

**Sukwon Lee**

Ph.D. Student  
 School of Industrial Engineering  
 Purdue University  
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**Research Interests**

Data Visualization, Visualized Decision Making, Visualization Literacy  
 Human Factors, Human Computer Interaction, Cognitive Engineering, User Experience

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**Education**

Ph.D.	Student	School of Industrial Engineering Purdue University West Lafayette, IN, USA <i>Specialty:</i> Human Factors <i>Advisor:</i> Ji Soo Yi	08/2012 – present
M.E.		Industrial Systems Engineering Graduate School of Information Management and Security Korea University Seoul, Republic of Korea <i>Specialty:</i> Human Factors <i>Thesis Title:</i> Predicting Menu Selection in Mobile Phone Using Predictive Statistical Model: Markov Chain Approach <i>Advisor:</i> Rohae Myung	03/2007 – 02/2009
B.E.	major	Department of Industrial Systems and Information Engineering College of Engineering	03/2003 – 02/2007
	minor	Department of Business Administration Business School Korea University Seoul, Republic of Korea	

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**Military Service**

Faculty Officer	1st and 2nd Lieutenant of Republic of Korea Army	06/2009 – 05/2012
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**Work and Teaching Experience**

Graduate Assistance Data Analytics and Information in Engineering Dean's Office Purdue University	05/2015 – present
Graduate Teaching Assistance School of Industrial Engineering Purdue University <ul style="list-style-type: none"> <li>■ Data Visualization: Theory and Practice (graduate course) – Spring 2015</li> <li>■ Work Analysis and Design II (undergraduate course) – Spring 2015, Fall 2014, Spring 2014, Fall 2013, Spring 2013, Fall 2012</li> </ul>	08/2012 – 05/2015
Full-time Instructor Department of Weapon Systems and Mechanical Engineering Korea Military Academy	06/2009 – 05/2012

- Introduction to Industrial and Systems Engineering (undergraduate course)
  - Spring 2011, Fall 2010, Spring 2010, Fall 2009
- Systems Engineering and Analysis (undergraduate course)
  - Fall 2011, Fall 2010
- Weapon Systems (undergraduate course)
  - Fall 2011, Fall 2010, Spring 2010, Fall 2009

**Graduate Research Assistance**  
**Department of Industrial Systems and Information Engineering**  
**Korea University**

03/2007 – 02/2009

**Graduate Teaching Assistance**  
**Department of Industrial Systems and Information Engineering**  
**Korea University**

03/2007 – 02/2009

- Human Factors & Lab II (undergraduate course)
  - Fall 2008, Fall 2007
- User Interface Design & Lab (undergraduate course)
  - Spring 2008, Spring 2007

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## Research Experience

**HIVE Lab.**  
**School of Industrial Engineering**  
**Purdue University**

08/2012 – present

- NOVIS Model
  - conducted a qualitative study by observing users when they endeavored to make sense of unfamiliar visualizations and analyzing the data using the grounded theory method
  - proposed a grounded model of NOVICE's information Visualization Sensemaking (NOVIS model)
  - reference: [J7]
- VisOHC
  - conducted a design study to develop a visual analytics application for online health community (OHC) administrators
  - reference: [J6]
- Quantitative Measurement of Intuitiveness of Visualization Techniques
  - supported by Google Inc.
  - developed a visualization comprehension questionnaire of the eight information visualizations and measured crowd-sourced workers' comprehension levels
- Understanding of Noncompliance Behaviors with Healthcare Information Systems
  - reviewed existing literature and categorized the causes of noncompliance behaviors with Bar Code Medication Administration (BCMA) system
  - reference: [J5]

**Weapon Systems Lab.**  
**Department of Weapon Systems and Mechanical Engineering**  
**Korea Military Academy**

06/2011 – 05/2012

- A Study on Acquisition Methods of Next Generation Mine Detector and Project Strategy
  - supported by Defense Acquisition Program Administration of Korea

