

CURRICULUM VITAE

CHANG-HO CHIN (Also known as Chang-Ho Jihn)

Director of Healthcare Big Data Center
Department of Industrial and Management Systems Engineering
Department of Software Convergence (by courtesy)
Kyung Hee University, South Korea

chin@khu.ac.kr jihn@khu.ac.kr chang.jihn@northwestern.edu
www.BigDataIs.org | www.BigHealth.kr | www.CTmining.org

PROFESSIONAL EXPERIENCE

Visiting Scholar	Department of Preventive Medicine Northwestern University, USA	2016-
Associate Professor	Department of Industrial and Management Systems Engineering Kyung Hee University, South Korea	2012-
Director	Healthcare Big Data Center Kyung Hee University, South Korea	2014-
Director	Culture and Tourism Big Data Institute Kyung Hee University, South Korea	2014-
Visiting Scholar	Department of Industrial Engineering and Management Sciences Northwestern University, USA	2008-2008
Assistant Professor	Department of Industrial Engineering Kyung Hee University, South Korea	2007-2012
Full-time Faculty on Tenure Track	Department of Industrial Engineering Kyung Hee University, South Korea	2005-2007
Post-Doctoral Research Associate	Department of Industrial Engineering Texas A&M University, USA	2004-2005
Research Assistant	Department of Industrial Engineering Texas A&M University, USA	1999-2004
Intern	Samsung Data System (SDS)	1994-1994

EDUCATION

Ph.D.	Industrial Engineering, Texas A&M University, USA Concentration: Statistical Process Control, Fault Diagnosis, and Data Mining Dissertation Committee Co-chairs: Dainel W. Apley at Northwestern University, USA (Principal Ph.D. advisor) Yu Ding at Texas A&M University, USA	2004
M.S.	Industrial Engineering, Texas A&M University, USA Concentration: Quality Control in Manufacturing Process Thesis Committee Co-chair: Dainel W. Apley at Northwestern University, USA	1999
B.S.	Industrial Engineering, Korea University, South Korea Concentration: Database and Simulation	1996

HONORS AND AWARDS

	The Professor of Best Lecture Award Kyung Hee University, South Korea	2013
D	The 3rd place in KIIE Academic-Industrial Cooperation Project Contest Title of project: Ubiquitous Statistical Quality Management System Korean Institute of Industrial Engineering (KIIE), South Korea	2009
D	The Best Research Award from the Society of KISE Annual Spring Conference Topic: Performance Comparison and Robustness Analysis of Residual-based Control Charts The Society of Korea Industrial and Systems Engineering (KISE), South Korea	2005
D	INFORMS Annual Conference Best Student Paper Competition Finalist Quality, Statistics, and Reliability (QSR) Section of INFORMS The Institute for Operations Research and the Management Sciences (INFORMS), USA	2004
	Korean Honor Scholarship Twenty-four Korean graduate students over America were awarded in 1999 The Korean Honor Scholarship Committee, Washington, D.C., USA	1999
	Distinguished Student Award Korea University, South Korea	1995

RESEARCH INTERESTS

- DWIA Smart Healthcare
- DWIA Medical Big Data Analysis and Mashup
- D IA Behavior Intervention Technology
- D IA Privacy Preserving Remote Medical Service
- DW A Data-Driven Medical Service Science (Service Design and Service Strategy)
- DW Patient/Process Monitoring and Forecasting
- D A Hospital Customer Relationship Management (CRM)
- D Privacy Preserving Infection Surveillance

My research objectives are

- to measure, analyze, screen, diagnose, optimize, monitor, and manage patient's mental, physical, social, and environmental conditions and contexts to maintain and improve individual and population health.
- especially to timely and accurately diagnose and intervene in privacy-preserving manners, by sensing, advanced statistics, data mining, machine learning, information security, etc.
- to develop a general statistical framework for effectively and efficiently monitoring, diagnosing, and controlling variation in data-rich environments such as the healthcare and service industries. Variability is a major factor associated with the costs of poor quality performance. Improving process predictability, stability and capability by reducing variability is the key to competitiveness.

My research area is closely related to designing, cultivating, collecting, processing, protecting, and destructing data over its lifecycle, which has been shown in my various accomplishment.

