

## CMPT 733 Big Data Science – Final Project

### Call for Project Idea

**Title of the Project:** LTF - Big Data Financial Analysis

**Description:**

Long Tail Financial is an early stage startup, with two founders from Big Data Cohort 4, Shawn Anderson and Jacky Lok. We are using Big Data techniques to perform automated trading and market visualization in cryptocurrency markets. We are using data insights to execute market arbitrage between exchanges, and also along trade paths on single exchanges. We are using Deep Reinforcement learning to perform high-frequency portfolio optimization. We have built a market visualization web application to be used by industrial traders and financial firms. We are happy to offer guidance to students curious about applying big data to financial analysis.

Some applicable technical topics include time-series analysis, real-time data streaming (streamz), machine learning/Deep Learning for price prediction (Keras), interactive visualizations (holoviews, hvplot, param, panel), asynchronous data fetching (celery), caching (redis), cataloging (intake), multi-dimensional data structures (xarray). And more!

One example of a project is constructing feature vectors for each cryptocurrency, these features can be things like sentiment analysis, number of coins in circulation, github stars, twitter followers, news articles, NLP processing of website or white paper, and much more. Once feature vectors are created, they can be used to create a price valuation model of cryptocurrencies, or to cluster cryptocurrencies . Another example project is geoploting all of the cryptocurrency exchanges in the world on a map, and letting their plot sizes reflect the amount of trade volume they are receiving. This would be a good way to view how active different areas of the world are in trading cryptocurrencies.

There are lots of possibilities to get creative in this new emerging space. And there are lots of rich data sources available. Please contact us if you would like to discuss project ideas.

### **Datasets**

There is an incredible public data API available here: <https://min-api.cryptocompare.com/documentation>

The API contains access to historical prices, coin data, market data, exchange data, social data, and news data. It is very powerful, and easy to use. We can assist students in extracting data into friendly formats such as pandas dataframes.

There are many other API and data sources available as well for creative students.

### **Contact person:**

Shawn Anderson – Long Tail Financial CEO and also your TA! Feel free to email me or see me in either of the Friday labs.  
saa108@sfu.ca

### **Contributor of the Project Idea:**

Shawn Anderson  
CEO/CTO  
Long Tail Financial  
<https://www.linkedin.com/in/shawnwanderson/>