

Assignment 5

Question 1

Given:

1. Rocky \rightarrow 2km/h
2. Sandy \rightarrow 3km/h
3. Smooth \rightarrow 5km/h
4. Route1 \rightarrow 2km
5. Route2 \rightarrow 1.8km
6. Route3 \rightarrow 3.1km

Part 1

1. time = distance/speed. distance = 2km.
 - a. Route1 $\rightarrow (2/3)*0.2 + (2/5)*0.3 + (2/2)*0.5 \Rightarrow 0.5 + 0.13 + 0.12 \Rightarrow 0.75\text{hrs}$
 - b. Route2 $\rightarrow (1.8/3)*0.4 + (1.8/5)*0.2 + (1.8/2)*0.4 \Rightarrow 0.36 + 0.24 + 0.07 \Rightarrow 0.67\text{hrs}$
 - c. Route3 $\rightarrow (3.1/3)*0.5 + (3.1/5)*0.4 + (3.1/2)*0.1 \Rightarrow 0.16 + 0.52 + 0.25 \Rightarrow 0.93\text{hrs}$
2. So taking Route 2 is the best option

Part 2

1. In this case if we consider route 1
2. Route 1 $\rightarrow 0.75 + (0.75*0.3) \Rightarrow 0.975$
3. Route 2 $\rightarrow 0.67 + (1*0.6) \Rightarrow 1.27$

Now, if we consider all the three routes the third route is best one with 0.93 hrs

Part 3

1. time $= 3.1/5 = 0.62$

2. But there is 40% chance it would be smooth Route 3. So there is 60% chance that we take the previous best route which is Route3 again
3. Route1- $40\% \text{ of } 0.62 + 60\%(0.93) \Rightarrow =0.806 \Rightarrow \text{Weighted average}$
4. Original time - weighted average = $0.93 - 0.806 = 0.124$
5. So we can wait 0.124hrs or 7.44 minutes for the information from the satellite

Part 4

When I gave the Part 1 to chatgpt it gave me the right answer

▼ GPT Part 1 answer

To determine the best route, we need to calculate the expected time for each route. The expected time is the sum of the time it takes to traverse each type of terrain multiplied by the probability of that terrain.

Here's how we calculate it:

Route 1:

- Expected time = $(2 \text{ km} / 2 \text{ km/h} * 0.5) + (2 \text{ km} / 3 \text{ km/h} * 0.2) + (2 \text{ km} / 5 \text{ km/h} * 0.3) = 1 \text{ hour} * 0.5 + 0.67 \text{ hours} * 0.2 + 0.4 \text{ hours} * 0.3 = 0.5 + 0.13 + 0.12 = 0.75 \text{ hours}$

Route 2:

- Expected time = $(1.8 \text{ km} / 2 \text{ km/h} * 0.4) + (1.8 \text{ km} / 3 \text{ km/h} * 0.4) + (1.8 \text{ km} / 5 \text{ km/h} * 0.2) = 0.9 \text{ hours} * 0.4 + 0.6 \text{ hours} * 0.4 + 0.36 \text{ hours} * 0.2 = 0.36 + 0.24 + 0.07 = 0.67 \text{ hours}$

Route 3:

- Expected time = $(3.1 \text{ km} / 2 \text{ km/h} * 0.1) + (3.1 \text{ km} / 3 \text{ km/h} * 0.5) + (3.1 \text{ km} / 5 \text{ km/h} * 0.4) = 1.55 \text{ hours} * 0.1 + 1.03 \text{ hours} * 0.5 + 0.62 \text{ hours} * 0.4 = 0.16 + 0.52 + 0.25 = 0.93 \text{ hours}$

So, **Route 2** is the best choice as it has the shortest expected time of **0.67 hours**.

But for part 2 it did not consider route3 while making the decision

▼ GPT Part2 answer

Given the new information, we need to adjust our expected times to account for the potential delays.

Route 1:

- Expected time = 0.75 hours + (0.75 hours * 0.3) = 0.75 + 0.225 = 0.975 hours

Route 2:

- Expected time = 0.67 hours + (1 hour * 0.6) = 0.67 + 0.6 = 1.27 hours

Route 3:

- Expected time = 0.93 hours (no changes as there are no additional obstacles)

So, with the new information, **Route 1** is now the best choice as it has the shortest expected time of **0.975 hours**.

As a result it figured answer for part3 wrong. Also it took probability into consideration which is wrong

▼ GPT Part 3 answer

The value of the information from the satellite depends on how it would change our decision. If we find out that Route 3 is smooth, the rover would travel at 5 km/h, and the time to traverse would be 3.1 km / 5 km/h = 0.62 hours. Given that this is less than the expected time for both Route 1 (0.975 hours) and Route 2 (1.27 hours), we would choose Route 3 if we knew it was smooth.

