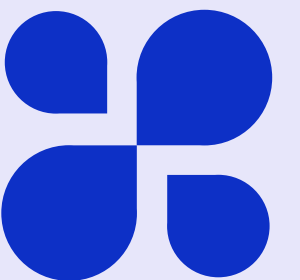


3D Tic-Tac-Toe

A Deep Reinforcement Learning Application

by Talha Ahmed & Nehal Ahmed Shaikh



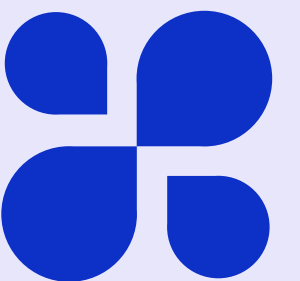


Summary of Methods

- Phase I - 3 x 3 Tic-Tac-Toe: Value Iteration
- Phase II - 4 x 4 Tic-Tac-Toe: Q-Learning
- Phase III - 4 x 4 x 4 Tic-Tac-Toe: Deep Q-Network

Architecture of the Deep Q-Network

- 1 input layer.
- 1 structured hidden layer.
- 1 fully connected hidden layer.
- 1 fully connected output layer.



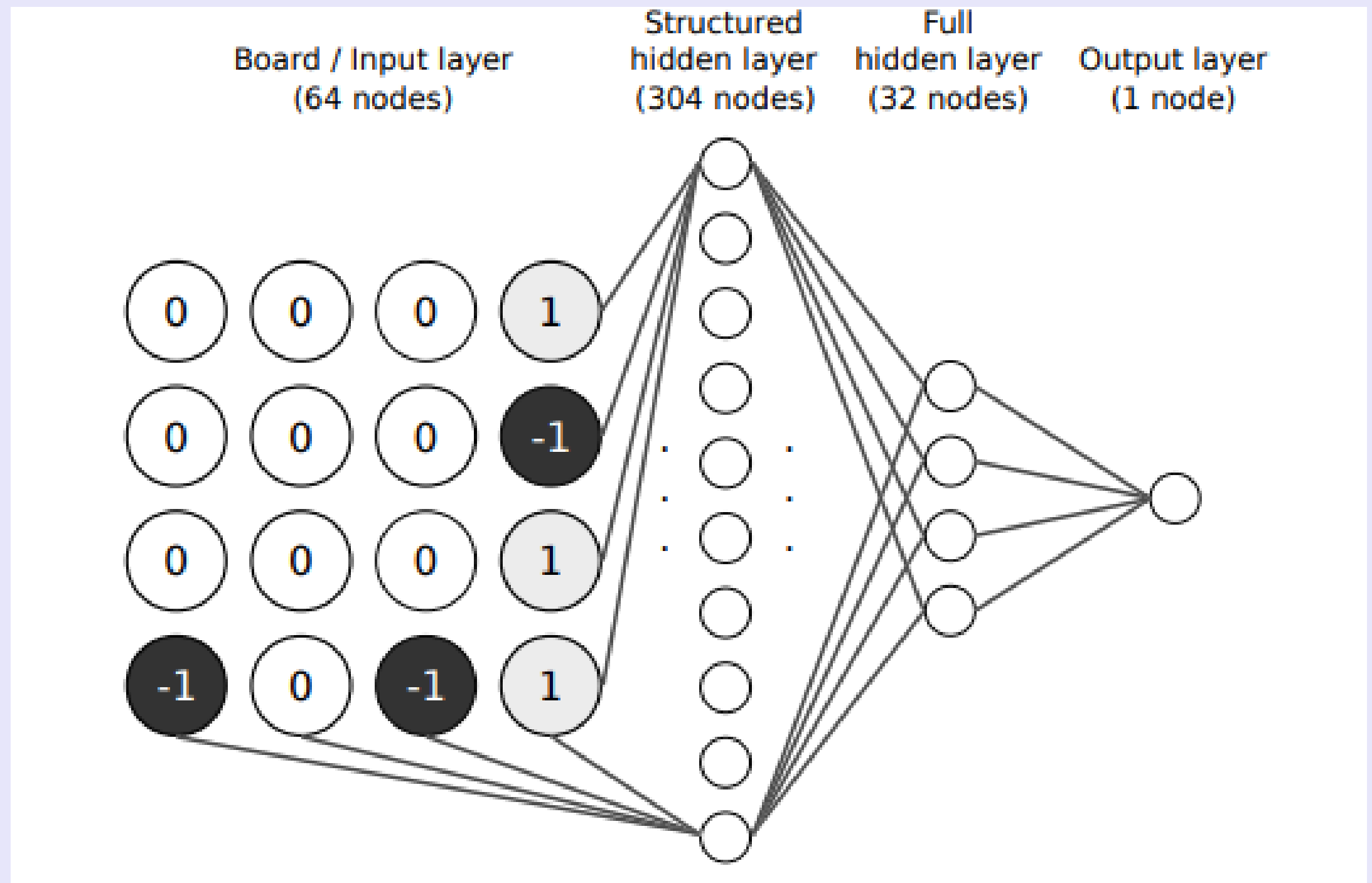
Architecture of the Deep Q-Network

Features

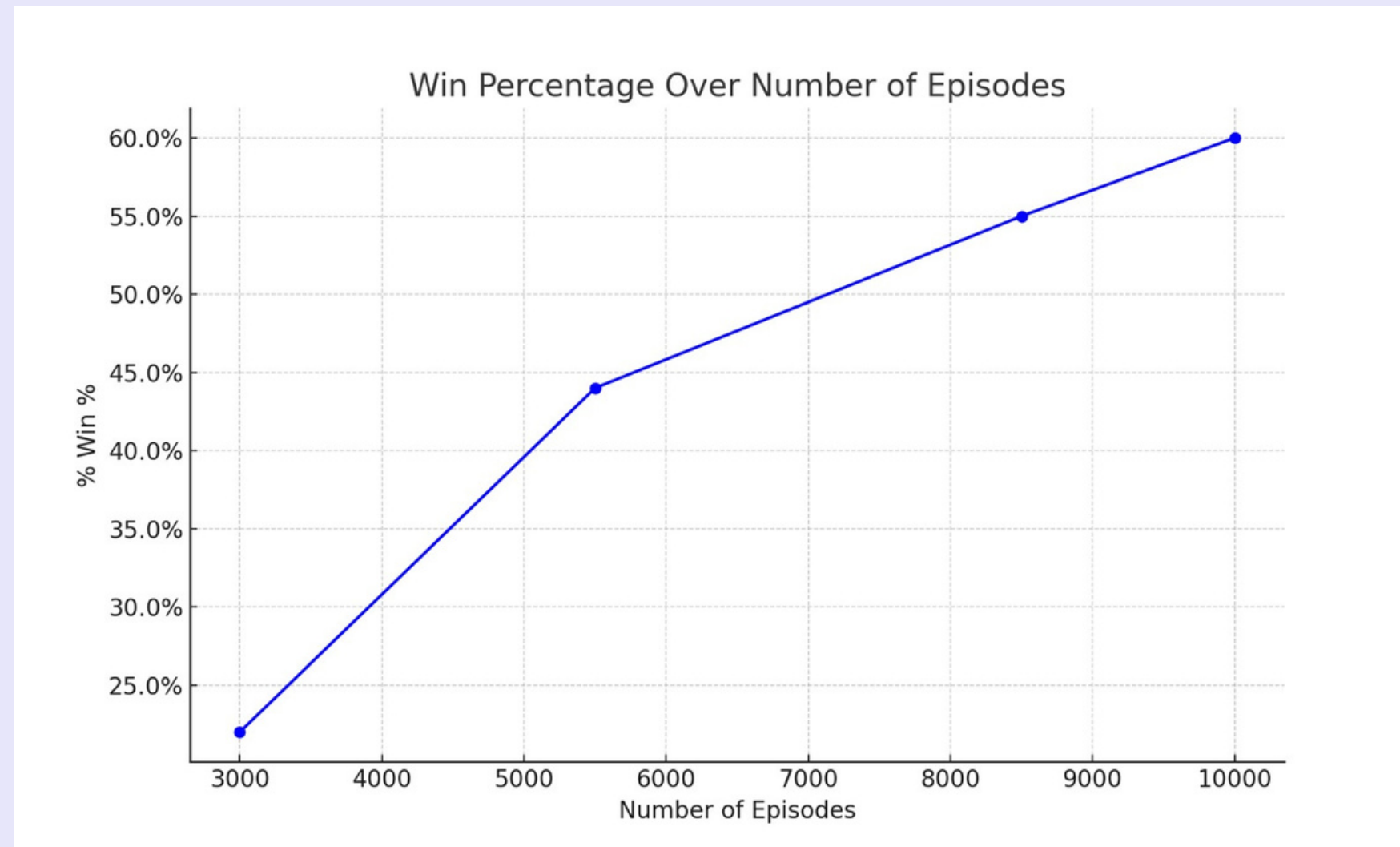
- Xavier initialization
- Tanh activations

Limitations

- trained for too few episodes
- computationally slow

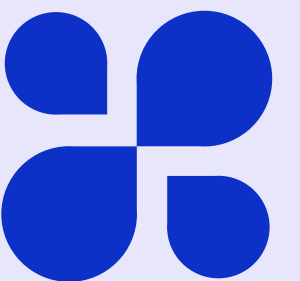


Results for Phase III



Relevant Links

- [GitHub Repository](#)
- [Main Reference](#)





Thank You.

