

KANGSOO JUNG  
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## **Profile**

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- Highly self-motivated postdoctoral researcher with demonstrated research expertise privacy-preserving massive data processing
- Computer skills: Python//MongoDB/Ruby on Rails/NodeJS/Android & Swift

## **Education**

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Sogang University, Seoul, Korea

- Ph.D. Computer Engineering, Feb 2017
- MS. Computer Engineering, Aug 2009
- B.S. Computer Engineering , Aug 2007

## **Research Interests**

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- My current research around the privacy-preserving data processing

## **Research Experience**

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- Project: HYPATIA: Privacy and Utility allied(2020.10 ~ Current)
- Project: A Technique of Protecting User Privacy based on the Road Network(2020.1~2020.8)
- Project: A Development of De-identification Technique based on Differential Privacy (2017.4 ~ 2019.12)
  - Game theoretic negotiation technique to set the differential privacy parameter
  - Differentially private data market prototype design and implementation
- Project: A study of Privacy-preserving data processing in big data environment (2017.4 ~ 2017.8)
  - Estimation of vulnerability of existing de-identification technique
  - Development of privacy violation analyzing tool for big data processing
- Project: Privacy-preserving P2P based Data Sharing Framework in IoT (2015.11 ~ 2016.10)
  - Design of P2P data processing framework using personal data storage in IoT
  - Development of capability based access control with differential privacy for internet of thing environment

- Project: Design and Development of Spatial-Temporal Data Management System (2014.12 ~ 2015.11)
  - Development of semantic search engine for spatial information
  - Development of semantic search engine API for time, location and semantic keyword
- Project: Techniques about safety and reliability for Sensing as a Service (2013.6 ~ 2016.5)
  - Establish SaaS (Sensing as a Service) environment for real-time analyzing and securing data with preserving privacy
  - Design and verify SaaS system which provide solutions to data security and personal privacy problem in the process of using sensing data
- Project: Integrated payment system for smart phones for e-notice payment (2011.10 ~ 2012.9)
  - Development of EBPP (Electronic Bill Presentment and Payment) system using NFC
- Project: Data, Event and Security Services in Real-Time Embedded Systems (2008.12 ~ 2011.8)
  - Optimal anonymity method in dynamic database environment
  - Special event type research and complex event processing
  - Secure streaming data handling

## **Publications**

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### **Theses**

- Decentralized Capability-Task-Role Based Access Control Model in IoT Environmnt. Ph.D., Sogang University, Seoul, S.Korea; Feb 2017.
- An Indexing Method to Prevent Inference Attack with Frequency in Database as a Service, M.S., Sogang University, Seoul, S.Korea; Aug.2009.

### **International Journal Publications**

1. **Kangsoo Jung**, Seog Park, “An Adaptive Grid and Incentive Mechanism for Personalized Differentially Private Location Data in the Local Setting”, Mobile Information Systems, Vol.2020, pp.1-12, 2020.12
2. Taewhan Kim, **Kangsoo Jung**, Seog Park, “Sparsity Reduction Technique using Grouping Method for Matrix Factorization in Differentially Private Recommendation Systems”, IEICE Transactions on Information and Systems, Vol. 103, No. 7, pp. 1683-1692, 2020.7
3. Geonhyoung Jo, **Kangsoo Jung**, and Seog Park, “An Adaptive Window Size Selection

Method for Differentially Private Data Publishing over Infinite Trajectory Stream”,  
Journal of Advanced Transportation, Vol. 28, No. 12, pp.1-12, 2018.10

