

Sukwon Lee

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 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

Education

Ph.D.	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 Minor: Department of Business Administration Business School Korea University Seoul, Republic of Korea	03/2003 – 02/2007

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 Assistant Data Analytics and Information in Engineering Dean's Office Purdue University	05/2015 – present
Graduate Teaching Assistant School of Industrial Engineering Purdue University <ul style="list-style-type: none"> ■ Data Visualization: Theory and Practice (graduate course) – Spring 2015 ■ Work Analysis and Design II (undergraduate course) – Spring 2015, Fall 2014, Spring 2014, Fall 2013, Spring 2013, Fall 2012 	08/2012 – 05/2015

Full-time Instructor Department of Weapon Systems and Mechanical Engineering Korea Military Academy <ul style="list-style-type: none"> ■ Introduction to Industrial and Systems Engineering (undergraduate course) <ul style="list-style-type: none"> – Spring 2011, Fall 2010, Spring 2010, Fall 2009 ■ Systems Engineering and Analysis (undergraduate course) <ul style="list-style-type: none"> – Fall 2011, Fall 2010 ■ Weapon Systems (undergraduate course) <ul style="list-style-type: none"> – Fall 2011, Fall 2010, Spring 2010, Fall 2009 	06/2009 – 05/2012
Graduate Research Assistant Department of Industrial Systems and Information Engineering Korea University	03/2007 – 02/2009
Graduate Teaching Assistant Department of Industrial Systems and Information Engineering Korea University <ul style="list-style-type: none"> ■ Human Factors & Lab II (undergraduate course) <ul style="list-style-type: none"> – Fall 2008, Fall 2007 ■ User Interface Design & Lab (undergraduate course) <ul style="list-style-type: none"> – Spring 2008, Spring 2007 	03/2007 – 02/2009

Research Experience

HIVE Lab School of Industrial Engineering Purdue University <ul style="list-style-type: none"> ■ NOVIS Model <ul style="list-style-type: none"> – Conducted a qualitative study by observing users when they endeavored to make sense of unfamiliar visualizations and by analyzing think-aloud data using the grounded theory method – Proposed a grounded model of NOvice's information VIsualization Sensemaking (NOVIS model) – Reference: [J7] ■ VisOHC <ul style="list-style-type: none"> – 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 <ul style="list-style-type: none"> – Supported by Google Inc. – Developed a visualization comprehension questionnaire of eight information visualizations and measured crowd-sourced workers' comprehension levels ■ Understanding of Noncompliance Behaviors with Healthcare Information Systems <ul style="list-style-type: none"> – Reviewed existing literature, and extracted categorized the causes of noncompliance behaviors with Bar Code Medication Administration (BCMA) system – Reference: [J5] 	08/2012 – present
Weapon Systems Lab Department of Weapon Systems and Mechanical Engineering Korea Military Academy <ul style="list-style-type: none"> ■ A Study on Acquisition Methods of Next Generation Mine Detector and Project Strategy <ul style="list-style-type: none"> – Supported by Defense Acquisition Program Administration of Korea 	06/2011 – 05/2012
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 their applications to improve 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 the perception of vibrotactile stimuli in mobile environments
- Measuring Presence in Mobile 3D
 - Supported by the Small and Medium Business Administration of Korea
 - Conducted empirical tests for evaluating situation awareness of 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.

Posters

- [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)
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Activities

Workshop Organizer

- 2014 VisLit Workshop: Towards An Open Visualization Literacy Testing Platform 11/2014
- IEEE VIS 2014, Paris, France
- Co-organized 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

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	

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
■ The Second Stage of Brain Korea 21 (BK21) Scholarship – Korea University	09/2007
■ Semester High Honors – Korea University	03/2007
■ Honors Scholarships – Korea University	09/2006, 09/2005
■ Special Scholarships – Korea University	03/2006, 03/2004
■ Freshmen Special Scholarships – Korea University	09/2004
– Korea University	03/2003
