

# DONGJIN CHOI

www.djchoi.xyz ◇ skywalker5@snu.ac.kr

Data Mining Laboratory, 301-519 at Seoul National University  
1 Gwanak-ro, Gwanak-gu, Seoul, Republic of Korea 08826 (151-744)

## RESEARCH INTEREST

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Scalable Data Mining Algorithms, Latent Variable Model, Interpretable Tensor Decomposition, Parallel Computation

## EDUCATION

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**Seoul National University**, Seoul, Korea Mar 2011 - Feb 2018 (Expected)

B.S. in Electrical and Computer Engineering

Minor in Computer Science & Engineering

Overall GPA: 3.9/4.3, Upper GPA: 4.0/4.3

**Korean Minjok Leadership Academy**, Hoengseong, Korea Mar 2008 - Feb 2011

Natural Science Department

## RESEARCH EXPERIENCE

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**Data Mining Laboratory** Aug 2016 - Present

*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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- **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

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- 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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- **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
- **Best Term Paper Award**, top 1 in the course *Writing in Science & Technology* Dec 2015
- **Silver Medal**, Korean Mathematical Olympiad (ranked<100th), *Korean Mathematical Society* 2009

## SKILLS

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<b>Languages &amp; Libraries</b>	C++, MATLAB, Python	(Advanced)
	Tensor Toolbox, Armadillo, JAMA	
	Java, Perl, R, HTML	(Intermediate)
<b>English Proficiency</b>	Keras, TensorFlow	
	<b>TOEFL</b>	
	107 (Reading : 28, Listening : 30, Speaking : 23, Writing : 26)	
	<b>GRE General</b>	
	Verbal 152 (56%), Quantitative 170 (97%), Writing 4.0 (60%)	

## REFERENCE

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### U Kang, Associate Professor

- Department of Computer Science and Engineering  
Seoul National University, Seoul, Korea  
*Building 301 - Room 502, 1 Gwanak-ro, Gwanak-gu, Seoul, Republic of Korea 08826 (151-744)*  
*ukang@snu.ac.kr*

### Kyuseok Shim, Professor

- Department of Electrical and Computer Engineering  
Seoul National University, Seoul, Korea  
*Building 302 - Room 531, 1 Gwanak-ro, Gwanak-gu, Seoul, Republic of Korea 08826 (151-744)*  
*kshim@snu.ac.kr*

### Lee Sael, Assistant Professor

- Department of Computer Science  
SUNY Korea, Incheon, Korea  
*Academic Building B422, 119 Songdo Moonwha-ro, Yeonsu-Gu, Incheon, Republic of Korea 21985*  
*sael@sunykorea.ac.kr*