RESEARCH SKILLS

Machine Learning, Data Mining, Text/Opinion Mining, Cognitive Modeling, Quality Engineering, Statistical Process Control, Multivariate Statistical Analysis, Forecasting Theory, Time Series Analysis, Applied Game Theory, Customer Relationship Management (CRM), Reliability Engineering, IoT (Internet of Things), Information Security, Android & IOS, R, MATLAB, Visual Basic, C, Fortran, SPSS, SAS, MINITAB

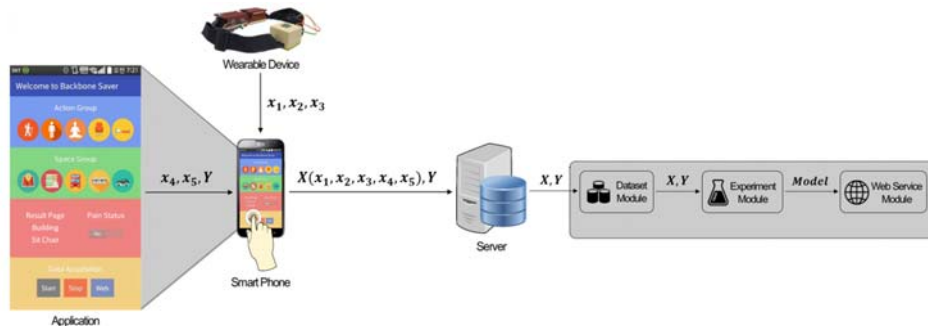
RESEARCH COLLABORATION

I am pushing ahead with international joint research and have signed two MOUs with Northwestern University's Feinberg School of Medicine in Chicago, USA and IT University of Copenhagen, Denmark.

RESEARCH ACCOMPLISHMENT, GRANTS, AND CONTRACTS

Developing a predictive model for personalized context-aware warning system for low back pain
 QUAD Lab, South Korea

2016-2016



Big Data Analysis Based Recommendation System for Pregnant Women (Associated with Cha Hospital in South Korea)

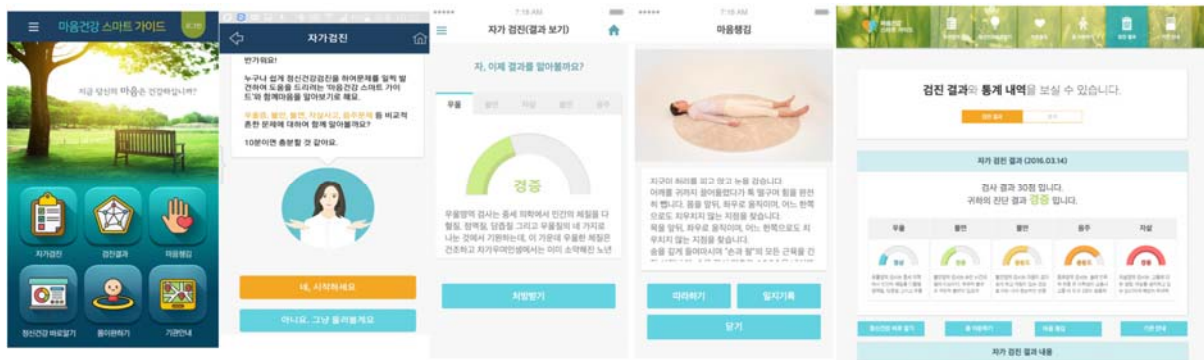
TIPA (Korea Technology and Information Promotion Agency for SMEs), South Korea

2015-2016



Web-Based Mental Health Self-Screening, Managing and Connective System
 Ministry of Health and Welfare, South Korea

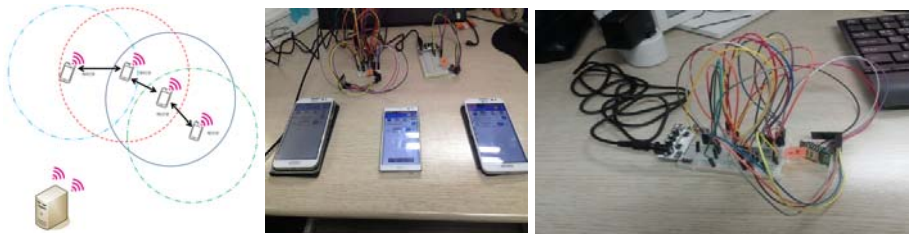
2015-2015



D decision support W workflow support I information exchange A artificial intelligence

