Sejoon Oh

Computational Science and Engineering Department
Georgia Institute of Technology
S1312, 756 W Peachtree St NW, Atlanta, GA 30308
Email: soh337@gatech.edu • Phone: 1-404-889-1929 • Homepage: https://sejoonoh.github.io/

RESEARCH INTERESTS

Data Mining, Machine Learning, Deep Learning, High-Performance Computing, Recommender System

EDUCATION

Georgia Institute of Technology, Atlanta, GA
- Ph.D. Student in Computer Science — Aug. 2019 – Present
- Advisor: Prof. Srijan Kumar

Carnegie Mellon University, Pittsburgh, PA
- First-year Ph.D. Student in CPCB program — Aug. 2018 – May 2019

Seoul National University, Seoul, Korea
- Bachelor of Science (B.S.) in Computer Science and Engineering — Mar. 2012 – Aug. 2018
  - Overall GPA: 3.68 / 4.0, Major GPA: 3.67 / 4.0
- Advisor: Prof. U Kang

PUBLICATIONS

JOURNAL PAPERS

[J4] Kijung Shin, **Sejoon Oh**, Jisu Kim, Bryan Hooi, and Christos Faloutsos, "Fast, Accurate and Provable Triangle Counting in Fully Dynamic Graph Streams", **ACM Transactions on Knowledge Discovery from Data (TKDD)**, 2020.

[J3] **Sejoon Oh**, Namyong Park, Jun-Gi Jang, Lee Sael, and U Kang, "High-Performance Tucker Factorization on Heterogeneous Platforms", **IEEE Transactions on Parallel and Distributed Systems (TPDS)**, 2019.

[J2] Namyong Park, **Sejoon Oh**, and U Kang, "Fast and Scalable Method for Distributed Boolean Tensor Factorization", **VLDB Journal**, 2019.

[J1] **Sejoon Oh***, Jungwoo Lee*, and Lee Sael, "GIFT: Guided and Interpretable Factorization for Tensors with an Application to Large-Scale Multi-platform Cancer Analysis", **Bioinformatics**, 2018 (* these authors contributed equally to this work).

CONFERENCE PAPERS

[C2] **Sejoon Oh**, Namyong Park, Lee Sael, and U Kang, "Scalable Tucker Factorization for Sparse Tensors - Algorithms and Discoveries", *IEEE International Conference on Data Engineering **(ICDE 2018)***, Paris, France, Apr. 2018.
•Gold Prize Winner (1st in CS) from Samsung Humantech Paper Award
•Best Undergraduate Thesis Award from Seoul National University

[C1] Namyong Park, **Sejoon Oh** and U Kang, "Fast and Scalable Distributed Boolean Tensor Factorization" , *IEEE International Conference on Data Engineering **(ICDE 2017)***, San Diego, California, USA, Apr. 2017.

RESEARCH EXPERIENCE

Data Science Research Intern, Adobe Research
- Mentors: Dr. Sungchul Kim & Dr. Ryan Rossi
- Research project: influence-based data modification for tensor completions — May 2020 – Aug. 2020

Graduate Research Assistant, Georgia Institute of Technology
- Research area: machine learning methods for time-series, graphs, and tensors — Aug. 2019 – Present

Research Intern, WATCHA, Inc.
- Research area: dynamic recommender system with deep learning — May 2019 – Aug. 2019

Graduate Research Assistant, Carnegie Mellon University
- Research area: machine learning for computational biology problems — Aug. 2018 – May 2019

Undergraduate Research Intern, Data Mining Lab., Seoul National University
- Research area: tensor analysis, recommender system, and HPC — July 2016 – May 2018

RESEARCH PROJECTS

- **Modeling the Multiple Contexts of Temporal User Behavior** — Oct. 2019 – Present
  - Context-aware session-based recommendation with time-GRU network

- **Dynamic Recommender System with Deep Learning** May 2019 – Aug. 2019
  - Investigated a combination of tensor factorization and neural network
  - Main research project during the summer internship
- **Machine Learning Methods for Genomic Data** Sept. 2018 – May 2019
  - Applied various machine learning methods (RF, PCA, TF) to genomic datasets
- **Developing Big Data Engine Based on High-Performance Computing** Jan. 2017 – May 2018
  - Core developer of sparse matrix and tensor operations
  - Funded by Korea Ministry of Science and ICT
- **Anomaly Detection Techniques on I/O Trace Time Series** Mar. 2017 – June 2017
  - Core developer of the project, cooperated with SK Telecom company
- **Accelerator Programming Winter School** Feb. 2017
  - Implemented convolutional neural network (CNN) on heterogeneous platforms
- **Deep Writing Algorithm Using Word-Level LSTM** Sept. 2016 – Dec. 2016
  - Term project for a class "Introduction to Machine Learning"
- **Personalized Recommender System via Coupled Matrix Factorizations** Aug. 2016 – Dec. 2016
  - Core developer of the project, cooperated with Hyundai card company

AWARDS & SCHOLARSHIPS

- **Kwanjeong Educational Foundation Fellowship** Aug. 2019 – Present
  One of the most prestigious fellowships in Korea, which supports up to $30K$ USD per year
- **Best Thesis Award (among all CSE undergraduate students)** Aug. 2018
  Awarded by Seoul National University, Korea
- **Humantech Paper Award (Gold Prize, 1st in Computer Science)** Feb. 2018
  Awarded by Samsung, Korea
- **National Scholarship for Science and Engineering** Dec. 2017
  Awarded by Ministry of Science and ICT, Korea
- **Final Top-10 Winner** Feb. 2017
  Awarded at Accelerator Programming Winter School (APWS), Korea
- **Merit-based Scholarship** Aug. 2012
  Awarded by Seoul National University, Korea
- **Superior Academic Performance Scholarship** Mar. 2012
  Awarded by Seoul National University, Korea
- **Silver Medalist of Asia-Pacific Informatics Olympiad** May 2011
  Awarded at the 5th Asia-Pacific Informatics Olympiad (APIO), Iran
- **Gold and Silver Medalist** July 2008 – July 2011
  Awarded at Korea Olympiad in Informatics (KOI), Korea
- **Candidate for International Olympiad in Informatics (IOI)** Aug. 2008 – Aug. 2010
  Trained at IOI Summer and Winter School, Korea

PROFESSIONAL SERVICES

Journal Reviewer

- European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML-PKDD 2018; Guest Reviewer) Mar. 2018

PATENTS

KOREA

Sejoon Oh, Namyong Park, U Kang, "Apparatus for Supporting Multi-dimensional Data Analysis through Parallel Processing and Method for the Same", Korean patent number: 10-2017-0158951.

RELEVANT COURSEWORK

- High-Performance Computing (Georgia Tech - CSE 6220) Spring 2020
- Machine Learning for Trading (Georgia Tech - CS7646) Fall 2019
- Graduate Artificial Intelligence (CMU - 15780) Spring 2019
- Graduate Machine Learning (CMU - 10701) Fall 2018
- Artificial Intelligence Spring 2018
- Advanced Topics in Algorithms Spring 2017

TECHNICAL SKILLS

- C, Python, PyTorch, and OpenCL (Advanced)
- Java, C++, and MATLAB (Experienced)
- Scala, R, Tensorflow, and CUDA (Intermediate)