

# Independent Study Proposal

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Professor Judy Fox

Topic: Big Data Systems

## Overview

Machine Learning models are increasingly using larger and larger data sets for training and testing purposes. This has given rise to a new paradigm of computing involving these Big Data Systems. Good Big Data Systems are required for crucial for Data Scientists, Machine Learning Engineers, and Researchers to develop or train new models and continue to innovate within the industry.

## Literature Review/Background

1. Time Series Interpretation
2. Time Series Transformer
3. AI on Timeseries Data
4. Time Series in Financial Forecasting
5. Time Series Weather Forecasting
6. Non-identifiability of Attention in Transformer

## Expected Research Results

1. Reproduce and Understand Assignments from DS 5110 (Big Data Systems) to run within Rivanna
2. Create a website to host the reproduced assignments along with additional resources on the topic

## Methodology

Must work through the various assignments and resources provided in DS 5110 to gain a deep understanding of the development of Big Data Systems and the role they play in ML Sys. This requires going through the class materials, textbooks, and slides to understand each lab.

## Primary Goal of the Independent Study Program

A Website with a book of information and resources on ML Sys and Big Data Systems

## Sub-Goals and Experiments

1. Gaining a deep understanding of Big Data System development.
2. Presenting knowledge learned on a webpage from the learned information
3. Providing Resources for others to learn the same knowledge as well

## Effort

I will spend 8-10 hours per week to learn and reproduce all labs from DS 5110 (Big Data Systems) and gain a deep understanding of the material.

## Schedule:

Week:	Reading: (any entered reading have been completed)	Code:	Paper Progress:	Dr. Fox Suggestions / Milestones
1			N/A	

2		Lab 1	N/A	
3		Worked with Kairul and team to address Rivanna Dependency Issues	N/A	
4		Worked with Kairul and team to address Rivanna Dependency Issues	N/A	
5		Experimented with AWS Academy to possibly replace Rivanna		
6		Lab 2 and 3		
7		Lab 3-6		

<b>8</b>		Lab 7-12		
<b>9</b>		Began Familiarizing myself with book website and expectation for it		
<b>10</b>		Worked on styling the websites header and homepage		
<b>11</b>		Finalized book website with Sham and Nick		

## References