

# DONGHYUN SOHN

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## FIELD OF RESEARCH

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- Privacy-preserving database
- Private data federation
- Query processing
- Systems for large-scale data

## EDUCATION

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### Northwestern University

Evanston, IL

Ph.D. in Computer Science

Sep. 2022 - Present

- Advisor : Jennie Rogers

### Sogang University

Seoul, Republic of Korea

B.S. in Computer Science and Engineering

Feb. 2016 - Aug. 2021

- Early Graduation, Summa Cum Laude
- Cumulative GPA : 3.79/4.3, Major GPA : 3.92/4.3, Rank : 4/39

## EXPERIENCE

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### Undergraduate Research, Big Data Processing Lab (Prof. Sungwon Jung)

Seoul, Republic of Korea

Researcher

Aug. 2020 - Present

- Researched document clustering using graph autoencoder
- Researched disk-based buffer augmented clustering feature tree for big data processing
- Made the CF tree of BIRCH based on disk and added buffer to support huge volumes of data efficiently.

### KATUSA(Korean Augmentation To the United States Army)

Camp Casey, Republic of Korea

Military Police (Compulsory Military Service)

Mar. 2017 - Dec. 2018

## PUBLICATIONS

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1. **Donghyun Sohn**, Sungwon Jung, "Disk-based BACF Tree for Clustering Massive Datasets," **Korea Software Congress 2021. (Encouragement Prize)**
2. **Donghyun Sohn**, Jinwon Jung, Hyungjoon Kwon, Donghyuk Jeong, Dayoung Yoon, Myungwan Koo, "A real-time monitoring system using OpenPose," **Korea Software Congress 2021. (Excellence Prize)**

## SELECTED PROJECTS

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### Disk-based Buffer Augmented Clustering Feature Tree [link]

C++, JAVA, Python

Lab Project

Mar. 2021 - Oct. 2021

- Made the CF tree of BIRCH disk-based to solve the problem of BIRCH being affected by memory size
- Used K-Means clustering to get the final cluster
- Got better final cluster's purity and recall of BACF than BIRCH's CF tree

### Building Management System [link]

Python, Django, Flutter, PostgreSQL, OpenCV, HTML, JavaScript, CSS

Team Leader

Mar. 2021 - Aug. 2021

- Bangladesh startup support project organized by the Korea Invention Promotion Association and Korea Economic TV, rewarded 2200\$ for good performance
- Developed surveillance camera that detects worker's posture by using OpenPose
- Designed database and developed interconnected Android application, website, and server

**Automation of Korean Port Open-Storage Yard** [\[link\]](#)      JAVA, Android Studio, MySQL, Apache Tomcat  
Team Leader      Mar. 2020 - Sep. 2020

- Designed database and constructed server
- Developed Android application

**Pintos Projects** [\[link\]](#)      C, Ubuntu  
Personal Project      Sep. 2020 - Dec. 2020

- Implemented user program, thread, virtual memory

**SIC/XE Machine** [\[link\]](#)      C, Linux  
Personal Project      Mar. 2020 - Jun. 2020

- Implemented shell, memory space, opcode table
- Implemented assemble, linking, loading

**Text Mining with MongoDB** [\[link\]](#)      Python, MongoDB  
Personal Project      May. 2020 - Jun. 2020

- Analyzed news articles and found out the words mainly used in news articles by using the FP-Growth algorithm

**Comparison of R Tree and KD Tree** [\[link\]](#)      C  
Personal Project      Nov. 2020 - Dec. 2020

- Constructed KD Tree, R Tree
- Sent Range Query, kNN Query to both trees and compare performances.

## AWARDS

**Excellence Prize**, Korea Software Congress 2021      Dec 2021

**Encouragement Prize**, Korea Software Congress 2021      Dec 2021

## SKILLS

<b>Programming</b>	C, C++, JAVA, Python, HTML, CSS, PostgreSQL, MySQL
<b>Frameworks</b>	Django
<b>Tools</b>	Git
<b>Languages</b>	English, Korean

## UNDERGRADUATE TEACHING EXPERIENCES

**Data Structure Mentor**, Sogang University      Mar. 2021 - Jun. 2021

- Helped students to learn Data Structure

**Basic Engineering Design Mentor**, Sogang University      Mar. 2020 - Jun. 2020

- Helped junior students who are major in Computer Science and Engineering to learn the C language

**International Student Mentor**, Sogang University      Mar. 2020 - Jun. 2020

- Helped international students who are major in Computer Science and Engineering

**Computational Thinking Mentor**, Sogang University

Mar. 2020 - Jun. 2020

- Helped students who are not major in Computer Science and Engineering to learn Python

**2019 SW Camp Teaching Assistant**, Sogang University

Jul. 2019 - Aug. 2019

- Helped Elementary School students to learn the Arduino

## **CERTIFICATION**

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**ISTQB(KSTQB : Korean ver) - CTFL(Certified Tester Foundation Level)**

Mar. 20. 2018