# Minseok Kim

Ph.D. in Data Science [Google Scholar]
Applied Scientist at Amazon Alexa AI
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**RESEARCH INTERESTS**

- Large Scale Information Retrieval and Recommender System
- Trustworthy and Real-world ML/AI Challenges

**EDUCATION**

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

- Ph.D., Graduate School of Data Science Sep 2018 – Aug 2022
- Adviser: Prof. Jae-Gil Lee
- Thesis: Meta-Learning for Recommender Systems

**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**

**Amazon Alexa AI, Applied Scientist II** Oct 2022 –

**Amazon Alexa AI, Applied Scientist Ph.D Internship** Sep 2021 – Dec 2021

- Project: Debiasing Neighbor Aggregation for Graph Neural Network in Recommender Systems
- Manager: Sungjin Lee (Amazon)
- Mentors: Jinoh Oh (Amazon), Jae Do (Amazon)
- Collaborators: Tara Taghavi (Amazon), Amin Fazel (Amazon)

**AWARDS & SCHOLARSHIPS**

- Inseoh Scholarship May 2022
- Outstanding Researcher Award, KAIST Institute Dec 2020
- Outstanding Researcher Award, KAIST KSE Dec 2020
- Qualcomm Innovation Award Dec 2017
- National scholarship for graduate studies, Korea Student Aid Foundation 2016 –
- Scholarship for volunteers, Pine Tree Foundation 2014 – 2016
- Full academic scholarship for gifted, Hanyang University 2013 – 2016

**PUBLICATIONS**

[C11] **Kim, M.**, Oh, J., Do, J., and Lee, S., "Debiasing Neighbor Aggregation for Graph Neural Network in Recommender Systems," *In Proc. 31st ACM Int'l Conf. on Information and Knowledge Management (CIKM)*, Atlanta, Georgia, Oct. 2022.

[J2] Song, H., **Kim, M.**, Park, D., and Lee, J., "Learning from Noisy Labels with Deep Neural Networks: A Survey," IEEE Trans. on Neural Networks and Learning Systems (TNNLS), to appear, Feb. 2022 (SCI Expanded, impact factor: 10.451)

[C10] **Kim, M.**, Song, H., Shin, Y., Park, D., Shin, K., and Lee, J., "Meta-Learning for Online Update of Recommender Systems," In Proc. 36th AAAI Conf. on Artificial Intelligence (AAAI), Virtual Event, Feb. 2022 (top conference, acceptance rate: 15.0%).

[C9] Kim, D., Min, H., Nam, Y., Song, H., Yoon, S., **Kim, M.**, and Lee, J., "COVID-EENet: Predicting Fine-Grained Impact of COVID-19 on Local Economies," In Proc. 36th AAAI Conf. on Artificial Intelligence (AAAI), Virtual Event, Feb. 2022 (top conference, acceptance rate: 15.0%).

[C8] Park, D., Song, H., **Kim, M.**, and Lee, J., "Task-Agnostic Undesirable Feature Deactivation Using Out-of-Distribution Data," In Proc. 35th Annual Conference on Neural Information Processing Systems (NeurIPS), Virtual Event, accepted, Dec. 2021 (top conference).

[C7] Song, H., **Kim, M.**, Park, D., and Lee, J., "Robust Learning by Self-Transition for Handling Noisy Labels," *In Proc. 27th ACM SIGKDD Int'l Conf. on Knowledge Discovery and Data Mining (KDD)*, Online, Aug. 2021 (top conference, full/oral presentation paper, research track).

[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%).

[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%).

**PATENTS**

[P5] Lee, J, **Kim, M.**, Kang, J., Kim, D., Song, H., Min, H., Nam, Y., and Park, D., "Method and Apparatus for Predicting Confirmed Patients of Infectious Disease Based on Deep Neural Networks" Korean Patent Registration No: 10-2349270-0000, Jan. 05, 2022.

[P4] Lee, J., Kang, J., **Kim, M.** and Lee, J., "Trajectories Embedding Method for Deep Learning and Route Prediction Method Using the Same," Korean Patent Application No: 10-2020-0179620, Dec. 21, 2020.

[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 Computer Vision (KAIST Dept. of Mathematical Sciences, Korea): Summer 2022
- AI College,(Seocho-gu office, Korea): Spring-Summer 2022
- Deep Learning (KAIST IT academy): Winter 2019, Summer 2021, Winter 2021, Summer 2022
- AI College (Seocho-gu office, Korea): Spring-Summer 2021
- 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
- AI Program (Hankook Tire): Fall 2019
- AI College (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

**ACTIVITIES**

- Graduate school representative (Jan 2020 – Sep 2021)
- Reviewer: ICLR 2023, TNNLS 2022, AAAI 2023, NeurIPS 2022, ICML 2022, ICLR 2022, AAAI 2022, NeurIPS 2021, DKE 2021

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