AlphaGo Zero, an AI designed by Deepmind to play the game of go, is one of the strongest go Ai’s developed. (Belani, 2019) The difference between AlphaGo Zero and its predecessors are that AlphaGo Zero’s data was not trained on human data and the games and moves they would use to be successful. By learning by playing against itself AlphaGo Zero’s performance improved by always having an opponent of the appropriate play level to learn from and giving it more moves to learn from instead of just taking currently mastered moves played by masters.

AlphaGo Zero use neural networks and reinforcement learning algorithms by starting with a neural network that no knowledge about the game of go. (Silver & Hassabis, 2018)

This paired with its powerful search algorithm improves AlphaGo Zero’s performance by small iterations after each game. Making its neural network more and more accurate after each iteration. This leaves AlphaGo Zero to learn outside the limit of just human knowledge of the game.

AlphaGo Zero compares to human thinking by having a training partner at it’s level, learning moves completely by random. These differences help speed up the improvement of its system performance and make AlphaGo Zero more general. This affect gameplay by discovered new knowledge of go, developing new and unconventional strategies and creative new moves. Ultimately affecting our perception of AI by learning new ways to implement and solve some of the challenges we face tougher as a species. (Belani, 2019)

AlphaGo Zero's implications on the future performance of AI development is a positive one. Where previously most neural networks had been trained on human data AlphaGo Zero’s data is trained on each of its own games. By pushing forward with development, we can look forward to how this research can be implemented into other Neural Networks and potentially change the development of other AI designed to learn tasks such as water preservation or cleaning in our shrinking world. (Innovyze, 2020)

# References

Belani, G. (2019, May 9th). *Packt*. Retrieved from Why DeepMind AlphaGo Zero is a game changer for AI research: https://hub.packtpub.com/deepmind-alphago-zero-game-changer-for-ai-research/#:~:text=Simply%20put%2C%20AlphaGo%20Zero%20is%20the%20strongest%20Go,of%20the%20different%20versions%20of%20AlphaGo.%20Source%3A%20DeepMind

Innovyze. (2020, October 22). *Innovyze.com*. Retrieved from How AI Helps Clean Water and Sanitation: https://www.innovyze.com/en-us/blog/how-ai-helps-clean-water-and-sanitation#:~:text=Artificial%20intelligence%20%28AI%29%20has%20the%20potential%20to%20help,to%20ensure%20a%20clean%20and%20sanitized%20water%20supply.

Silver, D., & Hassabis, D. (2018, October 18th). *DeepMind.com*. Retrieved from AlphaGo Zero: Starting from scratch: https://www.deepmind.com/blog/alphago-zero-starting-from-scratch

Response:

Hi Tom! Impressive job pointing out the main difference between the two in that AlphaGo Zero learns entirely from games played against itself whereas AlphaGo has learned from games played by masters and amateur go players. I did see how AlphaGo did use additional rules though I did not see too much how this affected its learning style or game play. I do not know that I would understand much either as I’m not entirely sure how Go is played without researching more about it. I did see they both do play a similar game by looking ahead several moves by simulating games and assessing positions based on whether it would cause a win or loss.

Hi Zac! I believe that AlphaGo Zero not only learned from games played by rookies but also games played by Go Masters. This limits the game to moves played by humans or planning like a human. By learning entirely by playing itself AlphaGo Zero has removed the limitation of human go play styles.

# Resources

Belani, G. (2019, May 9th). *Packt*. Retrieved from Why DeepMind AlphaGo Zero is a game changer for AI research: https://hub.packtpub.com/deepmind-alphago-zero-game-changer-for-ai-research/#:~:text=Simply%20put%2C%20AlphaGo%20Zero%20is%20the%20strongest%20Go,of%20the%20different%20versions%20of%20AlphaGo.%20Source%3A%20DeepMind