**User Interface Lab.**  
**Department of Industrial Systems and Information Engineering**  
**Korea University**

03/2007 – 08/2010

- Development of Optimization Technology for Safety Monitoring Systems in the Urban Railway Station
  - supported by the Korea Railway Research Institute
  - conducted Work Domain Analysis (WDA) and extracted information requirements for Ecological Interface Design (EID) of safety monitoring systems in the urban railway station
  - reference: [J4]
- Fundamental Studies for Acquisition of Digital Information
  - supported by the Ministry of Science and Technology of Korea
  - reviewed information visualization techniques and applications to improve the computer forensic data analysis
  - references: [C4] and [J3]
- Development of Next-generation Vehicle Interface through Ecological Interface Design (EID)
  - supported by NGV of Hyundai Motor Group
  - conducted Work Domain Analysis (WDA) and extracted information requirements
  - designed Ecological Interface Design (EID) for a lane change support display
  - references: [C5] and [P1]
- The Mobile Phone's Optimal Vibration Frequency in Mobile Environment
  - supported by Samsung Electronics
  - conducted empirical tests to evaluate perception of vibrotactile stimuli in the mobile environment
- Measuring Presence in Mobile 3D
  - supported by the Small and Medium Business Administration of Korea
  - conducted empirical tests for evaluating situation awareness of the subjects who played a mobile phone 3D game

## Publications

### Journal Papers

- [J7] **Sukwon Lee**, Sung-Hee Kim, Ya-Hsin Hung, Heidi Lam, Youn-ah Kang, and Ji Soo Yi (2016). How do People Make Sense of Unfamiliar Visualizations?: A Grounded Model of Novice's Information Visualization Sensemaking. *IEEE Transactions on Visualization and Computer Graphics*, 22(1).
- [J6] Bum Chul Kwon, Sung-Hee Kim, **Sukwon Lee**, Jaegul Choo, Jina Huh, and Ji Soo Yi (2016). VisOHC: Designing Visual Analytics for Online Health Communities. *IEEE Transactions on Visualization and Computer Graphics*, 22(1)
- [J5] Byung Cheol Lee, **Sukwon Lee**, Bum Chul Kwon, and Ji Soo Yi (2015). What are the Causes of Non-compliance Behaviors in Bar Code Medication Administration System Process? *International Journal of Human-Computer Interaction*, 31(4), 227-252.
- [J4] **Sukwon Lee**, Bong Geun Lee, Jiseung Back, Seongsik Jo, and Rohae Myung (2010). Applying Work Domain Analysis for Ecological Interface Design of Safety Monitoring Systems in the Urban Railway Station. *Journal of the Korean Society for Railway*, 13(3), 264-270.
- [J3] Jun-Woo Bae, **Sukwon Lee**, In-Soo Kim, and Rohae Myung (2009). A Research for New Taxonomy of Information Visualization. *Journal of the Society Korea Industrial and Systems Engineering*, 32(2), 76-84.
- [J2] **Sukwon Lee** and Rohae Myung (2009). A Study of Trajectory Mapping Method as a User Interface Design Tool for Mobile Devices. *IE Interfaces*, 22(1), 17-25.  
★ Best Paper Award in 4th KIIE Master's Student Research Paper Competition
- [J1] **Sukwon Lee** and Rohae Myung (2007). Prediction of Mobile Phone Menu Selection with Markov Chains. *Journal of the Korean Institute of Industrial Engineers*, 33(4), 402-409.  
★ Best Paper Award in 3rd KIIE Master's Student Research Paper Competition

### Conference Papers

- [C6] **Sukwon Lee** and Rohae Myung (2008). A Study of Trajectory Mapping Method as a User Interface Design Tool for Mobile Devices. *2008 Fall Conference of the Korean Institute of Industrial Engineers*. Seoul, Korea.
- [C5] **Sukwon Lee**, Taek Su Nam, and Rohae Myung (2008). Work Domain Analysis for Ecological Interface Design of Vehicle Control Display. *9th WSEAS International Conference on Automation and Information*. Bucharest, Romania.
- [C4] Yoon Seok Jung, **Sukwon Lee**, Byung Don Kong, Seongsik Jo, In-Soo Kim, and Rohae Myung (2008). A Study of Information Visualization for Effective Computer Forensic Investigation. *2008 Spring Conference of Ergonomic Society of Korea*. Daegu, Korea.
- [C3] **Sukwon Lee**, Rohae Myung, and In-Soo Kim (2008). Development of Mobile Phone Menu Structure Based on Visual Concept Map. *2008 Conference of HCI Korea*. Pyeongchang, Gangwon-Do, Korea.
- [C2] **Sukwon Lee** and Rohae Myung (2007). Using Markov Chains for Predicting Mobile Phone Menu Selection in a Adaptive User Interface. *2007 Fall Conference of the Korean Institute of Industrial Engineers*. Seoul, Korea.
- [C1] **Sukwon Lee**, Rohae Myung, and Hong-Chul Lee (2007). Human Behavioral Model in Menu Selection Using Hidden Markov Chain. *INFORMS (Institute for Operations Research and the Management Sciences) International Meeting 2007*. Rio Grande, Puerto Rico.

