

# Minji Yoon

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## RESEARCH INTEREST

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Large Scale Graph Mining, Social Network Analysis, Stream Mining, Machine Learning

## EDUCATION

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**Movement Research Lab., Seoul National University** Sep. 2012 – Aug. 2014

- M.S. in Computer Science and Engineering
- Advisor: Prof. Jehee Lee

**Seoul National University** Mar. 2008 – Feb. 2012

- B.S. in Electrical and Computer Engineering

**Hansung Science High School** Mar. 2006 – Feb. 2008

- 1 year early graduation

## WORK EXPERIENCE

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**Data Mining Lab., Seoul National University** Apr. 2017 – Present

- Research Intern (currently)
- Working on Graph Mining under the Supervision of Prof. U Kang

**Sap Labs Korea, Seoul, Korea** Sep. 2014 – Mar. 2017

- Software Developer
- SAP HANA Database Kernel Development (See Project below.)

**Movement Research Lab., Seoul National University** Mar. 2012 – Aug. 2012

- Research Intern
- Working on Crowd Simulation & Motion Mapping (See Project below.)

## PUBLICATION

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### International Conference

- **Minji Yoon**, Woojung Jin, and U Kang, *Fast and Accurate Random Walk with Restart on Dynamic Graphs with Guarantees*, The Web Conference 2018 (WWW'18), Acceptance Ratio: 14.8%
- **Minji Yoon**, Jinhong Jung, and U Kang, *TPA: Fast, Scalable and Accurate Method for Approximate Random Walk with Restart on Billion Scale Graphs*, IEEE International Conference on Data Engineering 2018 (ICDE'18)
- Chiwan Park, Ha-Myung Park, **Minji Yoon**, and U Kang, *PMV: Pre-partitioned Generalized Matrix-Vector Multiplication for Scalable Graph Mining*, Preliminary version at arXiv:1709.09099

### Domestic Conference

- **Minji Yoon** and Jehee Lee, *Online Motion Puppetry for Non-human Characters*, Korea Computer Graphics Society 2014 (KCGS'14)
- **Minji Yoon**, Kyunglyul Hyun, and Jehee Lee, *Crowd simulation based on Motion Patches*, Korean Society for Precision Engineering 2013 (KSPE'13)

## PATENT

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### International

- **Minji Yoon**, Jinhong Jung, and U Kang, *Fast, Scalable and Accurate Method for Approximate Random Walk with Restart on Billion Scale Graphs*, PCT/KR2017/012962 (18 Nov 2017)
- **Minji Yoon**, and Chulwon Lee, *Remote authentication*, USA: 15/363,102 (29 Nov 2016)
- Yongwook Jeong, **Minji Yoon**, Ian McHardy, Jeff Albion, Abhishek Singhi, Rich Jones, and Chulwon Lee, *Hint-based query routing and session context sharing*, USA: 15/362,238 (28 Nov 2016)

## PROJECTS & RESEARCH

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### Approximate Random Walk with Restart

Data Mining Lab (Advisor: U Kang)

Apr. 2017 – Sep. 2017

- Proposed an algorithm computing RWR scores approximately
- The proposed algorithm outperforms other state-of-the-art methods in terms of speed and memory efficiency while maintaining high accuracy
- Contributed as the first author for a paper accepted in ICDE'18

### Random Walk with Restart on Dynamic Graphs

Data Mining Lab (Advisor: U Kang)

July 2017 – Oct. 2017

- Proposed an algorithm computing RWR efficiently in time-evolving graphs
- The proposed algorithm is the first method that guarantees its exactness on RWR scores on dynamic graphs
- The proposed algorithm outperforms previous state-of-the-art dynamic RWR methods
- Contributed as the first author for a paper accepted in WWW'18

### Generalized Matrix-Vector Multiplication for Scalable Graph Mining

Data Mining Lab (Advisor: U Kang)

Apr. 2017 – Sep. 2017

- Proposed an algorithm generalizing matrix-vector multiplication on distributed systems
- The proposed algorithm achieves superior scalability than previous graph mining methods
- Contributed as co-author for a paper submitted to WSDM'18

### Question Answering System

Data Mining Lab (Advisor: U Kang)

Apr. 2017 – Oct. 2017

- Proposed Question Answering system which retrieves a correct answer for a given question asked in natural language on any topic
- Given several answer candidates, re-ranking module in the system ranks the candidates using neural tensor network
- Supported by Institute for Information & communications Technology Promotion(IITP) grant funded by the Korea government(MSIP)

### SAP HANA Active/Active

SAP Labs Korea

June 2016 – Feb. 2017

- Active/Active configuration prepares data in memory for read access in an additional 'hot standby' SAP HANA database (aka the secondary SAP HANA database)
- Customer could operate two SAP HANA databases
- Offered from SAP S/4HANA 1610, FPS01 and SAP HANA 2.0, SPS01
- Contributed as co-inventor for two US patents (See Patent above.)

## **SAP HANA Capture and Replay**

SAP Labs Korea

June 2015 – Apr. 2016

- SAP HANA Capture and Replay captures all incoming SQL statements at the session layer of the SAP HANA database and replays it in the new SAP HANA software to ensure the solution still works correctly
- Reduce testing challenges by recording workload instead of developing it
- Offered from SAP HANA SPS12.

## **SAP HANA Session/EAPI layer**

SAP Labs Korea

Sep. 2014 – Mar. 2017

- Session layer serves as the front-end of SAP HANA database including thread handling, resource allocation and packet encoding/decoding
- EAPI layer is located between Session and SQL layers, and manages connections, statements and transactions which are involved in SQL execution

## **Online Motion Puppetry for Non-human Characters**

Movement Research Lab (Advisor: Jehee Lee)

Sep. 2013 – Aug. 2014

- Manipulating characters' motion whose body structures and motion patterns are different from those of human in real time by human's motion
- Contributed as the first author for a paper submitted to KCGS'14

## **Crowd Simulation based on Motion Patches**

Movement Research Lab (Advisor: Jehee Lee)

Mar. 2012 – Aug. 2013

- Generating a random crowd simulation in real time using motion data with characters and environments that interact with each other
- Generating a random crowd simulation of virtual characters interacting with each other in a non-trivial manner using bunch of raw motion data
- Contributed as the first author for a paper submitted to KSPE'13

# **AWARDS & HONORS**

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## **National Science & Technology Scholarship, KOSAF**

Mar. 2008 – Feb. 2012

- Full tuition exemptions for 8 semesters.

## **Cum Laude Graduation Honors, Seoul National University**

Feb. 2012

# **TECHNICAL SKILLS**

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## **Programming Languages**

- C/C++, MATLAB, Python (Advanced) / Java, SQL (Experienced) / HTML (Intermediate)
- Proficient with linear algebra and TensorFlow

## **Fluent in English and Native in Korean**

- TOEFL : 111 (Reading : 30, Listening : 30, Speaking : 24, Writing : 27)
- GRE General : Verbal 155 (69%), Quantitative 166 (91%), Writing 3.5 (42%)

# **REFERENCES**

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Prof. U Kang, Computer Sci. & Eng., Seoul National University, Korea, [ukang@snu.ac.kr](mailto:ukang@snu.ac.kr)

Prof. Jehee Lee, Computer Sci. & Eng., Seoul National University, Korea, [jehee@cse.snu.ac.kr](mailto:jehee@cse.snu.ac.kr)