ICAIF 2020

The First ACM International Conference on AI in Finance

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- Yongxin Yang, University of Surrey
- Baozhong Yang, Georgia State University
- Zhu (Drew) Zhang, ISU

Simulated Markets

Analysis of the impact of maker-taker fees on the stock market using agent-based simulation, Isao Yagi (Kanagawa Institute of Technology)*; Mahiro Hoshino (Kanagawa Institute of Technology); 孝信 水田 (スパークス・アセット・マネジメント株式会社)

Get Real: Realism Metrics for Robust Limit Order Book Market Simulations, Svitlana Vyetrenko (J. P. Morgan Chase)*; David Byrd (Ga Tech); Danial Dervovic (JPMorgan Chase & Co.); Tucker Balch (JP Morgan); Mahmoud Mahfouz (J.P. Morgan); Nicholas Petosa (Georgia Institute of Technology)

Simulating and Classifying Behavior in Adversarial Environments Based on Action-State Traces:An Application to Money Laundering, Daniel Borrajo (JPMC AI Research and Universidad Carlos III de Madrid)*; Manuela Veloso (JP Morgan); Sameena Shah (JPMorgan Chase & Co.)

Forecasting Financial Data

Dynamic Prediction Length for Time Series with Sequence to Sequence Network, Diego Klabjan (Northwestern University)*; Mark Harmon (Northwestern)

A Multi-Faceted Approach to Large Scale Financial Forecasting, Urjitkumar Patel (S&P Global)*; Antony Papadimitriou (S&P Global); Lisa Kim (S&P Global); Azadeh Nematzadeh (S&P Global); Grace Bang (S&P Global); Xiaomo Liu (S&P Global)

Fast Direct Calibration of the G2++ Interest Rate Derivatives Pricing Model, Luca Sabbioni (Politecnico di Milano)*; Andrea Prampolini (Banca IMI); Marcello Restelli (Politecnico di Milano)

Sig-SDEs model for quantitative finance, Imanol Perez Arribas (University of Oxford)*; Cristopher Salvi (University of Oxford); Lukasz Szpruch (University of Edinburgh)

Improved Predictive Deep Temporal Neural Networks with Trend Filtering. Youngjin Park (UNIST); Deokjun Eom (KAIST); Jaesik Choi (KAIST)*

Conditional Mutual Information-Based Contrastive Loss for Financial Time Series Forecasting, Hanwei Wu (KTH Royal Institute of Technology)*; Ather Gattami (RISE SICS); Markus Flierl (KTH Royal Institute of Technology)

Connecting The Dots: Forecasting and Explaining Short-Term Market Volatility, Jie Yuan (ISU)*; Zhu (Drew) Zhang (ISU)

AI and Investing

Dealing with Transaction Costs in Portfolio Optimization: Online Gradient Descent with Momentum, Edoardo Vittori (Politecnico di Milano)*; Martino Bernasconi de Luca (Politecnico di Milano); Francesco Trovò (Politecnico di Milano); Marcello Restelli (Politecnico di Milano)

Index Tracking with Differentiable Asset Selection, Yu Zheng (Southwestern University of Finance and Economics); Yunpeng Li (University of Surrey); Qiuhua Xu (Southwestern University of Finance and Economics); Timothy Hospedales (Edinburgh University); Yongxin Yang (University of Surrey)*

Machine Learning Fund Categorizations, Dhagash Mehta (The Vanguard Group)*; Dhruv Desai (The Vanguard Group); Jithin Pradeep (The Vanguard Group)

Algorithms in Future Capital Markets: A Survey on AI, ML and Associated Algorithms in Capital Markets, Adriano S Koshiyama (University College London)*; Nick Firoozye (University College London); Philip Treleaven (University College London)

Cryptography in Finance

SecretMatch: Inventory Matching from Fully Homomorphic Encryption, Ben Diamond (JPMorgan Chase)*; Antigoni Polychroniadou (JP Morgan Chase); Tucker Balch (JP Morgan)

Differentially Private Secure Multi-Party Computation for Federated Learning in Financial Applications, David Byrd (Ga Tech)*; Antigoni Polychroniadou (J.P. Morgan AI Research)

CryptoCredit: Securely Training Fair Models, Leo de Castro (MIT)*; Jiahao Chen (JP Morgan Chase); Antigoni Polychroniadou (JP Morgan Chase)

