DONGJIN CHOI

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RESEARCH INTEREST

Latent Profile Learning, Large Scale Data Mining

EDUCATION

Georgia Institute of Technology, Atlanta, GA — Aug 2018 - Present
Ph.D. in Computational Science and Engineering
Advisor: Prof. Haesun Park

Seoul National University, Seoul, Korea — Mar 2011 - Feb 2018
B.S. in Electrical and Computer Engineering
Minor in Computer Science & Engineering

RESEARCH EXPERIENCE

Data Mining Laboratory — Aug 2016 - Jan 2018
Research Intern (Advisor: Professor U Kang, Lee Sael) — *Seoul National University*

· Proposed a novel scalable CMTF algorithm using parallelization and caching computation results
  - Contributed as the first author for a paper uploaded to Arxiv
· Apply network-regularized to a patient genetic mutation dataset
  - Contributed as the first author for a paper submitted to *Bioinformatics*
· Proposed a novel algorithm for sampling based dynamic tensor decomposition
  - Contributed as a co-author for a paper submitted to *PLoS ONE*
  - Awarded as bronze prize for Humantech paper award @*Samsung*
· Proposed a novel system and algorithms to track SVD of multiple time series data
  - Contributed as a co-author for a paper submitted to *ICDE'18* (under revision)
· Performed projects on building occupancy recognition and prediction for Intelligent Building Systems
  - Developed wireless sensor communication module using Arduino micro-controller boards
  - Developed a pedestrian simulator model
  - Implemented *ResNet*-based transfer learning network

Knowledge Discovery & Database Laboratory — Dec 2015 - Feb 2016
Research Intern (Advisor: Professor Kyuseok Shim) — *Seoul National University*

· Implemented a previously proposed strategy on boosting subgraph isomorphism algorithms
· Found out useful vertex relationships in a graph and exploited them to boost up currently existing *backtracking algorithms* for subgraph isomorphism
· Implemented distributed algorithms using Hadoop MapReduce

PUBLICATIONS

- **Dongjin Choi**, Jun-gi Jang, and U Kang, *Fast, Accurate, and Scalable Method for Sparse Coupled Matrix-Tensor Factorization*, arXiv:1708.08640 [cs.NA]
- **Dongjin Choi**, and Lee Sael, *SNeCT: Integrative cancer data analysis via large scale network constrained Tucker decomposition* arXiv:1711.08095 [cs.NA], (submitted to *Bioinformatics*)
- Jun-gi Jang, **Dongjin Choi**, and U Kang, *Fast and Memory Efficient Method for Time Ranged Singular Value Decomposition*, (submitted to ICDE'18, under revision)
- Jungwoo Lee, **Dongjin Choi**, and Lee Sael, *CTD: Fast, Accurate, and Interpretable Method for Static and Dynamic Tensor Decompositions*, arXiv:1710.03608 [cs.NA], (submitted to *PLoS ONE*)

PATENTS

- U Kang, Jun-Gi Jang, **Dongjin Choi**, and Jinhong Jung, *Apparatus and Method for Processing Data*, Korean Patent 10-2017-0159167, 2017.
- U Kang, **Dongjin Choi**, and Jun-gi Jang, *Data Analysis Method and Apparatus for Sparse Data*, Korean Patent 10-2017-0158496, 2017.

AWARDS AND HONORS

- **Honorable Mention**, Humantech Paper Award, *Samsung* — Feb 2018
- **Bronze Prize**, Humantech Paper Award, top 6 in the CS division, *Samsung* — Feb 2017
- **National Science & Technology Scholarship**, top 0.7% in Korea, KOSAF — 2011 - 2016
- **Kwon Oh-Hyun Alumni Scholarship**, additional 2,500$/semester, *Samsung* — 2015 - 2016

PROJECTS

People flow recognition and prediction — Sep 2017 - Jan 2018
With Sovico, Samsung (Advisor: Professor U Kang) — *Seoul National University*

- Implemented a pedestrian simulator model
- Proposed isolated kernel CNN model for people flow recognition
- Proposed multi-scale skip connected and graph-structured RNN model for people flow prediction

Room occupancy detection for HVAC control — Aug 2016 - Sep 2017
With Smart Campus, Samsung (Advisor: Professor U Kang) — *Seoul National University*

- Developed IoT sensor kits using Arduino board
- Implemented server storage system with TCP communication via Wi-Fi
- Applied ResNet-based CNN network with transfer learning for real-time recognition of people count and activity
- Proposed RNN network for future-time prediction of people count and activity

REFERENCE

Available on request