### Working Papers

- [W2] Sung-Hee Kim, **Sukwon Lee**, and Ji Soo Yi. Understanding the Role of Visualizations on Decision Making: A Study on Working Memory.
- [W1] Sung-Hee Kim, **Sukwon Lee**, Min Lee, Jeongjoon Boo, and Ji Soo Yi. Do You Get It? Crowdsourced Workers' Visualization Comprehension of Eight Visualizations.

### Poster

- [PO2] **Sukwon Lee**, Sung-Hee Kim, Ya-Hsin Hung, Heidi Lam, Youn-ah Kang, and Ji Soo Yi (2015). How do People Make Sense of Unfamiliar Visualization? A Grounded Model of Novice's Information Visualization Sensemaking. *2015 IE GSO Industrial Engineering Research Symposium, Purdue University*. West Lafayette, IN.  
★ Audience Choice Poster Award
- [PO1] Sung-Hee Kim, **Sukwon Lee**, Min Lee, Jeongjoon Boo, and Ji Soo Yi (2014). Do You Get It? Crowdsourced Workers' Visualization Comprehension of Eight Visualizations. *2014 IE GSO Industrial Engineering Research Symposium, Purdue University*. West Lafayette, IN.

### Book

- [B1] Sang Kil Lee, Baek-Ki Jung, Dong-Yoon Chung, Gun-In Kim, Sung Hoon Choi, Hyun Dal Yoon, Wonseok Tae, and **Sukwon Lee** (2011). New Weapon Systems (3rd edition). *Cheong Moon Gak Publisher*. (ISBN: 9788963640846)

### Patent

- [PA1] Dong Seok Lee, Rohae Myung, Seung-Kweon Hong, Junghwan Kim, Taek Su Nam, **Sukwon Lee**, and Junchae Lim (2009). Display Method to Support Lane Change. *The Korean Intellectual Property Office*. (Patent No. 10-0882846)

### Activities

#### Workshop Organizer

- 2014 VisLit Workshop: Towards An Open Visualization Literacy Testing Platform 11/2014
  - IEEE VIS 2014, Paris, France
  - Co-organizer with Sung-Hee Kim, Jeremy Boy, Niklas Elemqvist, and Ji Soo Yi

#### Conference Student Volunteer

- IEEE VIS 2015, Chicago, IL, USA 10/2015
- IEEE VIS 2014, Paris, France 11/2014
- IEEE VIS 2013, Atlanta, GA, USA 10/2013

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## Extracurricular Activities

- President of the Korean Student Association (PKIE: Purdue Korean Industrial Engineers) in School of Industrial Engineering at Purdue University 08/2013 – 07/2014
  - SURF (Summer Undergraduate Research Fellowships) Graduate Mentor – Jeongjoon Boo (Undergraduate student, Purdue University) 05/2013 – 08/2013
  - Field Training at 1st Division of Republic of Korea Army 08/2010
  - Member of Korea University Snowboard Team (FLIP) – President from 03/2005 to 02/2006 03/2003 – 02/2009
  - Led the team to second-place finish in 2006 University Federation Snowboarding Competition
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## Honors and Awards

- Audience Choice Poster Award – 2015 IE GSO Industrial Engineering Research Symposium Poster Contest, Purdue University 04/2015
  - Graduate Student Mentor Award – 2013 Summer SURF (Summer Undergraduate Research Fellowships), Purdue University 08/2013
  - Excellence in Education Award – 2011 Academic Board Evaluation, Korea Military Academy 05/2012
  - The Second-place Best Paper Award – 4th KIIE Master's Student Research Paper Competition, KIIE (Korean Institute of Industrial Engineers) 11/2008
  - reference: [J2]
  - Research Assistant Scholarship – Korea University 03/2008
  - The First-place Best Paper Award – 3rd KIIE Master's Student Research Paper Competition, KIIE (Korean Institute of Industrial Engineers) 11/2007
  - reference: [J1]
  - General Scholarships – Korea University 09/2008, 03/2008
  - Korea University 09/2007
  - The Second Stage of Brain Korea 21 (BK21) Scholarship – Korea University 03/2007
  - Korea University
  - Semester High Honors – Korea University 09/2006, 09/2005
  - Honors Scholarships – Korea University 03/2006, 03/2004
  - Special Scholarships – Korea University 09/2004
  - Korea University
  - Freshmen Special Scholarships – Korea University 03/2003
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