

Jimyeong Kim

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Research Interests

Accelerated methods in Optimization, Decentralized Optimization, Machine Learning

Employment

Mar. 2024 – Research Fellow, Stochastic Analysis and Application Research Center at KAIST, Daejeon, Republic of Korea (Mentor: Donghwan Kim)

Education

Feb. 2024 Ph.D. in Mathematics, Sungkyunkwan University, Suwon, Republic of Korea
Thesis title: *Convergence Results for the Decentralized Gradient Descent and the Gradient-push with Event-triggered Communication* (Advisor: Woocheol Choi)

Aug. 2018 B.S in Mathematics, Sungkyunkwan University, Suwon, Republic of Korea

Research Papers

Optimization Theory and its Applications

- 2023 Gradient-push algorithm for distributed optimization with event-triggered communications, IEEE Access, vol 11, pp. 517-534, with Woocheol Choi
An Adaptive Dual-level Reinforcement Learning Approach for Optimal Trade Execution, arXiv:2307.10649, submitted, with Soohan Kim, Hong Kee Sul, Youngjoon Hong
On the convergence analysis of the decentralized projected gradient descent, arXiv:2303.08412, submitted to SIAM J. Optim under major revision, with Woocheol Choi
- 2022 On the convergence of decentralized gradient descent with diminishing stepsize, revisited, arXiv:2203.09079, submitted, with Woocheol Choi

PDE

- 2022 Quantum revivals and fractality for the Schrödinger equation, arXiv:2105.12510, to appear in Rep. Math. Phys., with Gunwoo Cho, Seongyeon Kim, Yehyun Kwon, Ihyeok Seo
On the radius of spatial analyticity for the Klein-Gordon-Schrödinger system, J. Differential Equations. 321, pp. 449-474
- 2021 Lower bounds on the radius of spatial analyticity for the Kawahara equation, Anal. Math. Phys. 11 (1) 28, with Jaeseop Ahn, Ihyeok Seo
- 2020 On the radius of spatial analyticity for defocusing nonlinear Schrödinger equations, Discrete Contin. Dyn. Syst. 40 (1), pp. 423-439, with Jaeseop Ahn, Ihyeok Seo

Research Projects

- 2022 Optimal Trade Execution for VWAP Trading Based on Deep Learning Strategy, Funded by SK C&C and KB Securities

Talks

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| Jan. 2024 | East Asian Core Doctoral Forum on Mathematics 2024, Fudan University, Shanghai, China |
| Aug. 2023 | 10th International Congress on Industrial and Applied Mathematics, Waseda University, Tokyo, Japan |
| Nov. 2022 | KSIAM 2022 Annual Meeting, Jeju SONO Calm, Jeju, Republic of Korea |
| Aug. 2019 | 7th East Asian Conference in Harmonic Analysis and Applications, Chung-Ang University, Seoul, Republic of Korea |

Programming Skills

Python, Matlab

Honors and Awards

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| 2023 | BK21 Focused Research Scholarship, Sungkyunkwan University |
| 2022 | BK21 Innovative Research Scholarship, Sungkyunkwan University
BK21 Encouragement Scholarship, Sungkyunkwan University |
| 2021 | BK21 Focused Research Scholarship, Sungkyunkwan University |
| 2015 | A bronze prize, Korean College Students Mathematical Competition, Korea Math Society |