Aquaterra Energy AI Internship by Oyigoga Onoja

The aim of my internship was to develop an AI agent to assist with the creation of proposal documents for the Offshore Analyst department, this will allow Aquaterra Energy to create business proposals with minimal effort effectively. This will start with creating an AI agent and ensuring it has a strong directory of documents. The next phase is to test the agent and ensure that information is consistent.

Planning the project

My First Objective:

Research and read how to create and use Microsoft copilot to develop agents successfully by completing the copilot training from the website, watching and noting videos from experts as well as reviewing other detailed research on creating AI agents.

Identify the types of documents that the agent will use to create a proposal.

Different Methods I used to conduct my research

Method 1:

Watch YouTube videos and take notes

-Positives

Extremely accessible and easy to understand. I was able to find useful comments and access more links.

-Negatives

The videos are for general consumption and can be hard to use to streamline my research especially if I have a question or an idea I need to be refined.

• Method 2:

Complete a Microsoft copilot course

-Positives

I got information directly from the source so I can find ways to overcome specific areas of weakness in my work. It also awards me XP points so can keep track of my knowledge as well as perform mini quizzes to test myself.

-Negative

It has a lot of filler information that take up time to read and make the courses hard to follow.

To achieve creating the specialised AI agent I will take the following approaches:

I analysed the different kinds of proposals while sorting them to familiarise myself with the different formats and to see the different kinds of engineering projects they were produced for. Perhaps, the templates may be too complex for the agent to replicate or fill out so I would be able to ask it to generate a new one.

I Identified existing research and projects on copilot agents to recognise the limitations so when creating my own agent I was aware of anything that could come up wrong.

I gathered data on ways to improve the agent after creating a simplistic version.

I resourced training on how to use Microsoft copilot effectively and to the use of my project.

Draw conclusions, reflect on how I did it, and do project write-up and presentation.

Give the agent instructions on the mistakes it's making and how to fix it, so the agent is constant and working at is optimal level.

Create a functioning AI agent that reviews pdf from clients and generates a proposal document in the typical Aquaterra style.

The reason for this approach:

My reasoning for this approach is that I can absorb as much research as possible to give me a general overview on the things to expect from the copilot agent so I can narrow down my research to Aquaterra's files and documents as opposed to relying solely on my knowledge or the knowledge of the team I am working with or the general online resources available that do not give enough specificity to help when the project reaches a lull. Working this closely with the team will also allow me to understand in all the infinitesimal details they would require from the agent.

I structured my project in broad sections of work. I am completing the project independently with the occasional feedback of some of the Aquaterra team.

My clear aims for each week:

- Week 1: -Sort the different proposals into their various categories

  -Build a basic agent then specialize it after some research

- Week 2: - Get the agent populate the Aquaterra templates by exporting images and structures like tables.

- Week 3: -Get the agent to save the different templates into its system

- Week 4: -Reflect on ways to improve.

  -Project write-up and presentation

Understanding that adaptation is an inherent aspect of nature is the first step to accepting the progression of AI in modern day society. A collective understanding of this principle allows me to convey the idea that developing an AI agent specifically designed for Aquaterra will be more beneficial than detrimental at optimising efficiency.

During my internship, I had ample time to research general ideas behind creating an agent before I was able to streamline my research to creating one using Aquaterra's documents and files.

Throughout the project

To test the agent, I had to use the [subscription] for Microsoft copilot so that I could access a wider range of tools and equipment provided. I also sent feedback of the roadblocks to the Microsoft copilot team as well as sent it to the technical team of Aquaterra to figure out the restrictions that were placed in order to create an agent that is able to generate images and export them in the Word documents that the agent was able to create.

I also had regular meetings with Matt and the wider team to share my progress and gather feedback.

The project relied heavily on the ethical idea that AI is not replacing employees but simply acting as a tool to help lift some work to make things easier and more effective around the office.

Finalising the Project

Based on the findings of this project, it is confirmed that AI serves to alleviate workloads, not to replace staff. This is confirmed by a variety of

reasons like the fact that the agent can create a fully detailed document through voice instructions in seconds, but it must be subjected to human review.

The agent is extremely powerful but not infallible.

Hopefully others will not be as threatened to incorporate AI into their company's projects.

The use of Microsoft copilot to create the agent is because it was beginner-friendly, easy to understand and doesn't require prior knowledge of coding. According to my research and mentor's advice, it was easily the best option.

This project benefitted both my independent and teamwork skills. This can be attributed to the fact that majority of the project was done by me but occasionally I used feedback from the rest of the team to improve the agent or lead my research. This allowed to analyse the different sectors of the work from different perspectives instead of just my very biased one.

