

# DONGJIN CHOI

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## RESEARCH INTEREST

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Probabilistic Topic Model, Numerical Machine Learning

## EDUCATION

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**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

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**NAVER Search Engine Model**

Apr 2018 - Jul 2018

*Research Intern (Advisor: Jaegul Choi)*

*NAVER Corp.*

- Proposed a novel algorithm for personalized search engine model

**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

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- Jun-gi Jang, **Dongjin Choi**, and U Kang, *Fast and Memory Efficient Method for Time Ranged Singular Value Decomposition*, 27th ACM International Conference on Information and Knowledge Management (CIKM) 2018, Turin, Italy.
- Jungwoo Lee, **Dongjin Choi**, and Lee Sael, *CTD: Fast, Accurate, and Interpretable Method for Static and Dynamic Tensor Decompositions*, PLOS ONE (to appear).
- Woojung Jin, **Dongjin Choi**, Youngjin Kim, and U Kang, *Activity Prediction from Sensor Data using Convolutional Neural Networks and an Efficient Compression Method*, KIISE journal, 2018.
- **Dongjin Choi**, Jun-gi Jang, and U Kang, *Fast, Accurate, and Scalable Method for Sparse Coupled Matrix-Tensor Factorization*, arXiv:1708.08640 [cs.NA], (submitted to *ECMLPKDD journal track*)
- **Dongjin Choi**, and Lee Sael, *SNeCT: Integrative cancer data analysis via large scale network constrained Tucker decomposition* arXiv:1711.08095 [cs.NA], (submitted to *GigaScience*).

## PATENTS

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- 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

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- **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

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- **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

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Available on request