

# Gordon Euhyun Moon

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## EXPERIENCE

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### **Sogang University**

*Assistant Professor*

Department of Computer Science and Engineering

**Seoul, Korea**

*September 2022–present*

### **Korea Aerospace University**

*Assistant Professor*

Department of Software and Department of Artificial Intelligence

**Goyang, Korea**

*March 2021–August 2022*

### **Sandia National Laboratories**

*Postdoctoral Researcher*

Center for Computing Research

**Albuquerque, NM**

*October 2019–January 2021*

## EDUCATION

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### **The Ohio State University**

*Ph.D. in Computer Science & Engineering*

Thesis: "Parallel Algorithms for Machine Learning"

Advisor: Professor Ponnuswamy Sadayappan

Committee: Professor Eric Fosler-Lussier and Professor Srinivasan Parthasarathy

**Columbus, OH**

2019

### **Indiana University**

*M.S. in Computer Science*

**Bloomington, IN**

2013

### **Yonsei University**

*B.S. in Computer Science & Industrial System Engineering*

**Seoul, Korea**

2011

## RESEARCH INTERESTS

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Deep Learning, High-Performance Computing, and Deep Learning Accelerators

## PUBLICATIONS

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Bokyeong Yoon, Yoonsang Han and **Gordon E. Moon**, “Layer-Wise Sparse Training of Transformer via Convolutional Flood Filling,”

*To Appear in Proceedings of the 28th Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD’24)*, 2024

Sanha Maeng, **Gordon E. Moon** and Sungyong Park, “Chronica: A Data-Imbalance-Aware Scheduler for Distributed Deep Learning,”

*Proceedings of the 23rd IEEE/ACM International Symposium on Cluster, Cloud and Internet Computing (CCGrid’23)*, 2023

**Gordon E. Moon** and Eric C. Cyr, “Parallel Training of GRU Networks with a Multi-Grid Solver for Long Sequences,”

*Proceedings of the 10th International Conference on Learning Representations (ICLR’22)*, 2022

**Gordon E. Moon**, Hyoukjun Kwon, Geonhwa Jeong, Prasanth Chatarasi, Sivasankaran Rajamanickam and Tushar Krishna, “Evaluating Spatial Accelerator Architectures with Tiled Matrix-Matrix Multiplication,”

*IEEE Transactions on Parallel and Distributed Systems (TPDS)*, 2022

Eric Qin, Geonhwa Jeong, William Won, Sheng-Chun Kao, Hyoukjun Kwon, Sudarshan Srinivasan, Dipankar Das, **Gordon E. Moon**, Sivasankaran Rajamanickam and Tushar Krishna, “Extending Sparse Tensor Accelerators to Support Multiple Compression Formats,”

*Proceedings of the 35th IEEE International Parallel & Distributed Processing Symposium (IPDPS’21)*, 2021

**Gordon E. Moon**, J. Austin Ellis, Aravind Sukumaran-Rajam, Srinivasan Parthasarathy and P. Sadayappan, “ALO-NMF: Accelerated Locality-Optimized Non-negative Matrix Factorization,”

*Proceedings of the 26th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD’20)*, 2020 (acceptance rate: 216/1279  $\approx$  16.9%, research track, oral and poster presentations)

**Gordon E. Moon**, Denis Newman-Griffis, Jinsung Kim, Aravind Sukumaran-Rajam, Eric Fosler-Lussier and P. Sadayappan, “Parallel Data-Local Training for Optimizing Word2Vec Embeddings for Word and Graph Embeddings,”

*Proceedings of the IEEE/ACM 5th International Workshop on Machine Learning in High Performance Computing Environments (MLHPC’19)*, held in conjunction with International Conference for High Performance Computing, Networking, Storage, and Analysis (SC’19), 2019

**Gordon E. Moon**, Israt Nisa, Aravind Sukumaran-Rajam, Bortik Bandyopadhyay, Srinivasan Parthasarathy and P. Sadayappan, “Parallel Latent Dirichlet Allocation on GPUs,”

*Proceedings of the 2018 International Conference on Computational Science (ICCS’18)*, 2018

**Gordon E. Moon**, Aravind Sukumaran-Rajam, and P. Sadayappan, “Parallel LDA with Over-Decomposition,”

*Proceedings of the 2017 IEEE 24th International Conference on High Performance Computing Workshops (HiPCW’17)*, 2017

**Gordon E. Moon** and Jihun Hamm, "A Large-Scale Study in Predictability of Daily Activities and Places,"  
*Proceedings of the 8th EAI International Conference on Mobile Computing, Applications and Services (MobiCASE'16)*, 2016

## RESEARCH GRANTS

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- Architecture-aware Parallel Algorithms for Accelerating Training of Deep Neural Networks, PI, National Research Foundation of Korea (NRF), Ministry of Science and ICT, September 2021–February 2024
- Deep Learning based Route Recommender Systems, Co-PI, Industry-Academy Collaboration R&D, Korea Technology and Information Promotion Agency for SMEs, May 2022–December 2022

## PROFESSIONAL SERVICE

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Program Committee Member

- *The 40<sup>th</sup> IEEE International Conference on Computer Design (ICCD 2022)*, October 2022
- *Tenth International Workshop on Accelerating Analytics and Data Management Systems Using Modern Processor and Storage Architectures (ADMS 2019)*, August 2019

## INVITED TALKS

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**Gordon E. Moon**, "Accelerated Computing for Deep Learning", Newcomers Session, HPC Society Conference 2022, The Korean Institute of Information Scientists and Engineers (KIISE), July, 2022

**Gordon E. Moon**, "Accelerated Computing for Deep Learning", Newcomers Session, KCC 2022, The Korean Institute of Information Scientists and Engineers (KIISE), June, 2022

**Gordon E. Moon**, "Accelerated Computing for Deep Learning", Newcomers Session, Computer System Society Conference 2022, The Korean Institute of Information Scientists and Engineers (KIISE), February, 2022

**Gordon E. Moon**, "Deep Learning based Recommender Systems for Bicycling Route", NVIDIA GTC'21, A31282 - Regional Panel with Top Startups from Korea, Virtual Conference, November, 2021

Eric C. Cyr and **Gordon E. Moon**, "Parallel-in-Time Training of Recurrent Neural Networks", 2021 AMS Fall Western Virtual Sectional Meeting, SS17B - AMS Special Session on Theoretical and Applied perspectives in Machine Learning, II, October, 2021

**Gordon E. Moon** and Eric C. Cyr, "Parallel Training of an LSTM Network with a Multigrid Solver", SIAM Conference on Computational Science and Engineering (CSE'21), Virtual Conference, March, 2021

Siva Rajamanickam and **Gordon E. Moon**, "Mixed-Precision Schemes for Linear Algebra Kernels on GPUs", SIAM Conference on Computational Science and Engineering (CSE'21), Virtual Conference, March, 2021

**Gordon E. Moon**, "Accelerated Computing for Machine Learning", Sandia National Laboratories, Albuquerque, NM, August, 2019

## **CERTIFICATION/SKILLS**

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- Proficient in deep learning frameworks such as PyTorch, TensorFlow, Theano, Caffe, etc.
- Proficient in parallel programming using OpenMP, MPI, CUDA, etc.
- Programming Languages Proficiency: C/C++, Python, Java, MATLAB, R, and MySQL