Yong-chan Park

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About Me

I am a Ph.D. student majoring in Computer Science and Engineering at Seoul National University (SNU), advised by Prof. U Kang in Data Mining Laboratory. My research interests include machine learning and time series analysis. I am currently investigating a novel decomposition method for arrays, with a sequential analogy of Taylor's Theorem.

Research Interests

Machine learning, Deep learning, Time series analysis

Education

Ph.D. Student Mar. 2020 - Present
- Computer Science and Engineering, SNU

Bachelor of Science Mar. 2012 - Feb. 2019
- Department of Mathematical Sciences, SNU

Research Experiences

A novel approach to Fourier Transform [1] June 2020 - Present
- Propose Partial Fourier Transform (PFT) that rapidly computes a part of Fourier coefficients of a given time series and demonstrate the accuracy and efficacy of PFT on real-world anomaly detection [1]. PFT achieves 20x faster running time compared to SOTA algorithms.
- Patent pending

Stock movement prediction [2] Sep. 2020 - Present
- Propose Data-Axis Transformer with Multi-Level Contexts (DTML) for stock movement prediction that learns the correlations between stocks in an end-to-end way [2]. DTML achieves SOTA accuracy on six datasets collected from US, China, Japan, and UK.

Software development for patent management Sep. 2020 - Present
- Implement LSH (Locality Sensitive Hashing) algorithm for finding similar patent data, and a BERT-based model for automatic patent classification.
- Develop a GUI with additional functionality of visualizing results.
- Industry-Academy Cooperation with Daewoo Shipbuilding & Marine Engineering Co., Ltd.

Publications

[1] **Yong-chan Park**, Jun-Gi Jang, and U Kang. “Fast and Accurate Partial Fourier Transform for Time Series Data.” KDD 2021
[2] Jaemin Yoo, Yejun Soun, **Yong-chan Park**, and U Kang. “Accurate Multivariate Stock Movement Prediction via Data-Axis Transformer with Multi-Level Contexts.” KDD 2021
[3] **Yong-chan Park***, Sangjun Son*, Minyong Cho, and U Kang. “DAO-CP: Data-Adaptive Online CP Decomposition for Tensor Stream.” PLOS One 2022 (*equal contribution)
[4] Jun-Gi Jang, Jeongyoung Lee, **Yong-chan Park**, and U Kang. “Fast and Accurate Dual-Way Streaming PARAFAC2 for Irregular Tensors - Algorithm and Application.” KDD 2023

Services

Reviewer @ KDD 2022
Reviewer @ NeurIPS 2021