# Sejoon Oh

Computational Science and Engineering Department
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**RESEARCH INTERESTS**

Data Mining, Machine Learning, Parallel and High-Performance Computing, Recommender System

**EDUCATION**

**Georgia Institute of Technology**, Atlanta, GA
- Ph.D. Student in Computer Science — Aug. 2019 – Present

**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

**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)**, 2019 (**Under Revision**).

[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**

[C1] **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**

[C2] 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**

**Graduate Research Assistant**, Georgia Institute of Technology
- Research area: data mining and machine learning for matrices and tensors — Aug. 2019 – Present

**Research Intern**, WATCHA Inc.
- Research area: dynamic recommender system using tensor factorization — May 2019 – Aug. 2019

**Graduate Research Assistant**, Carnegie Mellon University
- Research area: machine learning for scRNA-seq and age prediction — Aug. 2018 – May 2019

**Undergraduate Research Intern**, Seoul National University
- Data Mining Lab. (Advised by Prof. U Kang) — July 2016 – May 2018
- Research area: tensor analysis, recommender system, and high-performance computing

**RESEARCH PROJECTS**

- **Dynamic Recommender System with Tensor Factorization** — May 2019 – Aug. 2019
  - Implemented and analyzed a combination of tensor factorization and neural network
  - Main research project during the summer internship
- **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**

- **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
- **The 5th Place Winner** Aug. 2016
  Awarded at Samsung Collegiate Programming Cup (SCPC), 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) 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 (filed on Nov. 2017).

**WORK EXPERIENCE**

**Korean Augmentation To the United States Army (KATUSA)**, Seoul, Korea

- Interpreter & Administrative Assistant Oct. 2014 – July 2016
  - Mandatory military service, served as a sergeant
  - Received Army Commendation Medal by the U.S. Army brigade commander, acknowledging outstanding leadership

**RELEVANT COURSEWORK**

- Graduate Artificial Intelligence (CMU - 15780) Spring 2019
- Graduate Machine Learning (CMU - 10701) Fall 2018
- Artificial Intelligence Spring 2018
- Introduction to Linear Algebra Fall 2017
- Advanced Topics in Algorithms (Graduate Coursework) Spring 2017
- Introduction to Data Mining Spring 2017

**TECHNICAL SKILLS**

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

**LANGUAGES**

- Korean: ILR Level 5 – Native proficiency
- English: ILR Level 4 – Full professional proficiency
  - TOEFL score: 108 (Reading: 28, Listening 29, Speaking 24, Writing 27) Aug. 2017