1. What is the primary argument or thesis of the book? How does the author support this argument throughout the text?

Meredith Broussard’s primary argument is that the reality of technology does not live up to the misconceptions that have come about in regards to it. She gives numerous examples that support this point throughout the book. One of her first ones is about John Searle’s experiment called the Chinese Room. The purpose was for a man who does not know Chinese to use a computer manual to produce the correct Chinese symbols for a given phrase. The point was to explain that the computer was able to give the right symbol but that doesn’t mean it understands what they mean. A human mind can have meaningful thoughts but just because he is using the machine to pass, doesn’t mean he is creating meaningful thoughts to generate the answers. The moral of this was to prove that computers can’t understand what they are computing like humans do.

Another example Broussard uses is about self-driving cars. She mentions at the beginning of the chapter that she does not trust self driving cars because they are not nearly at a point yet where they can safely operate without someone behind the wheel. To explain her point she goes into an experience she had with a college team that was competing in a competition for self driving cars. They needed their car to be able to operate in a closed course and winners were awarded with cash. She talks about the limitations of the car they built and her experience watching how the engineers worked. She notes that there are more advanced ways to build a self driving car than the way her team chose, especially since they did not win, but her eventual point boiled down to not being able to expect a lot of the unexpected on the road. She also mentioned that we cannot put our full trust in a machine not able to make the same cognitive decisions that we do while driving everyday.

1. What were the three most significant insights you gained from this book? How do they relate to contemporary issues in data science?
   1. Insight: role of who is creating AI
      1. Broussard mentions that there are many ethical concerns with AI and machine learning when it comes to who is creating it, and what the outputs are. She says that no matter who is working on a certain algorithm, they are unknowingly going to input their own biases. An example is a programmer deciding what cases should be used for certain classifications that help a program determine its end result. There is also the issue that the results are not always giving us the answers we should actually use. One example she includes is that popular does not always mean good. Racism is a popular topic found online, but that doesn’t mean it is a good thing that we should be replicating. We need a way for computers to accurately distinguish between these two.
   2. Insight: limitations of AI
      1. Broussard talks about the language programmers came up with for tech innovations, and how they don’t always make sense or convey the right idea to people not in the tech realm. For example, machine learning does not actually mean the machine has a brain and is learning from something. It means that the machine is able to improve its accuracy upon its single task when given more data or parameters.
   3. Insight: AI fails a lot
      1. Broussard also gives plenty of examples of times where AI has failed at its job, or gave false results due to a lack of understanding on the programmers part when giving it specific things to look for. An example is her time with the college team working on a self-driving car. The engineers and programmers failed to account for every obstacle variation and didn’t go about creating the car I n the best way. Because of this, their final product was not a very advanced self-driving car.

3. Which ethical concerns highlighted by the author resonated most with you? Why?

* Being a male dominated field
  + Broussard talked about Minsky, one of the earliest pioneers in computer science. He created a big boys club and with that came many biases and it was difficult for women to infiltrate the field. I resonate with this because having been in computer science and statistics classes, especially at BYU, I feel how much of a male-dominated field it still is and I wonder what might be different now, had that not been the initial environment.
* Data can be used to draw false conclusions.
  + I think a huge ethical concern is using algorithms that make false conclusions based on race and gender. Humans also do this, but with how much glorification happens in regards to AI, I hope that the general population is also able to understand human-generated code also contains human-generated biases.

4. does the author propose any solutions to the issues they addressed? Do you agree with these solutions?

Her only solutions were that we should be wary of technology being used in certain circumstances, and that it is not always needed. As a data journalist, she makes it seem like being in that field is one of the most important jobs to keep around because they can help bridge the gap between what’s happening in the digital world and convey it to the general public. This way there can be less confused and a deeper understanding of what the actual limitations of technology can be. She also just ends with a general disapproval of artificial intelligence which is think is a very pessimistic view that I do not necessarily agree with. There seemed to be a strong negative undertone throughout the book so it makes sense she would leave us with a negative perception of where AI is going. I agree that data journalism can serve as a much needed branch between the worlds, but I also think more education in technology from a young age would also be a good solution. This way the narrative might change for future generations.