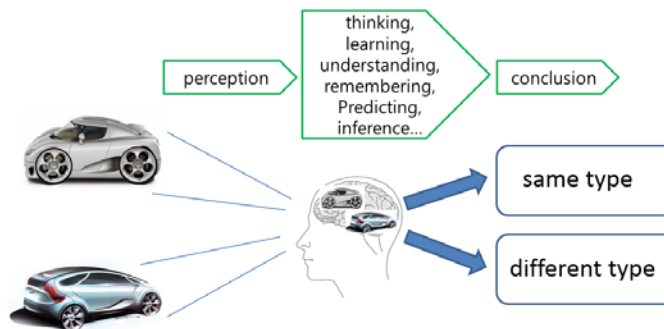
Privacy Protection System Prototype (University Creative Resource Commercialization Project)
Ministry of Education, South Korea

2015-2015



Cognitive Model-Based Design for Product Differentiation and Optimized Advertising Strategy
National Research Foundation of Korea, South Korea

2014-2016



Research Project on the Development of Data Mart based on the Big Data Analysis of Slope Collapse
LX Corporation, South Korea

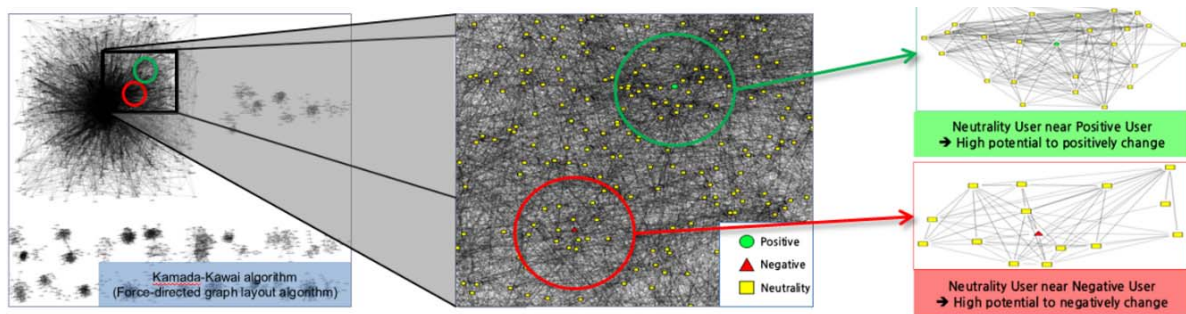
2014-2014



Tourism Market IT analysis using the big data of roaming services
 Korean Culture & Tourism Institute, South Korea 2014-2014

The 2nd Data Mining Contest Administrating Project- Roaming Data of Inbound Foreign Tourists
 Korean Culture & Tourism Institute, South Korea 2014-2014

Research on the Development of Social Safety net using Big Data Analysis
 Korea Science and Creativity Foundation, South Korea 2013-2014



Quality Assessment of Occupational Radiation Exposure Analysis and Database for Radiation Workers in Korea
 Korea Hydro & Nuclear Power, South Korea 2013-2013

Non-parametric statistical method and confrontation strategy for effective analysis of occupational radiation exposure in a nuclear power plant
 Korea Hydro & Nuclear Power, South Korea 2012-2013

Research on Estimation of Reasonable Price and Repetition of Research Equipment
 Korea Advanced Institute of Science and Technology, South Korea 2013-2013

Developing and designing monitoring methods of multiple changes
 National Research Foundation of Korea (NRF), South Korea 2010-2012

Game-Theory Based Cross-layer Wireless Design Technique
 Institute for Information Technology Advancement (IITA), South Korea 2008-2011

SPC-based Health Monitoring Method Development
 National Research Foundation of Korea (NRF), South Korea 2009-2010

Flexible Control Chart Development for Autocorrelated Data
 National Research Foundation of Korea (NRF), South Korea 2008-2009

Ubiquitous-SPC System Development Technical Support Project Yong-in City, South Korea	2007-2008
Research in Statistical Process Control for Small-Lot-Sized Production Kyung Hee University, South Korea	2005-2006
Detection and Prevention of errors in PCB assemble Using Information Integration Texas Engineering Experiment Station, South Korea	2000-2001
Statistical Process Control for Small-Lot-Sized Production Bell Helicopter Textron Inc., South Korea	1999-1999

PATENTS

Device of transmitting indiscriminating personal and method of the same
Domestic patent | ROK patent *Registered*

Apparatus and method for goal attainment diagnostic
Domestic patent | ROK patent *Registered*

Method and System for coaching based on relationship type
Domestic patent | ROK patent *Registered*

Device of transmitting indiscriminating personal information and method of the same
Domestic patent | ROK patent *Registered*

System for identifying human relationships around users and coaching based on identified human relationships
Domestic patent | ROK patent *Registered*

