

Derek Low

## Senior Project Summary – Biology/Computer Science joint project

In the fields of computer science and computational biology, one prevalent discussion is the topic of machine learning, or the capabilities of a computational system to learn without the learning being programmed by a human. Can we program computers to learn as humans typically learn, by performing some action and self-correcting based on whether or not the action produced the results we aimed for? Will computers be able to help researchers understand the complexity of the human brain, and how *exactly* brains work? Will our growing understandings of how biological sentience occurs provide better execution of machine learning?

My senior project will heavily involve machine learning; I will be working on developing a machine-learning-inspired model to fit and replicate recorded data of biological functions. With this project, I will be exploring a relatively recently emerging field of machine learning in computational biology by creating models that rely on both computer science and biologically plausible approaches. Ultimately, the hope is to answer the question of how biologically accurately I can drive a computational system to recreate neural networks of the brain.