5. How does the author view the role of technology in society? Is it a tool for empowerment, a source of concern, or a bit of both?

* She thinks it should not be as idolized as it is now
* We need to understand its limitations
* Improve communication – she heavily talks about data journalism

I think Broussard mainly approaches this book with the viewpoint that we should proceed with caution, and that it is being incorporated in more ways than it should be. There are countless scenarios she gives that prove the point that sometimes humans can do it better.

6. Can you think of a current real-world example that reflects the themes or concerns of the book? Describe and analyze this example in relation to the book’s arguments.

I think the boom in popularity that ChatGPT has had is a perfect indicator that helps prove Broussard’s point. Everywhere in the media there are inaccurate marketing campaigns about new ‘AI’ involved in products that don’t contain any AI at all. I mostly see the terms chatbot and AI get confused and interchanged. Since it may seem like we are interacting with an artificial being in our computer that can answer our requests immediately, people jump to assuming it is super advanced AI that is being used. In reality, people are most likely interacting with a chatbot that is not doing any real-time thinking but pulling together different common responses found in its database of information. I think Broussard would use the boom of AI in everything as a major talking point in her book had it been written today.

7.  While many readers often finish these books with heightened concerns or discouragement about ethical issues in data science, it's also important to identify areas of hope and potential for positive change. What were some hopeful or optimistic insights, examples, or suggestions presented in the book you read? How might these pave the way for a more ethically informed future in the realm of data science?

There was a large emphasis on equality in terms of both race and gender in technology. She mentions in the last couple pages a photo she found from the very first computers in use and noticed women were present, but not in pivotal roles that would be around today. Most scientists and programmers were always men. Same goes for people of color. She makes it a point to hopefully encourage a change in this imbalance. She also mentioned earlier in the book another example of how the tech industry has inherent gender bias when it came to naming products. Broussard makes an interesting point that all the helpful AI that are not very advanced are all women (Siri, Hal, Cortana). Broussard quotes author Kathleen Richardson who states “I think that probably reflects what some men think about women – that they’re not fully human beings”. Broussard continually mentions that computers are created in specific social contexts, so to change biases then the social context needs to be changed too.

8. On a scale of 1 to 10, how would you rate this book in terms of its clarity, insights, and overall impact on your understanding of data science ethics? Please provide reasons for your rating. What elements of the book contributed most to this score, and were there areas where you felt the author could have improved or expanded upon?

Rating: 7/10

I think Broussard does a great job providing a lot of examples, but I think her examples and stories get way too long and off track from her initial argument of the book - it is hard to stay engaged in 20 pages on the same topic. I also think she ends with a very pessimistic viewpoint without providing much hope for the future, or a real call to action for the reader. I would’ve liked her to encourage the reader to do something. However, I think she broke down computer science and every tech-related in a nice way that was easy to understand. I also think she did provide some really great insights that gave me something to think about in regards to the ethics of technology. She made me feel like my role as a woman in data science is something important and needed because of its mainly male history and the results of that.

9. Considering the insights, writing style, and overall impact of the book, would you recommend it to others, and if so, to whom specifically (e.g., fellow students, professionals in data science, general readers)? What are the main reasons for your recommendation or lack thereof?

I would recommend this book to members on both extremes of the spectrum in terms of AI. I think learning that AI is not scary for people who are afraid of it is really valuable, and Broussard does a good job of conveying to the reader that there is no need to fear. She also does a decent job of breaking down tough concepts. I also think that people (maybe men) who are hugely immersed in the tech realm need this book as an invitation to take a step back and realize some of its limitations and biases they could be instilling in their creations. The last thing we need are programmers who are not self-aware, creating technology that can really damage our society.