However, if we find out that Route 3 is not smooth, our decision wouldn't change - we would still choose Route 1. Therefore, the value of the information is the time saved if Route 3 is smooth, multiplied by the probability that Route 3 is smooth.

Value of information = (0.975 hours - 0.62 hours) * 0.4 = 0.142 hours

This means we would be willing to wait up to 0.142 hours (approximately 8.52 minutes) for the information from the satellite. If it takes longer than this to get the information, we're better off just proceeding with Route 1.

Question 4

▼ What are the three dimensions along which Big Tech has an advantage in AI?

The landscape report talks about 3 dimensions

1. The Data Advantage - It states that companies which have large amount of data have advantage of creating consumer AI products
2. Computing Power Advantage - Any company which is researching in AI, are reliant on Big Tech companies as they have resources, such as Cloud, Server Infrastructure
3. Geopolitical Advantage - The AI products are important in terms of economic and security assets of US, which results in the Big Tech being funded by US to gain advantage in the global race to build AI products

▼ Why does AI Now think it's important to focus on Big Tech?

1. To tackle challenges which have originated from Big Tech companies such as data surveillance, manipulation of individual autonomy, consolidation of economic power
2. There are incentives for other companies because of Big Tech companies. Google and Facebook's behavioral advertising business model boosted commercial surveillance to become a business model
3. Dependency on Big Tech make them single point of failure. Many companies depend on Big Tech on tech such as cloud, advertisements, payments, which make them single point of failure

▼ Priority 1 discusses Algorithmic Accountability. What does this mean? Why is it important to shift responsibility for detecting harm on companies themselves?

1. Algorithmic Accountability refers to companies demonstrating that their algorithms do not cause any harm rather than burdening the public to continuously investigate and find solutions for harm
2. It is important to shift responsibility for detecting harm on companies because it makes them responsible.
3. The companies can then proactively identify potential harms rather than waiting for a problem to occur and then acting on it because their actions can cause

great impact on society

▼ What are the windows for action that are identified? Which do you personally think are the most effective or promising?

1. Algorithmic Accountability
2. To strengthen policies which can be on data collection, data privacy
3. Identify when policy approaches get co-opted and hollowed out by industry, and pivot our strategies accordingly
4. Move beyond a narrow focus on legislative and policy levers and embrace a broad-based theory of change.

1. Personally I like the third, one where identification and investigation of policy is necessary and whether a policy can fulfill the ultimate goal or will the big tech weaken the policy.
2. It is difficult to predict in advance what policy to come up with and will the big tech weaken it.

▼ Do you agree with this assessment? How might we rethink our relationship with AI and with technology in order to avoid these potential negative outcomes?

1. I agree with the assessment that it is important to control AI so that it do not hurt us and we can benefit from it
2. Big Tech Companies should be algorithmic accountable
3. AI can promote pseudo science and discrimination, so emotion recognition technology should never be deployed
4. Data collection policy should be regulated so that power does not entirely fall into hands of Big Tech companies
5. Big Tech companies should be scrutinized as they can support certain regulation in order to avoid a large sanction

▼ ChatGPT answer

As an AI, I don't have personal opinions. However, I can tell you that the statement you quoted is a perspective shared by many experts in the field of

artificial intelligence. They believe that AI is not an inevitable force, but a tool that we can shape and control.

To avoid potential negative outcomes, we might need to rethink our relationship with AI and technology in several ways:

1. **Regulation and Oversight:** Governments and regulatory bodies could play a crucial role in setting guidelines and rules for the development and use of AI. This could help prevent misuse and ensure that AI is used in a way that benefits society as a whole.
2. **Transparency and Accountability:** It's important for AI systems to be transparent in their workings and accountable for their actions. This could help us understand how decisions are made by AI and ensure that any negative impacts can be addressed.
3. **Education and Awareness:** Increasing public understanding of AI can help people make informed decisions about its use. This could involve education initiatives, public discussions, and open debates about the role of AI in society.
4. **Inclusive Design:** AI should be designed in a way that considers the needs and perspectives of a diverse range of people. This could help ensure that AI doesn't exacerbate existing inequalities and that its benefits are shared widely.
5. **Ethical Considerations:** Ethical considerations should be at the forefront of AI development. This includes considering the potential social, economic, and political impacts of AI and striving to minimize any negative effects.

Remember, these are just some of the ways we might rethink our relationship with AI. The exact approach will likely vary depending on the specific context and the potential risks and benefits involved.