### **International Conference Publications**

1. **Kangsoo Jung**, Seog Park, “Privacy Bargaining with Fairness: Privacy–Price Negotiation System for Applying Differential Privacy in Data Market Environments”, *Intl. Conf. on BigData*, 2019.12
2. **Kangsoo Jung**, Junkyu Lee, Kunyoung Park, Seog Park, “PRIVATA: Differentially Private Data Market Framework using Negotiation-based Pricing Mechanism”, *Intl. Conf. on Information and Knowledge Management*, 2019.11(demo)
3. **Kangsoo Jung**, Jaewon Kim, Youngjun Kim, Seog Park, “DRAKO: Differentially pRivate Algorithm to meet K-anonymity for Online portal service”, *Intl. Conf. on BigData*, 2018.12(poster)
4. Taebo Jung, **Kangsoo Jung**, Sehwa Park, Seog Park, “A Noise Parameter Configuration Technique to Mitigate Detour Inference Attack on Differential Privacy”, *Intl. Conf. on Big Data and Smart Computing*, 2017.2
5. **Kangsoo Jung**, Seog Park, “Collaborative Caching Techniques for Privacy-preserving Location-based Services in Peer-to-Peer Environments”, *Intl. Conf. on BigData, (workshop: Privacy and Security of Big Data)*, 2017.12
6. **Kangsoo Jung**, Seog Park, “Grayscale Access Control: Applying Differential Privacy to Access Control for Internet of Thing Environment. *Intl. Conf. on ICT Convergence*, 2017.10
7. **Kangsoo Jung**, Seog Park, “Peer-to-Peer Collaborative Caching for Privacy-Preserving Location-based Services”, *ACM Symposium on Cloud Computing*, 2015.8 (poster)
8. Taebo Jeong, Sehwa Park, **Kangsoo Jung**, Seog Park, “A Noise Parameter Configuration Technique to Prevent Correlated Inference Attack using Differential Privacy”, *ACM Symposium on Cloud Computing*, 2015.8 (poster)
9. **Kangsoo Jung**, Seongyong Jo, Seog Park, “A Game Theoretic Approach for Collaborative Caching Techniques in Privacy Preserving Location-based Services”, *Intl. Conf. on Big Data and Smart Computing*, 2015.2
10. **Kangsoo Jung**, Sehwa Park, Seog Park, “Hiding a Needle in a Haystack: Privacy Preserving Apriori algorithm in MapReduce Framework”, *Intl. Conf. on Information and Knowledge Management (workshop: Privacy and Security of Big Data)*, 2014.11
11. Yuna Oh, **Kangsoo Jung**, Seog Park, “A privacy preserving technique to prevent sensitive behavior exposure in semantic location-based service”, *Intl. Conf. on Knowledge-Based Intelligent Information and Engineering Systems*, 2014.9.
12. **Kangsoo Jung**, Sewha Park, Sungyong Cho, Seog Park, “A Novel Privacy Preserving

- Association Rule Mining using Hadoop”, *Intl. Conf. on Data Analytics*, 2014.8.
13. Chungha Kim, **Kangsoo Jung**, Seog Park, "A Method of Pre-detecting Privacy Leak in Social Network Service Using Collaborative Filtering", *Intl. Conf. on Database Systems for Advanced Applications (workshop: Social Networks and Social Media)*, 2013.4.
  14. **Kangsoo Jung**, Seog Park, "Context-Aware Role Based Access Control using User Relationship", *Intl. Conf. on Computer Science and Information Technology*, 2012.12
  15. **Kangsoo Jung**, Seog Park, "Location Privacy Protection Technique using Virtual Individual Server in Location-Based Service Without Anonymization Server", *Intl. Conf. on Emerging Databases*, 2012.6
  16. Hangyoung Go, **Kangsoo Jung**, Seog Park, "An Anonymization Technique in Preserving Uniform Distribution of Sensitive Values", *Intl. Conf. on Emerging Databases*, 2011. 8 (Best Paper Award)
  17. Dongchan An, **Kangsoo Jung**, Seog Park, "Group Prime Number Labeling Scheme for Light-Weight Access Control", *Intl. Conf. on Computer Science and Information Technology*, 2010.7
  18. Jaehoon Kim, **Kangsoo Jung**, Seog Park, "An Introduction to Authorization Conflict Problem in RDF Access Control", *Intl. Conf. on Knowledge-Based Intelligent Information and Engineering Systems*, 2008. 9
  19. Jaehoon Kim, **Kangsoo Jung**, Seog Park, "An RDF Triple based Access Authorization Specification Considering Subsumption Relationships", *Intl. Conf. on Data Engineering (workshop: Secure Semantic Web)*, 2008. 4