Method and apparatus for value added service based on evaluation of the sights
Domestic patent | ROK patent *Registered*

Method for stability of slotted aloha with selfish users under delay constrain
Domestic patent | ROK patent *Registered*

Design system of exponentially weighted moving average control chart using gradient-based search method and design method there of
Domestic patent | ROK patent *Registered*

5 international patent applications under Review

Area: context-awareness and behavioral intervention technology in healthcare and marketing

7 domestic patent applications under Review

Area: context-awareness and behavioral intervention technology in healthcare and marketing

PUBLICATION: BOOK

Identifying a Man inside of Big Data

Korean Studies Information, ISBN 978-89-268-6652-8

2014

RESEARCH PUBLICATIONS

Journal Papers submitted or to be submitted

Jihn, C. and Yoon, D., "Estimating the relationship of people contacted by mobile phone users," Target Journal: Journal of Affective Disorder.

Jihn, C. and Yoon, D., "Rule-based schemes and optimal cutoff points of PHQs" Target Journal: Journal of Affective Disorder.

Jihn, C. and Yoon D., "Relationship between the contact patterns of mobile phone users and their affective status," Target Journal: Journal of Affective Disorder.

Yoon D. and Jihn, C., and, "Personalized context-aware warning system for low back pain," Target Journal: Disability and Health Journal.

Jihn, C. and Yoon D., "A data analysis framework for predicting geological anomaly," Target Journal: Journal of Applied Geography .

Jihn, C., "Identifying the breakout and spread path of disease," Target Journal: Journal of Telemedicine and Telecare.

Jihn, C., "Developing the Map of Regional Tour Attractiveness Depending on Weather and Climate conditions," Target Journal: Annals of Tourism Research.

Jihn, C., "Developing the Map of Regional Tour Safety Depending on Weather and Climate conditions," Target Journal: Annals of Tourism Research.

Jeong, T. and Jihn, C., "Non-parametric Statistical Method for the Effective Diagnosis of Occupational Radiation Exposure in a Nuclear Power Plant," Target Journal: Radiation Protection Dosimetry.

Jihn, C., Ulkhaq, M. M., and Nugrahaeni, V. S. "Determining the Duplication and Reasonable Price of Research Equipment," Target Journal: IIE Transactions.

Jihn, C. and Ulkhaq, M. M., "Parallel Discretization for Efficient Average Run Length Computation of ARMA charts," submitted to PLOS ONE.

Jihn, C. and Hernandez, A., "Likelihood-based Bayesian Method for Monitoring Multi-stage Processes," Target Journal: Technometrics.

Jihn, C. and Jeong, T., "A Xbar-based Monitoring Scheme for the Various Magnitudes of Mean Shifts," Target Journal: Journal of Quality Technology.

Jihn, C. "Slotted Aloha with time-variant transmission probabilities," Target Journal: Journal of the Korean Institute of Industrial Engineers.

Jihn, C. and Apley, D. W., "A Generic Numerical Look at the Optimality of Control Charts," Target Journal: Journal of Quality Technology.

Jihn, C., Han, S., and Choi, H., "Optimal Design of Combined Control Charts," Target Journal: IIE Transactions.

Jihn, C., Yoon, D., Shin, Y., and Seok, S., "Constructing the Social Safety Network Based on the SNS analysis," Target Journal: CyberPsychology & Behavior or Computers in Human Behavior.

Journal Publications (formerly published under the English name of Chang-Ho Chin)

Chin, C. and Ko, S. (2013), "Clustering and Power Transformation Based Methods for the Departure of Normality in Korean Soil Investigation Data," Human and Ecological Risk Assessment: An International Journal, 19, 724-741.

Chin, C., Kim, J., and Lee, D. (2011), "Stability of Slotted Aloha with Selfish Users under Delay Constraint", KSII TRANSACTIONS ON INTERNET AND INFORMATION SYSTEMS, 5, 3, 542-559.

Jung, J., Chin, C., and Cardoso, J. (2011), "An Entropy-based Uncertainty Measure of Process Models", Information Processing Letters, 111, 135-141.

Chin, C. and Apley, D. W. (2008), "Performance and Robustness of Control Charting Methods for Autocorrelated Data", Journal of the Korean Institute of Industrial Engineers, 34, 2, 112-139.

Apley, D. W. and Chin, C. (2007), "An Optimal Filter Design Approach to Statistical Process Control", Journal of Quality Technology, 39, 2, 93-117.

