Chapter Revision History

The table notes major changes between revisions. Minor changes such as small clarifications or formatting changes are not noted.

Version	Date	Changes	Principal Author(s)
0.4		Initial release	C. Baranski

Content to be Incorporated

Other chapters will be added to this book in subsequent releases. Following is a tentative list of these additional chapters, including topics that will likely be discussed in these chapters. We've also included links to current papers or other documentation that offer information on the specific topics, so you can get started now.

HTM Neuron

This chapter will cover such topics as synapses, active dendrites, immunity to noise, etc. For some information on the HTM Neuron before this chapter is complete, you can read the paper "Why Neurons Have Thousands of Synapses, a Theory of Sequence Memory in Neocortex" by J. Hawkins & S. Ahmad (2016). Published in Frontiers in Neural Circuits, March 2016, Volume 10, http://dx.doi.org/10.3389/fncir.2016.00023

HTM Cellular Layer

This chapter will cover topics such as mini-columns, sequence memory and temporal pooling. For some information on HTM sequence memory before this chapter is complete, you can read the paper "Continuous Online Sequence Learning with an Unsupervised Neural Network Model" by Y. Cui, S. Ahmad, J. Hawkins & C. Surpur. You can find this paper here http://arxiv.org/abs/1512.05463.

HTM Region

Behavior Generation

HTM Hierarchy

HTM Learning Algorithms

This chapter will cover details of the HTM learning algorithms, including pseudocode. The original HTM Whitepaper, written in 2011, covered similar details for the algorithms at that time. Much of the terminology and some of the details in HTM theory have changed since that time, so the original whitepaper is largely obsolete. We will eventually write detailed explanations of the current HTM learning algorithms as part of this book, but in the meantime we have updated the algorithm descriptions and pseudocode from the original whitepaper. You can find these updated algorithm descriptions here:

Spatial Pooler Algorithm Implementation and Pseudocode

Temporal Memory Algorithm Implementation and Pseudocode

You can still read the original HTM whitepaper here but please realize that parts of this paper, including but not limited to terminology, may be out of date.

HTM Applications

This chapter will discuss real world applications of HTM systems.