Youngsuk Park

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Education

Ph.D. Electrical Engineering, Stanford University, 2020.
— Advisors: Stephen P. Boyd and Jure Leskovec.
— Dissertation: Topics in Convex Optimization for Machine Learning.

M.S. Electrical Engineering, Stanford University, 2016.

B.S. Summa Cum Laude. Electrical Engineering (Major) and Mathematics (Minor), KAIST, 2013.

Employment

Machine Learning Scientist, Amazon Web Service (AWS) AI Labs, Jun. 2020 – present.
— Time series forecasting with autoML, explainability, causality and robustness.

Research Intern, Adobe Research, Jun.–Sept. 2019.
— Reinforcement learning for continuous space tasks with cloud resource management application.

Research Intern, Criteo Artificial Intelligence Lab, Jun.–Sept. 2018.
— Off-policy reinforcement learning with applications in advertisement recommendation system.

Research Intern, Bosch Center for Artificial Intelligence, Jun.–Sept. 2017.
— Diagonal spectral stepsize selection for solving machine learning problems.

Research Interest

Time-series, Optimization, Machine Learning, Causality, Robustness, Decision making.

Publications

Preprints under Review

1. **Y. Park**, D. Robinson, Y. Wang, J. Gasthaus. Learning Quantile Functions without Quantile Crossing for Distribution-free Time Series Forecasting. Under review in *International Conference on Artificial Intelligence and Statistics (AISTATS)*. Accepted to Uncertainty Quantification ICML workshop.

2. X. Jin, **Y. Park**, Y. Wang, D, Robinson. Domain Adaptation for Time Series Forecasting via Attention Sharing. Under review in *The Association for the Advancement of Artificial Intelligence (AAAI)*.

3. T. Yoon, **Y. Park**, Y. Wang. Robust Probabilistic Forecasting via Randomized Smoothing. Under review in *International Conference on Artificial Intelligence and Statistics (AISTATS)*

4. A. Jambulapati, Y. Wang, H. Hassan, **Y. Park**. Testing Gaussian Causality in Finite Free Probability. Under review in *International Conference on Artificial Intelligence and Statistics (AISTATS)*

5. **Y. Park** et al. Multivariate Quantile Functions for Forecasting. Under review in *International Conference on Artificial Intelligence and Statistics (AISTATS)*.

6. A. Jambulapati, Y. Wang, H. Hassan, **Y. Park**. Temporal-consistent Optimal Transport for Time Series Alignment. Under review in optimal transport NeurIPS workshop.

Refereed Journals and Conference Proceedings

7. Y. Lu, **Y. Park**, L. Cheng, Y. Wang, D. Foster. Variance Reduced Training with Stratified Sampling for Forecasting Models. *Proceedings of International Conference on Machine Learning (ICML)*, 2021.

8. **Y. Park**, R. Rossi, Z. Wen, G. Wu, H. Zhao. Structured Policy Iteration for Linear Quadratic Regulator. *Proceedings of International Conference on Machine Learning (ICML)*, 2020.

9. J. Kim, **Y. Park**, J. Fox, S. Boyd, W. Dally. Optimal Operation of a Plug-in Hybrid Vehicle with Battery Thermal and Degradation Model. *Proceedings of the American Control Conference (ACC)*, 2020.

10. **Y. Park**, S. Dhar, S. Boyd, M. Shah. Variable Metric Proximal Gradient Method with Diagonal Barzilai-Borwien Stepsize. *Proceedings of International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, 2020.

11. **Y. Park**, E. K. Ryu. Linear Convergence of Cyclic SAGA. *Optimization Letters*, 2020.

12. **Y. Park**, K. Mahadik, R. Rossi, G. Wu, H. Zhao. Linear Quadratic Regulator for Resource-Efficient Cloud Services. *Proceedings of ACM Symposium on Cloud Computing (SOCC)*, 2019.

13. **Y. Park**, D. Hallac, S. Boyd, J. Leskovec. Learning the Network Structure of Heterogeneous Data via Pairwise Exponential Markov Random Fields. *Proceedings of International Conference on Artificial Intelligence and Statistics (AISTATS)*, 2017.

14. D. Hallac, **Y. Park**, S. Boyd, J. Leskovec. Inferring Time Varying Networks via Graphical Lasso. *Proceedings of ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD)*, 2017.

Working Papers

15. H. Maei, **Y. Park**. Convergent Actor-Critic under Off-policy and Function Approximation. In preparation.

16. S. Gupta, **Y. Park**, Y. Wang. Causal Discovery via Time Varying Graphical Lasso. Working draft.

Teaching Experience

Head TA, Convex Optimization II, Winter 2015. Stanford.

Guest lecturer, Convex Optimization II, Winter 2015. Stanford.

Talks and Seminars

2020 School of Data Science, Seoul National University (SNU), S. Korea
2020 Amazon Web Service (AWS) AI Labs, Palo Alto
2020 Facebook AI, Menlo Park
2020 Rakuten Research, San Mateo
2019 Adobe Research, San Jose
2019 Hyundai AI Labs, Seoul, Korea
2018 Hyundai Global Forum, San Diego
2017 Kakao Brain, Bundang, Korea
2017 Bosch AI, Palo Alto

Open-source Software & Code

GluonTS: Probabilistic Time Series Modeling in Python
SnapVX: Python-based Convex Optimization Solver for Problems Defined on Graphs
TVGL: Time-series Analysis via Time Varying Graphical Lasso
PEMRF: Graphical Structure Inference via Pairwise Expoential Markov Random Field

Professional Service

Reviewer *Journal of Machine Learning Research (JMLR), SIAM Journalon Mathematics of Data Science (SIMODS), Neural Information Processing Systems (NeurIPS), International Conference on Machine Learning and Applications (ICMLA) , Optimization Letter, Neural Processing Letter (NEPL), Journal of Artificial Intelligence Research (JAIR), Journal of Scientific Computing (JOSC).*

Community President of Korean Electrical Engineering Association at Stanford, Member of Korean Gates Society at Stanford, Committee of Stanford-KAIST-Silicon Valley Association

Honors & Awards

Best Presenter Award in Artificial Intelligence Session, Hyundai Global Forum, 2018.

Kwanjeong Graduate Fellowship, 2013–2015.

Fulbright Graduate Fellowship (Declined), 2013.

National Science and Engineering Scholarship, KOSAF, 2006–2009.

Department Merit-based Scholarship, KAIST, 2007–2009.

List of Collaborators

Academia

Stephen P. Boyd, Professor (Department Chair), Electrical Engineering, Stanford
Jure Leskovec, Associate Professor (Chief Scientist at Pinterest), Computer Science, Stanford
Tsachy Weissman, Professor, Electrical Engineering, Stanford
Michael Saunders, Research Professor, Computational Mathematical Engineering, Stanford
Ernest K. Ryu, Assistant Professor, Mathematics, Seoul National University
Bill Dally, Professor (Senior Vice President at Nvidia), Electrical Engineering, Stanford

Industry

Bernie Wang, Principal Applied Scientist, AWS
Dean Foster, Senior Principal Applied Scientist, Amazon
Dominik Janzing, Principal Applied Scientist, AWS
Suju Rajan, Senior Director, LinkedIn
Mohak Shah, Vice President, LG Electronics North America
Zheng Wen, Research Scientist, Google Deepmind