Project Proposal

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I will apply MuZero [2] to the game of StarCraft II, thanks to the environment PySC2[3], starting from it's minigames, to the full game and compare it to AlphaStar [1], Deepmind's agent. I will also try to use a different reward function then the one given by the environment, by scaling the ternary reward and summing it to a scaled version of "Blizzard score" by the time since the beginning of the game

References

[1] Kai Arulkumaran, Antoine Cully, and Julian Togelius. "AlphaStar: an evolutionary computation perspective". In: *Proceedings of the Genetic and Evolutionary Computation Conference Companion*. GECCO '19. ACM, July 2019. DOI: 10.1145/3319619.3321894. URL: http://dx.doi.org/10.1145/3319619.3321894.

[2] Julian Schrittwieser et al. "Mastering Atari, Go, chess and shogi by planning with a learned model". In: *Nature* 588.7839 (Dec. 2020), pp. 604–609. ISSN: 1476-4687. DOI: 10.1038/s41586-020-03051-4. URL: http://dx.doi.org/10.1038/s41586-020-03051-4.

[3] Oriol Vinyals et al. *StarCraft II: A New Challenge for Reinforcement Learning*. 2017. arXiv: 1708.04782 [cs.LG].