### **Domestic Journal Publications**

1. **Kangsoo Jung**, Seog Park, “Data Privacy-Price Negotiation for applying Differential Privacy in Data Market Environments”, Vol. 46, No. 4, 2019.4
2. Gunhyung Jo, **Kangsoo Jung**, Seog Park, “Privacy Budget Allocation Technique Based on Variable Length Window for Traffic Data Publishing with Differential Privacy in Road Networks”, Vol. 45, No. 9, 2018.9
3. **Kangsoo Jung**, Seog Park, “A Differentially Private Query Processing Mechanism using a Batch Strategy within a Limited Privacy Budget”, Vol. 45, No. 7, 2018.7
4. **Kangsoo Jung**, Seog Park, “A survey of Deidentification technique based on differential privacy”, Vol. 28, No. 2, 2018.4
5. Youngwoo Lee, **Kangsoo Jung**, Seog Park, “A Context-Aware Access Control Technique based on Sensitivity of Data Object in Medical Environments”, *KIISE Transactions on Computing Practices*, Vol. 20, No. 6, 2014.6
6. **Kangsoo Jung**, Seog Park, “Dummy Mix-Zone Technique to Protect Privacy in Location based Services”, *KIISE Transactions on Computing Practices*, Vol. 18, No.

- 3, 2012.3
7. Youngha Ryu, **Kangsoo Jung**, Seog Park, “Anonymization Technique Preserving Privacy against Inference Attack using Statistical Background Knowledge”, *KIISE Transactions on Computing Practices*, Vol. 17, No. 3, 2011.3
  8. **Kangsoo Jung**, Krasimira Kapitanova, Sanghyuk Son, Seog Park, “Robust Data, Event, and Privacy Services in Real-Time Embedded Sensor Network Systems”, *Journal of KIISE : Databases*, Vol. 37, No. 6, 2010.12
  9. **Kangsoo Jung**, Seog Park, “An Indexing Method to Prevent Attacks based on Frequency in Database as a Service”, *KIISE Transactions on Computing Practices*, Vol. 16, No. 8, 2010.8

## **Teaching Experience**

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- 03/2018-08/2020           Instructor for Graduate course Programming for Management of Technology, Graduate School of Management of Technology in Sogang University. Sole responsibility for the course
- 09/2017-12/2017, 2018/09-12/2018       Instructor for undergraduate course Database System, Sogang University. Sole responsibility for the course
- 03/2017-06/2017           Instructor for undergraduate course Database Application, Inha Technical College. Sole responsibility for the course
- 03/2017-06/2017           Instructor for undergraduate course Database Practice, Hanyang Women’s University. Sole responsibility for the course
- 09/2016-12/2016           Instructor for undergraduate course Cloud computing. Inha Technical College. Sole responsibility for the course
- 03/2011-06/2011           Instructor for undergraduate course Data Structure & Communication Application, Korea Aerospace University. Sole responsibility for the course
- 09/2010-12/2010           Instructor for undergraduate course PC&Internet, Sogang University. Sole responsibility for the course
- 03/2010-06/2010           Instructor for undergraduate course PC&Internet, Sogang University. Sole responsibility for the course

## **Employment**

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- 03/2017-08/2020.                            Postdoctoral research fellow. Department of Computer engineering, Sogang University. Advisor: Prof. Seog Park.
- 10/2020-Current Postdoctoral research fellow. Inria Saclay Île-De-France. Advisor: Prof. Catuscia Palamidessi

## **Activity**

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- **Development of sogang university lecture evaluation service:** From 2008 to 2012, I developed a lecture evaluation service Alt-sogang ([www.alt-sogang.org](http://www.alt-sogang.org)) which share lecture experience among sogang university's undergraduate students. 1,021 student joined this service as a member and wrote a 3,565 review about undergraduate course.