Modifying Synaptic Connections On The Spiking Neural Network Architecture (SpiNNaker) In Real-Time

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***Abstract*—Artificial Neural Networks is a promising approach to study human brain computation. Recent computer architecture design of a low-power 72-core processor by the University of Manchester (SpiNNaker) has made it easier to study highly parallel networks. We designed an algorithm on the SpiNNaker chip to enable synaptic removal, addition, and randomization on a neural network topology during run-time. Additionally, we explored scalability issues and unintended pitfalls with this approach.**

Keywords*—*Neural Networks, Synaptogenesis, SpiNNaker

I. Introduction

THE human brain is fast and low in energy. blah blah blah. One property of the brain is it's plasticity (cite Lashley, or some Psyc studies). Our approach to neural networks is greatly influenced by this biological idea, and we want to enable networks to self-modify. With energy effeciency in mind, we enable this functionality on the Spiking Neural Network Architecture (SpiNNaker) provided by the University of Manchester.

A. SpiNNaker

The SpiNNaker is cool. Here's why. It's so epic. And we have one. And we added a cool functionality to it.

B. Synaptogensis

Synaptogenesis is cool too. Here's why. Explain it's previous success from Levy's work.

We're combining the two. And it's gonna be super userful.

II. Implementation Design

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III. Pitfalls

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IV. Further Study

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V. Conclusion

The conclusion goes here.

Appendix A
Proof of the First Zonklar Equation

Appendix one text goes here.

Appendix B

Appendix two text goes here.

Acknowledgment

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References

[1] H. Kopka and P. W. Daly, *A Guide to LaTeX*, 3rd ed. Harlow, England: Addison-Wesley, 1999.

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Michael Shell Biography text here.

John Doe Biography text here.

Jane Doe Biography text here.