[Research Paper](https://poloclub.github.io/polochau/insider/asonam13_insider.pdf) Key Points

1. Temporal and network-centric analyses can derive information from insider trading: company roles, transaction types, company sectors, relationships between insiders.
2. *What are other factors? Or other high-level analyses?Read relevant research papers.*
3. *How can we do machine learning to understand the data?*
4. This multimodal nature of factors also include external factors such as market cycles and regulations

*What are these factors? Explore these variables to better predict*

1. Usefulness of temporal analysis: trading behaviours are affected by economic events and regulations. Hence, examine those that exhibit anomalous activities.

*Explore and then train data?*

1. Usefulness of network analysis: illegal insiders share information within social network. Hence, uncover the hidden communication channels.

*Algorithms to better detect networks. Tune the hyperparameters*

1. Found strong evidence that trade-related information propagates vertically and horizontally.

*One of the factors*

1. Insiders can be classified to routine traders and opportunist traders [Cohen et al.]. This paper explores trading behaviours from network-centric perspective.

*If insiders do not trade routinely, and they earn a high percentage (abnormal), then flag. Useful for machine learning.*

1. Insiders share negative news before buying, and positive news before selling or stock option exercises. This research ignores the events such as conference calls and public news.

*Could we obtain more data regarding a company, and track the time the insider traded? If the time it drops is earlier than the selling time, flag it. Machine learning can determine if the dropping time is indeed earlier, as there is a long period of dropping. To derive a single discrete value for the dropping time, we need machine learning.*

1. Suspicious accounts can be identified by using classic classification methods such as naïve bayes and logistic regression [Sherlock 13]

Visualisations Made (5.61GB of Form 4)

1. Summary statistics

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1. Number of companies having a particular number of insiders

Chart, line chart, scatter chart

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1. Time series by transaction type: sales increase when it is more conducive to earn, decreases when market is bad and selling stocks are worthless. Sales are higher than purchase because insiders receive compensation in stocks. They just rebalance their portfolio for diversification and liquidity.

Application, Word

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