Kuncheng Feng
CSC 466

Annotated Bibliography

1). Mitchell, M. (2019). Artificial Intelligence: A Guide for Thinking Humans. Farrar, Straus and Giroux.

Expertly written by a brilliant computer scientist, this book expertly explores the fields of modern AI, it includes the details about their architecture and computational methods, including convolutional neural networks, search algorithms, and reinforcement learning. Although my research project is symbolic AI and is nowhere close to the industrial complexity, this book gave me some good insights on what the top AI researchers are doing with AI.

2). Datagenetics. (2011, December 3). Battleship: Advanced Strategy. Retrieved from http://www.datagenetics.com/blog/december32011/

This research explores different strategies to play the game Battleship, it gives very detailed visual walkthroughs of the strategies being used, and provides the statistical analysis of said strategies being used. It gives me guidelines on what specific aspects of a game I should focus on tracking.

3). Hickey, A.E.Jr., & Vegh, A. (1961). Battleship: a study of search behavior. Southern Universities Press.
https://journals.sagepub.com/doi/pdf/10.2466/pms.1961.13.1.35

Instead of researching the effectiveness of search patterns, it studies human's preferences when searching on a (20 x 20) battleship board, by giving financial incentives to humans in a way that encourages them to explore the reward block the quickest.I think it's very interesting, as it found that humans do have a preferences on where to search.

4). Schwartz, A. (2022, April 14). Coding an Intelligent Battleship Agent. Retrieved from https://towardsdatascience.com/coding-an-intelligent-battleship-agent-bf0064a4b319

Improved upon the research done by Nick Berry, CEO of Datagenetics. Unlike what the title suggests, this research's actual focus is strategies on playing the battleship game, not teaching us to code. The difference between this and Datagenetics' work is that he included a specific hunt/target strategy when there is no information about a board, however in the end he also concluded that the best strategy is what Datagenetics had done, search by probabilistics.

5). Bennage, C. (2019, October 31). Changes of Distribution with Different Number of Games Played. Retrieved from https://rpubs.com/cbennage/manygames

A research with histogram proof on why it is absolutely necessary to simulate at least 1 million games when trying to get analysis for Battleship. The distribution graph is very convincing even at first glance, I'm concerned for my CPU's lifespan as it was already taking a while to simulate just 1 game.

6). Bennage, C. (n.d.). In A Game of Battleship, Strategy Influences the Outcome Given You Are Doing It Right. Retrieved from https://www.rpubs.com/cbennage/battleship_optimal_strategy_research

Also a research done on Battleship playing strategies, but instead of jumping straight into probabilistic search after 1 improvement, this research truly focuses on different search patterns.

7). Crombez, Loïc. et al. Efficient Algorithms for Battleship. Retrieved from https://pageperso.lis-lab.fr/guilherme.fonseca/battleship_conf.pdf

A research funded by the French government, it explored mathematical approaches to efficiently win the game of battleship. I did not enjoy reading this paper and couldn't understand much of it, but I wanted to show that there are some serious research out there focused on playing this children's board game.

8). Emblem, H. “A Case for Heuristics: Why Simple Solutions Often Win in Data Science”. Towards Data Science.
https://www.cs.oswego.edu/~blue/ai_articles/Case_for_Heuristics.pdf

Although this author is researching a much more applicable and difficult problem (identifying photosensitive epilepsy triggers), the author showed that symbolic AI and deep convolutional neural networks are not the best solution in every situation. Deep learning requires a lot of setup and data to perform, while heuristic (rule based) algorithms do not require huge data sets and are quick to set up. Perfect for the circumstances that I’m under.

9). Tamburro, A. “An Artificial Intelligence Learns to Play Battleships”. Towards Data Science. Retrieved from
https://towardsdatascience.com/an-artificial-intelligence-learns-to-play-battleship-ebd2cf9adb01

Teaching a computer how to play battleships with reinforced Q-learning, the main takeaway is that it takes a lot of games for the AI to learn, like “4,789,994” steps to find a 3 cell ship on a 6 x 6 board.

10). Alemi. “The Linear Theory of Battleship”. The Virtuosi. Retrieved from
http://thevirtuosi.blogspot.com/2011/10/linear-theory-of-battleship.html

Although it’s a different version of the Battleship game from mine, the concept is still the same, that on a randomly placed board, the middle section has the highest probability of ship placements.