Sejoon Oh

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RESEARCH INTERESTS

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

EDUCATION

Georgia Institute of Technology, Atlanta, GA
- Second-year 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, 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, 2017.

DRAFTS

[D2] **Sejoon Oh**, Sungchul Kim, Ryan Rossi, and Srijan Kumar, "Representer-Guided Data Augmentation for Neural Tensor Completion".

[D1] **Sejoon Oh**, and Srijan Kumar, "Robustness of Neural Recommender Systems Against Influence-based Reliability Attacks".

AWARDS & SCHOLARSHIPS

- **Twitch Research Fellowship** — Dec. 2020
  Finalist Award - $\$5K$ USD
- **Student Registration Award for KDD 2020** — Aug. 2020
  Funded by both NSF and SIGKDD to attend 2020 ACM SIGKDD conference
- **Kwanjeong Educational Foundation Fellowship** — Aug. 2019 – Present
  One of the most prestigious fellowships in Korea, which supports up to $\$20K$ 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
- **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

RESEARCH EXPERIENCE

Data Science Research Intern, Adobe Research
- Mentors: Dr. Sungchul Kim & Dr. Ryan Rossi May 2020 – Aug. 2020
- Research project: Representer-Guided Data Augmentation for Neural Tensor Completion

Graduate Research Assistant, Georgia Institute of Technology
- Research area: adversarial machine learning and recommender system 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

- **Evasion and Poisoning Attacks for Neural Recommender System** Feb. 2020 – Present
  - Testing robustness of neural recommender system with evasion and poisoning attacks
- **Modeling the Multiple Contexts of Temporal User Behavior** Oct. 2019 – Present
  - Contextual and periodic user behavior modeling with deep neural networks
- **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
- **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
- **Personalized Recommender System via Coupled Matrix Factorizations** Aug. 2016 – Dec. 2016
  - Core developer of the project, cooperated with Hyundai card company

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

- Computational Science & Engineering Algorithms (Georgia Tech - CSE 6140) Fall 2020
- Network Science (Georgia Tech - CS 7280) Fall 2020
- 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

TECHNICAL SKILLS

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