Cloning of Scheduler Algorithms 5G using Deep Neural Networks

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Abstract—TBD

1. Introduction

a. Motivate high complexity of the 5G scheduler with massive MIMO and MU-MIMO pairing
b. Basic introduction of using deep neural networks as a universal function approximation
c. Motivate with a brief description and references to hardware accelerators (TPU) for deployed DNNs

2. 5G MAC Scheduling Problem

a. Motivate massive MIMO / MU-MIMO as being a spectral efficiency multiplier for 5G systems
b. Set up the PF scheduling + MU-MIMO pairing problem
c. Without details, describe a conventional max-orthogonality type of pairing approach which would have reasonable implementation complexity with traditional implementation
d. Compare the performance of exhaustive search MU-MIMO pairing with conventional algorithm to motivate performance gains (20

3. 5G Scheduler Cloning

TBD

4. Conclusions

TBD

References

[1] Haoran Sun, Xiangyi Chen, Qingjiang Shi, Mingyi Hong, Xiao Fu, Nikos D. Sidiropoulos, *Learning To Optimize: Training Deep Neural Networks For Wireless Resource Management*, 2017 IEEE 18th International Workshop on Signal Processing Advances in Wireless Communications (SPAWC)