Case Study

Just Walk Out: A Case of undisclosed AI limitations

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Table of Contents

Case 3

Teacher's Note 7

References 10

Disclaimer

The following case is fictional for teaching purposes, but contains data and references to real-life situations.

Amazon's not-so-Artificial Intelligence

Rahul is a human rights activist based out of India. He frequently deals with cases of poor workplace environments and exploitation. Sometimes, he travels to the US in fundraising and awareness campaigns. He does this because the Indian pay scale for low-level jobs seems even less human when calculated in the USD. As a tech enthusiast, he likes to try out new and innovative technologies that are often first deployed there on these trips.

On one such trip, he decided to try the Just Walk Out service offered by the multinational corporate supergiant, Amazon. The service claimed customers could walk into a grocery store, grab what they need and "Just Walk Out". AI would identify the items and generate the bill automatically. Rahul was quite excited to experience this unique and convenient application of Artificial Intelligence. He needs groceries and some basic stationery, so he looks up a "Just Walk Out" store and makes his way there. Upon arriving, he scans a QR code at the entrance, grabs a cart and goes in. He comes out soon after with his purchases and the bill is sent to his phone.

Upon returning to his hotel, he dug deeper into the technology behind the service. He learned how a combination of computer vision, sensors and deep learning to identify the product being picked up.

Some days later, Theo Wayt from The Information released an article that revealed very unsettling information. It turns out that the technology wasn't as great as it was made out to be and required a human to step in and identify the object more than 70% of the time. It was also revealed that the team doing this work was made up of more than 1000 workers in India. Of course, this had been done to undercut the expenses of local manpower by outsourcing the task to low-wage workers from Rahul's home country.

Rahul was appalled. He had come to this country trying to help the same people that Amazon had been exploiting. Had he known that there were people behind that camera instead of the promised 'advanced artificial intelligence', he never would have stepped foot in that store.

Only in response to the story's breakout did Amazon reveal that the technology relied on human interference for a "small minority" of cases(around 25%). Rahul could understand that developing technologies of this kind would need a helping hand. But seeing as the company did not reveal it earlier, and that there was a dispute in the exact numbers, he struggled to believe them.

While no official data has been released about the wages of these workers, an approximation can be made by using prices from the company's "Amazon Mechanical Turk". The "MTurk" is a crowdsourcing endeavour which pays freelancers for tasks like identifying objects in images, etc to train AI models. Ironically, the name derives from the story of the Mechanical Turk, an 18th-century chess-playing contraption that was secretly controlled by a man hiding inside.

Numbers from this site would suggest that the workers were severely underpaid, perhaps even by Indian standards.

Amazon has had a rocky history with physical storefronts. The first “Just Walk Out” stores opened in 2018 with their Go stores. By early 2023, there were as many as 28 of them in the US and only 17 by October 2024. Around the same time, the executive who led the Just Walk Out division left the company and joined Lime, an electric scooter and bike-sharing company.

The company has contested some of the claims made in this report, stating that human interventions consisted of annotation of data and were closer to 25%. They maintain that this is required in any Machine Learning technology. However, there is still a lot of ambiguity around the situation, with a lack of a clear statement or numbers from their end. Amazon has since opened other kinds of physical stores, with over 200 of them being “Just Walk Out” enabled. The website is still up, with the same claims of “advanced AI, sensors, computer vision, and RFID”. Amazon also faces a class-action lawsuit under the Illinois Biometric Information Privacy Act (BIPA), charged with collecting thousands of facial and hand geometry scans and voice prints through the JWO hardware and sharing it with third parties.

Keywords

Amazon, Just Walk Out, Machine Learning, Human Intervention, Worker Exploitation, Transparency

Learning Objectives:

1. Understand the complexities of AI development
2. Recognize ethical concerns in AI.
3. Critically evaluate AI claims
4. Explore the social and economic impacts of AI
5. Develop critical thinking and research skills

Discussion Questions:

1. What are the ethical implications of improper disclosure of AI limitations?
2. How does the "Just Walk Out" case study illustrate the gap between AI marketing and reality?
3. What are the potential consequences of a lack of transparency in AI development?
4. How do opaque business practices affect the discourse around AI?
5. What role does regulation play in addressing the ethical challenges of AI?

Teacher's Note

Case Overview

Amazon, one of the largest multinational corporations in the world, makes a foray into physical stores but decides to add high-tech, cashier-less checkout systems reliant on AI. However, they face challenges in developing and training the AI. Camera and sensor inputs of this kind are complex and difficult to process. Even after extensive training, the bot needs human intervention to identify the item being picked up. Undeterred, Amazon decides to go forward with it anyway, making sure there is a team ready to step in when the bot fails in order to maintain the seamless experience. However, they do not adequately inform the customer base of their decision, likely in fear that it would hurt the marketing campaign. Thereafter, a third-party investigation into the service reveals this information in a way that places severe doubt on the company's ethical code. The company's statement becomes difficult to believe because it no longer has its audience's trust. The case challenges students to identify the benefits of maintaining transparency, irrespective of the exact situation, when concerning AI. The data in the case remains disputed, allowing the student to hypothesize the effects of maintaining or not maintaining transparency around an AI product in different contexts. The students may choose to take Amazon's claims at face value, or prefer using data from third parties when considering the ethical implication of the matter.

Learning Objectives:

1. Understand the complexities of AI development: Students will learn that many AI systems, despite marketing claims, rely heavily on human input, often from low-wage workers.

2. Recognize ethical concerns in AI: Students will identify issues like exploitation of workers, lack of transparency, and potential for privacy violations.
3. Critically evaluate AI claims: Students will learn to question marketing rhetoric and demand evidence to support claims about AI capabilities.
4. Explore the social and economic impacts of AI: Students will understand how AI development can have significant social and economic consequences, particularly for marginalized communities.
5. Develop critical thinking and research skills: Students will analyze information from various sources, identify biases, and formulate informed opinions.

Discussion Questions:

1. What are the ethical implications of improper disclosure of AI limitations?

➔ Prompts the students to consider the possible harmful effects of opaque communication around AI on users, directly or indirectly.

2. How does the "Just Walk Out" case study illustrate the gap between AI marketing and reality?

➔ Prompts the students to look into the difference between the portrayal of AI in media and its effective reality.

3. What are the potential consequences of a lack of transparency in AI development?

➔ Prompts the students to consider how the lack of transparency around AI models affects stakeholders.

4. How do opaque business practices affect the discourse around AI?

➔ Prompts the students to consider how these deceptive practices could generate a false and exaggerated narrative around AI.

5. How could legislation address the ethical and transparency challenges of AI?

➔ Prompts the students to determine possible government and other institutional interventions that could ensure proper disclosure of AI limitations, biases and other ethical considerations.

Key Teaching Concepts:

1. **The Human Element in AI**: Many AI systems require significant human input, often from underpaid workers. The extent to which, and the nature in which this is acceptable is under continuous debate.
2. **Critical Thinking and Media Literacy**: This case serves as a reminder that all claims about AI must be taken with a grain of salt and approached critically.
3. **Social and Economic Impacts of AI**: Understanding how AI development can impact employment, income inequality, and social justice.
4. **The Importance of Transparency and Accountability**: The need for companies to be transparent about how their AI systems work and to be accountable for their societal impact.
5. **The Role of Legislation**: Exploring the potential role of government regulation in addressing the ethical and societal challenges of AI.

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