Myung Jun Kim

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PROFESSIONAL

SODA Team, Inria Saclay   Nov. 2022 – Present
Postdoctoral Researcher

Dept. of Artificial Intelligence, Ajou University   Oct. 2021 – Oct. 2022
Postdoctoral Researcher

EDUCATION

Ajou University, Suwon, South Korea   Aug. 2021
PhD in Artificial Intelligence
Thesis: *Semi-supervised learning for hierarchical networks*

Ajou University, Suwon, South Korea   Aug. 2017
MSc in Industrial Engineering
Thesis: *An approximation method for semi-supervised learning for multi-layered networks*

Swarthmore College, Swarthmore, PA, USA   May. 2015
Bachelor of Arts Degree: Double major in Mathematics and Economics
(*Leave of absence in the period of Jan. 2011 – Oct. 2012 due to obligatory military service)

PUBLICATIONS

Journal articles

1. Sunghong Park, Myung Jun Kim, and Hyunjung Shin. (2024). **Mutual Domain Adaptation**. *Pattern Recognition*, 145, 109919.

2. Jong Ho Jhee, Myung Jun Kim, Myeonggeon Park, Jeongheun Yeon, Hyunjung Shin (2023). **Fast Prediction for Criminal Suspects through Neighbor Mutual Information-Based Latent Network**. *International Journal of Intelligent Systems*, vol. 2023.

3. Dong-gi Lee, Myungjun Kim, Sangjoon Son, Chang Hyung Hong, and Hyunjung Shin. (2020). **Dementia key gene identification with multi-layered SNP-gene-disease network**. *Bioinformatics*, 36(Supplement_2), i831-i839.

4. Myungjun Kim, Dong-gi Lee, Sangkuk Lee, Geun-ho Lee, and Hyunjung Shin. (2020). **Inference on historical factions based on multi-layered network of historical figures**. *Expert Systems with Applications*, 161, 113703.

5. Myungjun Kim, Dong-gi Lee, and Hyunjung Shin. (2019). **Semi-supervised learning for hierarchically structured networks**. *Pattern Recognition*, 95, 191-200.

6. Yonghyun Nam, Myungjun Kim, Chang Hyung Hong, and Hyunjung Shin. (2019). **Drug repurposing with network reinforcement**. *BMC Bioinformatics*, 20(13), 383.

7. Dong-gi Lee, Myungjun Kim, and Hyunjung Shin. (2019). **Inference on chains of disease progression based on disease networks**. *PloS one*, 14(6), e0218871.

8. Dong-gi Lee, Sangkuk Lee, <u>Myungjun Kim</u>, and Hyunjung Shin. (2018). **Historical inference based on semi-supervised learning**. *Expert Systems with Applications*, 106, 121-131.

9. <u>Myungjun Kim</u>, Yonghyun Nam, Hyunjung Shin. (2017). **An inference method from multi-layered structure of biomedical data**. *BMC medical informatics and decision making*, 17(1), 52.

10. Yonghyun Nam, <u>Myungjun Kim</u>, Kyungwon Lee, and Hyunjung Shin. (2016). **CLASH: Complementary Linkage with Anchoring and Scoring for Heterogeneous biomolecular and clinical data**. *BMC medical informatics and decision making*, 16(3), 72.

Conference papers

1. <u>Myung Jun Kim</u>, Léo Grinsztajn, and Gaël Varoquaux. (2024). **CARTE: Pretraining and Transfer for Tabular Learning**. *Proceedings of the 41st International Conference on Machine Learning, ICML 2024*, Vienna, Austria.

2. Léo Grinsztajn, <u>Myung Jun Kim</u>, Edouard Oyallon and Gaël Varoquaux. (2023). **Modeling string entries for tabular data prediction: do we need big large language models?**. *2nd Table Representation Learning Workshop, NeurIPS 2023*, USA.

3. Taehwan Yun, <u>Myung Jun Kim</u>, and Hyunjung Shin. (2023). **Accelerated Graph Integration with Approximation of combining Parameters**. *The 9th Annual Conference on machine Learning, Optimization and Data science (LOD)*, United Kingdom.

4. Taehwan Yun, <u>Myung Jun Kim</u>, Hyunjung Shin. (2023). **Fast Integration for Multiple Graphs with Neumann Approximation**. *2023 IEEE International Conference on Big Data and Smart Computing*, South Korea.

