Minseok Kim

Ph.D. Student in Data Mining Lab [Google Scholar]
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RESEARCH INTERESTS

- Information Retrieval and Recommendation System
- Trustworthy and Real-world ML/AI Challenges

EDUCATION

Korea Advanced Institute of Science and Technology (KAIST) Daejeon, Korea

- Ph.D., Graduate School of Knowledge Service Engineering Sep 2018
- Adviser: Prof. Jae-Gil Lee

Korea Advanced Institute of Science and Technology (KAIST) Daejeon, Korea

- M.S., Graduate School of Knowledge Service Engineering Sep 2016 – Aug 2018
- Adviser: Prof. Jae-Gil Lee
- Thesis: Temporal Interval Refinement for Point-of-Interest Recommendation

Hanyang University Seoul, Korea

- B.S. in School of Computer Science and Engineering Mar 2013 – Aug 2016
- B.S. in College of Policy Science
- GPA: 4.21/4.50
- Graduated *Cum Laude*
- Early graduation of excellent students

RESEARCH EXPERIENCE

Deep Learning Based Anomaly Detection in the Streaming Aircraft Data Sep 2019 –

- Research project manager
- Collaboration with the Republic of Korea Air Force
- Designed and developed a deep learning based anomaly detection method in the multi-dimensional streaming aircraft data

Deep Learning Based Anomaly Detection for Tactical Command and Control Sep 2018 –

- Research project manager
- Collaboration with Hanwha Corporation, Korea
- Designed and developed a deep learning based anomaly detection method in the trajectory data

Customer Revisit Prediction Using Indoor Sensor Data Sep 2016 – Aug 2018

- Research assistant
- Collaboration with Microsoft Research Asia
- Performed thorough domain analysis and contributed developing a customer revisit prediction model

AWARDS & SCHOLARSHIPS

- Qualcomm Innovation Award Dec 2019
- Participation of SLUSH as KAIST representative Dec 2017
- National scholarship for graduate studies, Korea Student Aid Foundation 2016 –
- Scholarship for public activists, Pine Tree Foundation 2014 – 2016
- Full academic scholarship for gifted, Hanyang University 2013 – 2016

PUBLICATIONS

[C6] **Kim, M.**, Song, H., Kim, D., Shin, K., and Lee, J., "Premere: Meta-Reweighting via Self-Ensembling for Point-of-Interest Recommendation," *In Proc. 35th AAAI Conference on Artificial Intelligence (AAAI)*, Online, Feb. 2021 (**top conference**, acceptance rate: 21.4%).

[J2] Song, H., **Kim, M.**, Park, D., and Lee, J., "Learning from Noisy Labels with Deep Neural Networks: A Survey," *Arxiv*, Under review.

[C5] Song, H., **Kim, M.**, Kim, S., and Lee, J., "Carpe Diem, Seize the Samples Uncertain "at the Moment" for Adaptive Batch Selection," *In Proc. 29th ACM Int'l Conf. on Information and Knowledge Management (CIKM)*, Online, pp. 1385 – 1394, Oct. 2020 (full/oral presentation paper, acceptance rate: 21.0%).

[J1] Song, H., Kim, S., **Kim, M.**, and Lee, J., "Ada-Boundary: Accelerating DNN Training via Adaptive Boundary Batch Selection," *Machine Learning*, Vol. 109, No. 9, pp. 1837 – 1853, Sep. 2020 (SCI Expanded, impact factor: 2.672). This paper was presented at the journal track of ECML-PKDD 2020.

[C4] **Kim, M.**, Kang, J., Kim, D., Song, H., Min, H., Nam, Y., Park, D., and Lee, J., "Hi-COVIDNet: Deep Learning Approach to Predict Inbound COVID-19 Patients and Case Study in South Korea," *In Proc. 26th ACM SIGKDD Int'l Conf. on Knowledge Discovery and Data Mining (KDD)*, Online, pp. 3466 – 3473, Aug. 2020 (**top conference**, full/oral presentation paper, AI for COVID track).

[C3] Song, H., **Kim, M.**, Park, D., and Lee, J., "How Does Early Stopping Help Generalization against Label Noise?" Workshop in conjunction with *Proc. 36th Int'l Conf. on Machine Learning (ICML)*, Online, July 2020.

[C2] Park, D., Song, H., **Kim, M.**, and Lee, J., "TRAP: Two-level Regularized Autoencoder-based Embedding for Power-law Distributed Data," In *Proc. The Web Conference 2020 (TheWebConf)*, Taipei, Taiwan, Apr. 2020 (**top conference**, full/oral presentation paper, acceptance rate: 19.2%).

[C1] Song, H. **Kim, M.**, and Lee, J., "SELFIE: Refurbishing Unclean Samples for Robust Deep Learning," In *Proc. 36th Int'l Conf. on Machine Learning (ICML)*, Long Beach, California, June 2019 (**top conference** in machine learning area, full/oral presentation paper, acceptance rate: 22.6%).

UNDER REVIEW & WORKING PAPERS

[U1] Song, H., **Kim, M.**, Park, D., and Lee, J., "MORPH: Robust Learning by Self-Transition for Handling Noisy Labels," Under review.

PATENTS

[P3] Lee, J., Song, H., and **Kim, M.**, "System and Method of Adaptive Bach Selection for Accelerating Deep Neural Network Learning based on Data Uncertainty," Korean Patent Application No: 10-2020-0133132, Oct. 15, 2020.

[P2] Lee, J., Moon, H., Song, H., **Kim, M.**, and Kim, S., "System and Method for Accelerating DNNs Training via Adaptive Batch Selection," Korean Patent Application No: 10-2020-0044159, Apr. 10, 2020.

[P1] Lee, J. and **Kim, M.**, "Apparatus and Method for Recommending Location," Korean Patent Registration No: 10-2114467-0000, May 18, 2020.

RELEASED DATASET

- Animal-10N dataset: A real-world noisy dataset of human-labeled online images for 10 animals.

TEACHING EXPERIENCE

- AI Lecture Materials Development Team Leader (KAIST IT Academy): Winter 2020
- Deep Learning Course Mentor (DSME): Winter 2020
- Machine Learning Course Mentor (DSME): Winter 2020
- Deep Learning (KAIST IT academy): Winter 2019
- AI Program (Hankook Tire): Fall 2019
- Special AI Academy Program (Seocho-gu office, Korea): Summer-Winter 2019
- Data Processing & Visualization (KAIST IT academy): Summer 2019
- KAIST Advanced AI Academy (LG): Spring 2019
- Data Mining and Knowledge Discovery (KSE525 lecture TA, KAIST): Spring 2019
- Analytical Methodologies for Big Data (KSE526 lecture TA, KAIST): Fall 2018, 2020
- Big Data Professional Course (KB bank group): Summer 2017

SKILLS & OTHERS

- Active problem formulation & solving leveraging AI/ML and data science
- Serving as graduate school representatitve (Jan 2020 – Present)
- Acknowledgements: Data Analysis (Kim, S. and Lee, J., "Utilizing In-Store Sensors for Revisit Prediction," In Proc. 2018 IEEE Int'l Conf. on Data Mining (ICDM), Singapore, Nov. 2018)

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