Implement, Test and Simulate a Novel Neuron Model Based on Boolean functions

BACKGROUND
Neural network simulators are well known to power many applications, such as in robotics and other technical areas. There are a few neuron models that have been investigated in detail (GLIF, NEURON-based, Izhikevich-Fitzhugh-Nagumo, etc). A new type of neuron model is an important conceptual advance for neural simulators. It is desirable to combine fast execution times with a model of dendritic integration, and the work described in (2) fits this requirement.

YOUR TASK
Within an existing neural simulator (1), (github), with two neuron models available, the task is to implement a third neuron model, based on Boolean functions (2). Two months implementation, 1 month test and a simple simulation and 3 month to improve, document and describe the work.

REQUIRED SKILLS
- Knowledge of C/C++
- Foundations in discrete mathematics and basic graph algorithms (Covered in Discrete Structures and Foundations of Algorithms and Datastructures)
- Matlab (can be learned during the project)

FURTHER READING

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