5. Jaewon Lee, <u>Myung Jun Kim</u>, and Hyunjung Shin. (2023). **Lazy Node-Dropping Autoencoder**. *2023 IEEE International Conference on Big Data and Smart Computing*, South Korea.

6. Jong Ho Jhee, <u>Myung Jun Kim</u>, Myunggeon Park, Jeongheun Yeon, Yoonshin Kwak, and Hyunjung Shin. (2023). **Fast Prediction for Suspect Candidates from Criminal Networks**. *2023 IEEE International Conference on Big Data and Smart Computing*, South Korea.

7. <u>Myungjun Kim</u>, Dong-gi Lee, and Hyunjung Shin. (2022). **Semi-supervised network regression with Gaussian process**. *2022 IEEE International Conference on Big Data and Smart Computing*, South Korea.

8. Dong-gi Lee, Junhee Cho, <u>Myungjun Kim</u>, Sunghong Park, and Hyunjung Shin. (2022). **Learning without lazy weights**. *2022 IEEE International Conference on Big Data and Smart Computing*, South Korea.

9. Dong-gi Lee, <u>Myungjun Kim</u>, and Hyunjung Shin. (2022). **Drug repositioning with disease–drug clusters from word representations**. *2022 IEEE International Conference on Big Data and Smart Computing*, South Korea.

10. Jaehyun Kim, <u>Myungjun Kim</u>, and Hyunjung Shin. (2022). **Latent Feature Separation and Extraction with Multiple Parallel Encoders for Convolutional Autoencoder**. *2022 IEEE International Conference on Big Data and Smart Computing*, South Korea.

11. Dong-gi Lee, Hyun Woong Roh, <u>Myungjun Kim</u>, Na-Rae Kim, Sang Joon Son, Chang Hyung Hong, and Hyunjung Shin. (2020). **Brain Volume Prediction from SNP network with Semi-Supervised Regression**. *AI-BioHealth 2022 Workshop - 2022 IEEE International Conference on Big Data and Smart Computing*, South Korea.

12. Dong-gi Lee, <u>Myungjun Kim</u>, Sangjoon Son, and Hyunjung Shin. (2019). **Key gene ranking for dementia based on multi-layered Biobank data with semi-supervised learning**. *15th International Conference on Bioinformatics*, South Korea.

13. <u>Myungjun Kim</u>, Dong-gi Lee, Sangkuk Lee, Geun-ho Lee, and Hyunjung Shin. (2018). **Inference on political factions based on hierarchical structure of genealogy: Three major purges in medieval Joseon Korea**. *43rd Annual Meeting of the Social Science History Association*, USA.

14. Yonghyun Nam, <u>Myungjun Kim</u>, and Hyunjung Shin. (2018). **Drug repurposing with network reinforcement**. *8th Annual Translational Bioinformatics Conference*, South Korea.

15. Dong-gi Lee, <u>Myungjun Kim</u>, and Hyunjung Shin. (2018). **Disease Network to Causal Disease Chains: Identifying a series of disease causalities**. *8th Annual Translational Bioinformatics Conference*, South Korea.

16. <u>Myungjun Kim</u>, Yonghyun Nam, and Hyunjung Shin. (2016). **An Inference Method from Multi-Layered Structure of Omics**. *6th Annual Translational Bioinformatics Conference*, South Korea.

17. Yonghyun Nam, <u>Myungjun Kim</u>, and Hyunjung Shin. (2015). **CLASH: Complementary Linkage with Anchoring and Scoring for Heterogeneous biomolecular and clinical data**. *5th Annual Translational Bioinformatics Conference*, South Korea.