Graphical Models in Finance

Subgraph Anomaly Detection in Financial Transaction Networks, Yulong Pei (TU Eindhoven)*; Fang Lyu (TU Eindhoven); Werner van Ipenburg (Cooperatieve Rabobank U.A.); Mykola Pechenizkiy (TU Eindhoven)

Graphical Models for Financial Time Series and Portfolio Selection, Ni Zhan (carnegie mellon university)*; Yijia Sun (Carnegie Mellon University); Aman Jakhar (carnegie mellon university); He Liu (carnegie mellon university)

Recommending Missing and Suspicious Links in Multiplex Financial Networks, Robert E Tillman (JPMorgan AI Research)*; Prashant Reddy (JP Morgan); Manuela Veloso (JP Morgan)

Navigating the Dynamics of Financial Embeddings over Time, Antonia Gogoglou (Capital One)*; C. Bayan Bruss (Capital One); Alan O Salimov (Capital One); Brian Nguyen (Capital One); Jonathan Rider (Capital One)

Combatting Financial Crime

Power-law Mixtures of Bayesian Forests for Value Added Tax Audit Case Selection, \Christos Kleanthous (Cyprus University of Technology)*; Theodoros Christophides (Cyprus University of Technology); Sotirios Chatzis (Cyprus University of Technology)

Machine learning methods to detect money laundering in the Bitcoin blockchain in the presence of label scarcity, Joana Lorenz (NOVA-IMS); Maria Ines P P Silva (Feedzai)*; David Aparicio (Feedzai); Joao Ascesao (Feedzai); Pedro Bizarro (Feedzai)

Deep Q-Network based Adaptive Alert Threshold Selection Policy for Payment Fraud Systems in Retail Banking, Hongda Shen (University of Alabama in Huntsville)*; Eren Kursun (Columbia University)

Learning-Based Trading Strategies in the Face of Market Manipulation, Xintong Wang (University of Michigan)*; Chris Hoang (University of Michigan); Michael Wellman (University of Michigan)

Risk-Averse Learning / Predicting Behavior

Foreign Exchange Trading: A Risk-Averse Batch Reinforcement Learning Approach, Lorenzo Bisi (Politecnico di Milano)*; Pierre Liotet (Politecnico di Milano); Luca Sabbioni (Politecnico di Milano); Gianmarco Reho (Politecnico di Milano); Nico Montali (Politecnico di Milano); Cristiana Corno (Advanced Global Solutions); Marcello Restelli (Politecnico di Milano)

Option Hedging with Risk Averse Reinforcement Learning, Edoardo Vittori (Politecnico di Milano)*; Michele Trapletti (Banca IMI); Marcello Restelli (Politecnico di Milano)

Risk-Sensitive Reinforcement Learning: a Martingale Approach to Reward Uncertainty, Nelson Vadori (JPMorgan)*; Sumitra Ganesh (JPMorgan); Prashant Reddy (JP Morgan); Manuela Veloso (JP Morgan)

Predicting the Behavior of Dealers in Over-The-Counter Corporate Bond Markets, Yusen Lin (University of Maryland)*; Jinming Xue (University of Maryland); Louiqa Raschid (University of Maryland)

Learning Trading Strategies

Multi-Agent Reinforcement Learning in a Realistic Limit Order Book Market Simulation, Michael Karpe (University of California, Berkeley)*; Jin Fang (University of California, Berkeley); Zhongyao Ma (University of California, Berkeley); Chen Wang (University of California, Berkeley)

Deep Ensemble Reinforcement Learning for Automated Stock Trading, Hongyang Yang (Columbia University); Xiao-Yang Liu (Columbia University)*; Shan Zhong (Columbia University); Anwar Walid (Bell Laboratories)

A Tabular Sarsa-Based Stock Market Agent, Renato A Oliveira (Federal University of Minas Gerais State)*; Heitor Ramos Filho (UFMG); Daniel Dalip (CEFET-MG); Adriano C. M. Pereira (UFMG)

A Hybrid Learning Approach to Detecting Regime Switches in Financial Markets, Peter Akioyamen (Western University)*; Yi Zhou Tang (Western University); Hussien Hussien (Western University)

People and Finance

Social media data reveals signal for public consumer perceptions, Neeti Pokhriyal (Dartmouth College)*; Abenezer Dara (Dartmouth College); Benjamin Valentino (Dartmouth College); Soroush Vosoughi (Dartmouth College)

What can be learned from satisfaction assessments?, Naftali Cohen (JP Morgan)*; Prashant Reddy (JP Morgan); Simran Lamba (JP Morgan)

