November 2nd, 2017

Daiwa Securities Co. Ltd.

Cogent Labs

Artificial Intelligence (AI) Prediction of Trading Volume on the Tokyo Stock Exchange for Algorithmic Trading

Daiwa Securities Co. Ltd. (Daiwa) has entered into an agreement with Cogent Labs (Cogent) for use of novel artificial intelligence (AI) technology in Daiwa's algorithmic trading platform. The technology was co-developed by Cogent in collaboration with Daiwa Securities, and gives Daiwa's trading algorithms access to real-time predictive capabilities utilizing deep learning.

Daiwa Securities has been actively engaged in a firm-wide effort to develop and deploy AI technologies in order to better assist our clients in their investment decision-making processes. Our collaboration with Cogent focuses on detecting and predicting intra-day volume patterns in real-time for stocks listed on the Tokyo Stock Exchange (TSE) using state-of-the art deep learning techniques.

Liquidity is one of the most critical factors used by institutional clients to evaluate the performance of broker trading algorithms, and use of volume-weighted metrics such as the volume weighted average price (VWAP) and participation weighted price (PWP) are widely accepted as standards for benchmarking execution performance. The ability to achieve higher real-time predictive accuracy to anticipate and detect sudden, non-linear changes in volume and price is critical to achieving stable, as well as superior execution performance. Through the use of AI, we were able to develop a model that achieved as high as 39% reduction in out-of-sample prediction error on 76% of our universe against a current industry-benchmark statistical volume prediction model[*].

Daiwa is committed delivering superior products and services to our clients through the use of AI and other machine-learning capabilities. We plan to begin offering AI-empowered trading algorithms in Japan within the first half of fiscal 2018.

* The models were trained on 6 months of data and validation results were calculated on 10 days of data immediately following the training period. Overall average improvement was 7-10% over all test days and all stocks. The evaluation results are not a guarantee of future performance.