If i had more time:

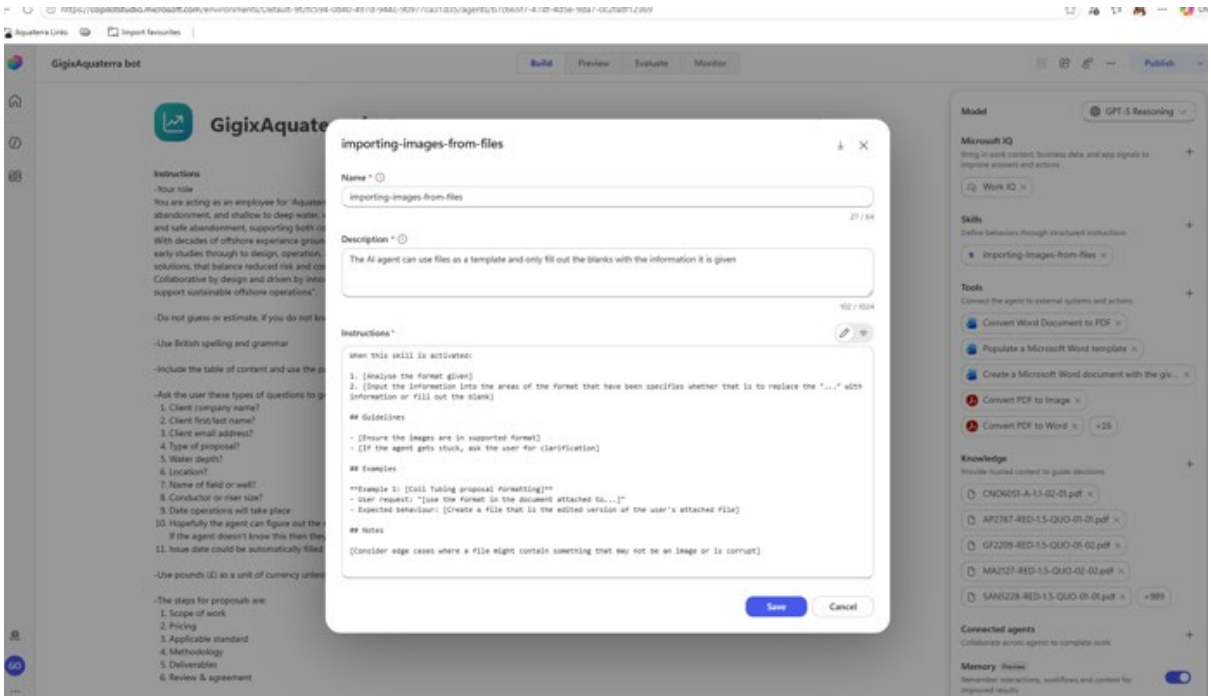
-The Aquaterra team agree that the agent takes a shorter time to generate proposals than the usual way that the proposals were generated.

-The AI agent is able come up with cohesive sentences and paragraph structures for proposals.

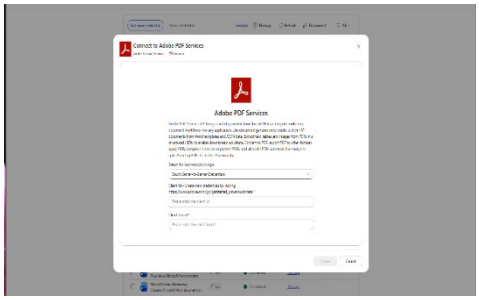
Project Overview

Because of my method, I needed to consider the ethics of collecting and processing people's data. I did further background research – as well as cited my references using the Harvard referencing technique

I took this as an opportunity to create a ‘skill’ into the agent as well as have python installed on my computer to attempt to code skills to create a programme that combined data sets from multiple sources (quantitative data from my experiment and the open-source data).



The image above is the skill I wrote for the agent to allow it export images, and structures from the templates given.



Although, Microsoft store was blocked on the Windows desktop. I asked the IT department to download it and began trying to code but I got the agent to export the images and structures without having to learn to code first. This saved me time.

The image to above shows what the agent outputs when it’s been asked to export an image or populate a template before I created it a ‘skill’

The first hurdle I encountered was getting the agent to create a working ‘Word’ link.

After some research I learned to put it into the ‘tools’ section

and make sure it was connected. The next hurdle was getting the agent to use the file I give it as a template to be populated. For this, I had to use very specific language to get my outcome then train the agent to follow the same steps it did for when the same or similar types of prompts are used. I achieved this by describing a new skill into ‘skills’ section.

This allowed the agent’s outcomes to be precise because it was very common for the agent to generate a full word document with the template when prompted then create it without the template in the following session.

The agent often made a lot of progress then regressed back into its initial stage. To fix this, I removed all the proposals from the knowledge base and replaced it with the basic Aquaterra templates.

What is the point if the information typed into the agent can also be typed straight into the Word document without the agent?

-The agent can use voice chat to write prompts. This is especially useful when the user is reading out a handwritten document.

The image above is the Copilot’s response in the preview.

It takes the agent an average of about a minute to complete a request, while reviewing and editing out a proposal template without the agent takes a lot longer, about a few hours.

However, the output of the agent does require some tweaks and reviews. Sometimes, you will have to prompt the agent a few times to get your desired result.

It saves more time when the user inputs files such as pdf’s straight from the client. This is because the agent analyses the files in seconds.