Preprints

1. Léo Grinsztajn, <u>Myung Jun Kim</u>, Edouard Oyallon and Gaël Varoquaux. (2023). **Vectorizing string entries for data processing on tables: when are larger language models better?**

RESEARCH EXPERIENCE

Machine Learning & Data Mining Lab, Ajou University   Sep. 2015 – Sep. 2021
Graduate Research Assistant
Advisor: Dr. Hyunjung Shin

Participated Projects:
- Artificial Intelligence Model Development for Dementia Precision Medicine and Spectral Diagnosis, supported by National Research Foundation of Korea grant (No. 2021R1A2C2003474)
- Contract research on Strategy for Cultural Image Recognition and Clustering Models, supported by Korea Institute of Science and Technology Information (No. B2020-000467-02)
- The biobank of Chronic Cerebrovascular Disease consortium, supported by Korea Centers for Disease Control and Prevention (No. 4845-303)
- ICT-based Crime Risk Prediction and Response Platform Development for Early Awareness of Risk Situation, supported by Institute for Information & communications Technology Promotion grant (No. 2018-0-00440)
- Metric Learning using Deep Semi-Supervised Learning Networks, supported by National Research Foundation of Korea grant (No. 2018R1D1A1B07043524)
- Selection of Promising Enterprises for Technology Commercialization Support based on Machine Learning, supported by Korea Institute of Science and Technology Information (No. K20L03C05S01)
- Prognosis Prediction using Generalized Mixed Models based on Korean Thyroid Cancer Patients Profiling, supported by supported by National Research Foundation of Korea grant (No. 2017R1E1A1A030-70345)

- AI Recommendation System for Drug Combination, supported by ICT R&D program of Institute of Information & Communications Technology Planning & Evaluation (No. 2017-0-00887)
- Power Mechanism in Korean History based on 'Big Data' Analysis, supported by National Research Foundation of Korea grant (No. 2015S1A5B6037107)
- Integration for Heterogeneous BioMedical Big-Data Network, supported by National Research Foundation of Korea grant (No. 2015R1D1A1A01057178)
- Hierarchical Integration for Huge and Heterogeneous BioMedical Data, supported by National Research Foundation of Korea grant (No. 2013R1A1A3010440)
- Systems Biomedical Informatics Research Center, supported by National Research Foundation of Korea grant (No. 2012-0000994)

Dept. of Mathematics & Statistics, Swarthmore College　　　　Mar. 2014 – Dec. 2014
Undergraduate Researcher
Advisor: Dr. Nsoki Mamie Mavinga

Proved asymptotic behaviors of the critical stock price for American options with constant dividends near maturity using methods of sub- and super-solutions

WORK EXPERIENCE

Dept. of Industrial Engineering, Ajou University　　　　Sep. 2015 – Aug. 2019
Teaching Assistance
Assisted Data Analysis & Practice course and Statistics course

Dept. of Mathematics & Statistics, Swarthmore College　　　　Sep. 2013 – Dec. 2014
Statistics Clinician
Held weekly clinic sessions for all Statistics courses

Mathematics Grader
Graded assignments for Several Variable Calculus course and Differential Equations course

Capital Corps, Republic of Korea Army　　　　Jan. 2011 – Oct. 2012
Seargent, Vice Squad Leader
Served as a signal corpsman and maintained communication equipment for combat usage
Managed communication centers that provide tactical communication networks
Awarded with a certificate of commendation for outstanding performance in guerilla training

AWARDS

Outstanding Paper Award

Korea Software Congress, Korean Institute of Information Scientists and Engineers, 2021
Paper title: *Error analysis on approximate graph-based semi-supervised learning*

Korea Computer Congress, Korean Institute of Information Scientists and Engineers, 2021
Paper title: *Architectural image clustering with multi-head convolutional autoencoder and k-clustering*

Korea Software Congress, Korean Institute of Information Scientists and Engineers, 2020
Paper title: *Mutual semi-supervised learning*

SAS Student Paper Competition, Korea Data Mining Society, 2018
Paper title: *Learning weights autoencoders using pseudo-inverse on error minimization*

Outstanding Poster Award

The 8th Annual Translational Bioinformatics Conference, Korean Society of Bioinformatics, 2018
Paper title: *Disease network to causal disease chains: Identifying a series of disease causalities*

Outstanding Presentation Award

Korea Software Congress, Korean Institute of Information Scientists and Engineers, 2019
Paper title: *Historical faction identification with parallel and layered integration of human network*

Outstanding Graduate Student Award, Ajou University, 2022, 2021

Howard Hughes Medical Institute Support, Swarthmore College, 2014

The Samuel L. Hayes III Award, Swarthmore College, 2013

SKILLS & INTERESTS

Computer Skills	Python, Matlab, R, R Studio, Latex, Microsoft Office
Languages	Fluent in Korean and English; Proficient speech in Japanese