California State University San Bernardino
School of Computer Science and Engineering

# CSE 5951/2/3 Undergraduate Independent Study

## Date
**MAY 18th, 2021**

## Time
**3:00 PM**

## Location
**https://csusb.zoom.us/j/81965855328**
**Meeting ID: 819 6585 5328**

## Title
**Breaking Down Neural Networks**

## Student
**Corey Warren II**

## Advisor
**Professor Haiyan Qiao**

## Abstract
Typically, when first encountering neural networks as a student, the task of actually understanding the vocabulary is very daunting. First, there is the programming language barrier encountered when using C++ or Java. Using Python helps with this. Second, there is the mathematical language barrier when encountering phrases like “perceptron,” “propagation,” “sigmoid functions,” “synapses,” “weights,” “weighted sums,” “hidden layers,” “activation functions…” the list goes on and on when it comes to neural networks. There are so many terms which are hardly glossed over in prerequisite classes, but are suddenly massively integral to even begin to understand how a neural network operates. Therefore, I intend to tackle these fundamental problems through a deep understanding of each component, all while using minimal Python libraries combined with a simple programming style to make the prominent parts of a neural network incredibly simple to understand. Rather than obscuring the concepts with complex jargon, and advanced mathematical concepts meant only for post-graduates, I would like to break down the essential components of a neural network and explain what each part does, and how it relates to the network as a whole, and its goals.