

Theo Shin

## Paper 2 Topic Selection

Topic(s): I considered the week 10 lectures on neural networks and deep learning to be quite fascinating and intensive. I'd like to explore these topics in further detail particularly understanding in greater depth the biological neural network (a complete breakdown of the biological neuron – dendrite, axon, etc.), understanding learning/training sets with the changing of weights, gradient descent and backpropagation, and gaining more clarity on how neural networks can continue changing the landscape of computer vision, speech recognition, and natural language processing. I plan on segueing related topics from Paper 1. My first paper I had focused on a possible "master algorithm" approach to artificial intelligence and machine learning, which required a broader mindset and approach to the research. For this second paper, I'd like to have a more channeled focus, narrowing in on neural networks and tying in examples from the course material. The books I will be reading and referencing will be "A Brief Introduction to Neural Networks" by David Kriesel and "Neural Networks and Deep Learning" by Michael Nielson. References from Paper 1 may also be used when highlighting connections between the two papers ("The Master Algorithm" by Pedro Domingos and "LIFE 3.0" by Max Tegmark from Paper 1).