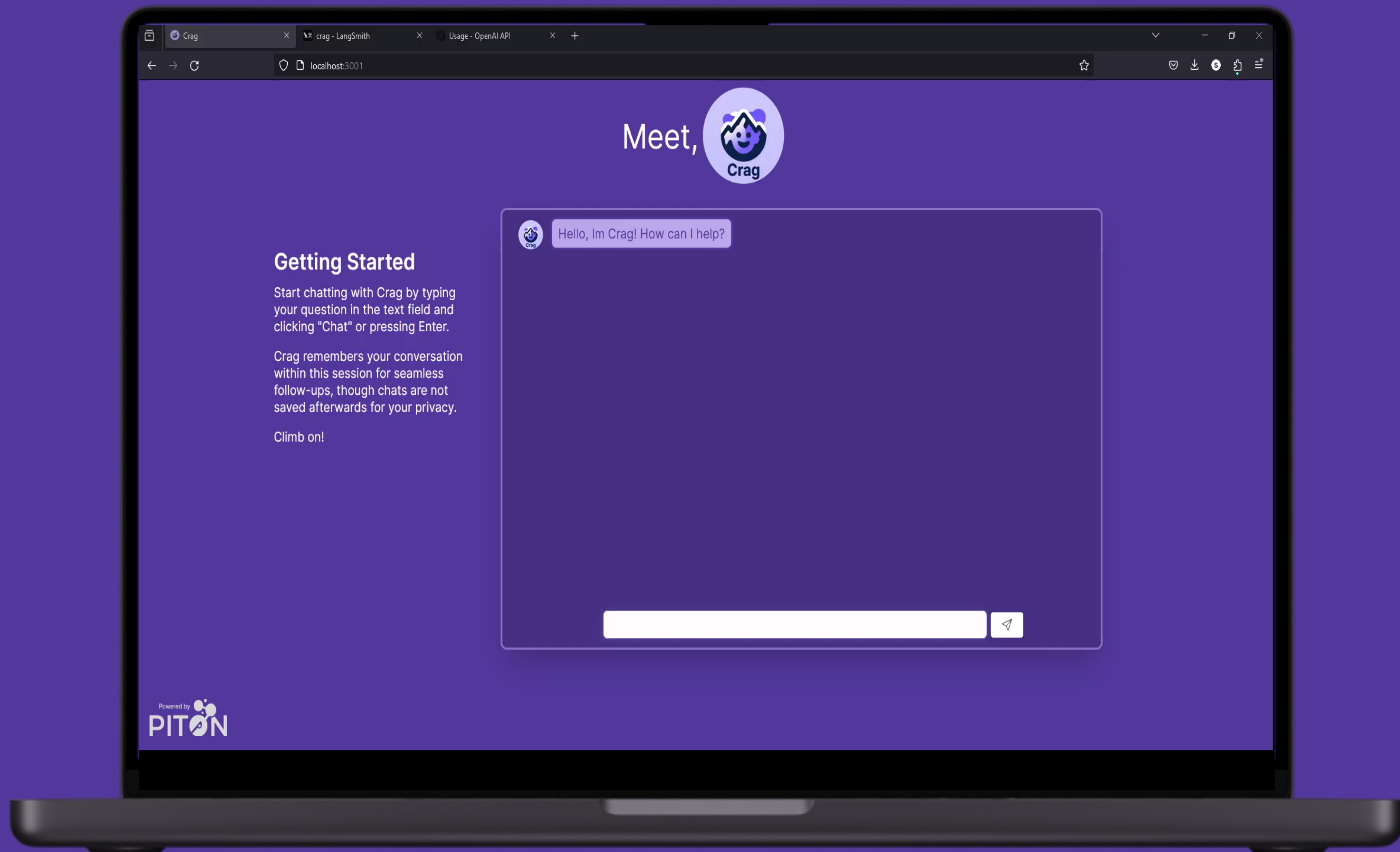
“Hello World, Im Crag”

eg. gpt4, gpt3.5

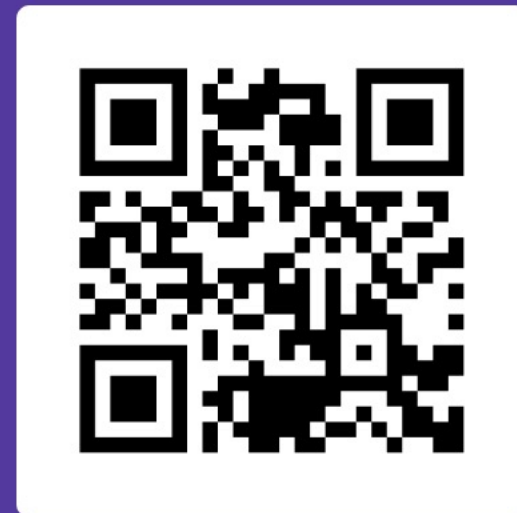
Water Level User



Air Quality User



Thank you!
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More Information about PITON

Center for IoT Engineering and Innovation



 LoRa Alliance[®] Member



Services



Research



Innovation Lab



Training