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# Reinforcement learning of the Game Pacman

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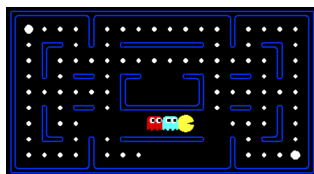Tsitsi Marote
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Figure 1: Pacman [2].

**Abstract**

In this research proposal we propose the use of reinforcement learning in training the pacman game. Pacman is an arcade game where the hero tries to eat all the food while avoiding being eaten by monsters. Extra points can be gained for eating the food and the monsters. Reinforcement learning is learning that involves mapping from situations to actions. The learner is not told which action to take, but must learn from the reward system[1]. We wanted an environment that was both intuitive and rich. Pac-Man is intuitive in the sense that it consists of objects moving around on a grid, a setting that can be easily mapped onto the general definitions of search problems and Markov decision processes [2]. We are going to consider different ways of representing our states and different reinforcement learning techniques.

# 1 Deliverables

- Reproduce the pacman game.

- Create an agent to play the game.

- Use various techniques to teach the agent.

- Compare performance. []

# References

[1] R. Sutton, "Introduction: The challenge of reinforcement learning," 1992.

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