

STAT430: Machine Learning for Financial Data

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Course wrap-up

FML - a personal perspective

- **Main topic:** any machine learning technique that deals with data that can be useful in financial products and services
- **Financial data:**
 - A lot more types of data become relevant for finance: fundamental / market / analytics / alternative data
 - Collecting, cleaning, labeling, and processing all kinds of data can be very challenging but should be dealt with seriously and carefully
 - Less accessible alternative data has potentials to improve forecasting
- **Machine learning methods:**
 - The main goal is to improve forecasting while fighting overfits, and both tasks are very challenging for financial data which generally has low signal-noise ratios
 - Traditional machine learning methods such as bagging and random forests may still be useful for financial data
 - Deep learning techniques are not panaceas although they provide new tools for handling especially nontraditional financial data, such as satellite images, news sentiments, and limit order books
 - Don't forget some traditional time series models which could be the best

What we have (not) covered

- Only covered a very small subset of tools that are not commonly taught in class
- Performance of methods is very much data-dependent, always compare different methods
- The methods we have learned can be looked at as examples for how to approach a problem and how to develop your own tool sets
 - Don't limit yourself to those taught topics
 - Develop your own methods and skill sets:
 - observe / learn / think / hypothesize / validate / implement / deploy
- Financial machine learning is a labor-intensive subject, and try to develop your system as early as possible:
 - reuse your codes / write up packages / reuse your cleaned data / systematically handle repeated tasks / develop your effective workflows, etc.
- Look for internships, practice financial tradings, learn more financial knowledge, learn from real traders, etc. to better motivate yourself and gain insights about financial markets

Further reading

- The following are some online resources that might provide new ideas for financial machine learning
 - [SSRN's eLibrary](#)
 - [Quantitative Finance on arXiv](#)
- [Back to Course Scheduler](#)