Mixed Membership Recurrent Neural Networks for Modeling Customer Purchases, Ghazal Fazelnia (Columbia University); Mark Ibrahim (Capital One); Ceena Modarres (Capital One); Kevin Wu (Capital One); John Paisley (Columbia University)*

SURF: Improving classifiers in production by learning from busy and noisy end users, Joshua Lockhart (JP Morgan); Samuel Assefa (JP Morgan); Ayham Alajdad (JP Morgan); Andrew Alexander (JP Morgan); Tucker Balch (JP Morgan); Manuela Veloso (JP Morgan)*

News and Markets

Utilization of Deep Learning to Mine Insights from Earning Calls for Stock Price Movement Predictions, Zhiqiang Ma (S&P Global)*; chong wang (S&P Global); Grace Bang (S&P Global); Xiaomo Liu (S&P Global)

Choosing News Topics to Explain Stock Market Returns, Paul Glasserman (Columbia University); Kriste Krstovski (Columbia University); Paul Laliberte (Columbia University); Harry Mamaysky (Columbia Business School)*

An Analysis of political turmoil effects on stock prices – a case study of US-China trade friction, Yukari Shirota (Gakushuin University)*; Kenji Yamaguchi (Ochanomizu University); Akane Murakami (Gakushuin University); Michiya Morita (Gakushuin University)

Quantifying ESG Alpha in Scholar Big Data: An Automated Machine Learning Approach, Qian Chen (Columbia University); Xiao-Yang Liu (Columbia University)*

Data and Finance

Understanding Distributional Ambiguity via Non-robust Chance Constraint, Shumin Ma (City University of Hong Kong); Cheuk Hang Leung (City University of Hong Kong); Qi Wu (City University of Hong Kong)*; Wei Liu (Tencent); Nanbo Peng

Paying down metadata debt: learning the representation of concepts using topic models, Jiahao Chen (JPMorgan Chase & Co.)*; Manuela Veloso (JP Morgan)

Generating synthetic data in finance: opportunities, challenges and pitfalls, Samuel Assefa (J.P.Morgan)*; Danial Dervovic (JPMorgan Chase & Co.); Tucker Balch (JPMorgan Chase & Co.); Mahmoud Mahfouz (J.P. Morgan); Robert Tillman (J.P. Morgan Chase & Co); Prashant Reddy (JP Morgan); Manuela Veloso (JP Morgan)

Learning Sampling in Financial Statement Audits using Vector Quantised Autoencoder Neural Networks, Marco Schreyer (University of St. Gallen)*; Timur Sattarov (Deutsche Bundesbank); Anita Gierbl (University of St. Gallen); Bernd Reimer (PricewaterhouseCoopers WPG); Damian Borth (University of St. Gallen)

AI for Fairness and Compliance

Unsupervised-learning financial reconciliation: a robust, accurate approach inspired by machine translation, Peter A Chew (Galisteo Consulting Group Inc)*; Peter Chew (Galisteo Consulting Group Inc)

Explainable Clustering and Application to Wealth Management Compliance, Enguerrand Horel (Stanford University)*; Kay Giesecke (Stanford University); Victor Storchan (J.P. Morgan); Naren Chittar (J.P. Morgan)

Optimal, Truthful, and Private Securities Lending, Emily R Diana (University of Pennsylvania)*; Michael Kearns (University of Pennsylvania); Seth V Neel (University of Pennsylvania); Aaron Roth (University of Pennsylvania)

Towards Self-Regulating AI: Challenges and Opportunities of AI Model Governance in Financial Services, Eren Kursun (Columbia University); Hongda Shen (University of Alabama in Huntsville)*; Jiahao Chen (JPMorgan Chase & Co.)

Computer Vision and Finance

Classifying High-Frequency FX Rate Movements with Technical Indicators and Inception Model, Zheng Gong (Unviersity of Essex)*; Carmine Ventre (King's College London); John O'Hara (University of Essex)

Financial Table Extraction in Image Documents, William Watson (S&P Global)*; Bo Liu (Nvidia)

Market Volatility Prediction Based on Long- and Short-Term Memory Retrieval Architecture Jie Yuan (ISU)*; Zhu (Drew) Zhang (ISU)

Trading via Image Classification, Naftali Cohen (JP Morgan)*; Tucker Balch (JP Morgan); Manuela Veloso (JP Morgan)