Chin, C. and Apley, D. W. (2006), "Optimal Design of Second-order Linear Filters for Control Charting", Technometrics, 48, 3, 337-348.

PRESENTATIONS AND INVITED TALKS

Invited Talks

1. "Smart Healthcare in Automobile", Hyundai-Kia Motors R&D Center, May, 2016
2. "Smart Healthcare and Personal Information Protection", U-IoT World Convention 2015: Big Data IoT Based Future City- Smart City, Busan City, 2015.03.
3. "The Method of Transmitting De-identified Personal Information and Business Model", National Information Society Agency, 2015.03.
4. "Android-based coaching method for patients and business model", National Information Society Agency, 2015.03.
5. "The Method of Transmitting De-identified Personal Information and Business Model", Creative Economy Action Committee, 2015.02.
6. "Performance Comparison and Robustness Analysis of Residual-based Control Charts", Korea University, Rep. of Korea, June, 2008.

7. “New Control Charting Approaches to Statistical Process Control of Autocorrelated Processes”, Texas A&M University, USA, November 2004.

Conference and Symposium Presentations and Seminars

1. “Product Design differentiation and advertising strategies based on cognitive modeling’, 2016 Spring Joint Conference – KIIE/KORMS/KSIE/KSS, Jeju-si, Republic of Korea, April 13-16, 2016
2. “A Statistics and Data Mining Based Approach to Designing Efficient and Effective Reduction Countermeasures”, 2015 International Conference on Individual Monitoring of Ionising Radiation, Bruges, Belgium, April 20-24, 2015
3. “Evaluation on the key factors of decision making for the reduction strategy of radiation exposure in nuclear power plant using AHP”, 2015 International Conference on Individual Monitoring of Ionising Radiation, Bruges, Belgium, April 20-24, 2015
4. “A data analysis framework for predicting geological anomaly”, KIIE fall Conference, Jeju-si, Republic of Korea, April 08-11, 2015.
5. “Likelihood-based Bayesian Method for Monitoring Multi-stage Processes”, Korea-China Quality Symposium 2013, Seoul, Republic of Korea, August 12-14, 2013.
6. “Simultaneous Monitoring Scheme for the Various Magnitudes of Mean Shifts”, Korea-China Quality Symposium 2013, Seoul, Republic of Korea, August 12-14, 2013.
7. “Efficient Average Run Length Computation for ARMA charts”, Korea-China Quality Symposium 2013, Seoul, Republic of Korea, August 12-14, 2013.
8. “A Xbar-based Monitoring Scheme for the Various Magnitudes of Mean Shifts”, INFORMS international meeting 2012, Beijing, China, June 24-27, 2012.
9. “Likelihood-based Bayesian Method for Assessing Process Risk in Real Time”, INFORMS international meeting 2012, Beijing, China, June 24-27, 2012.
10. “Optimal Design of Combined EWMA Control Charts”, Modeling and Optimization: Theory and Applications (MOPTA) 2011, Bethlehem, PA, USA, August 17-19, 2011.
11. “Optimal Design of Cuscore charts”, Modeling and Optimization: Theory and Applications (MOPTA) 2011, Bethlehem, PA, USA, August 17-19, 2011.
12. “A New Monitoring Scheme for Various Types of Mean Shifts”, INFORMS Fall Conference, Austin, USA, November 5-10, 2010.
13. “A Slotted Aloha Game Model for Selfish Users under Delay Constraints”, KICS Summer Conference, Jeju-si, Republic of Korea, June 23-25, 2010.
14. “A General Numerical Look at the Optimality of Control Charts”, KIIE fall Conference, Yongin-si, Republic of Korea, October 09, 2009.
15. “A New Control Charting Method for Various Mean Shifts”, KIIE fall Conference, Yongin-si, October 09, 2009.

16. “A Discretization Method for Approximating ARL with the Markov Chain Method”, INFORMS Fall Conference, Washington, D.C., October 11-15, 2008.
17. “An Optimal Filter Design Approach to Statistical Process Control”, 51st Fall Technical Conference, ASA & ASQ, Milwaukee, WI, October 10-13, 2007. (Lead: Danial W. Apley, Co-Author: Chang-Ho Chin)
18. “An Optimal Filter Design Approach to Statistical Process Control”, Joint Statistical Meetings, ASA & ISM & IBS & SSC, Salt Lake City, UT, July 29-August 2, 2007. (Lead: Danial W. Apley, Co-Author: Chang-Ho Chin)
19. “Performance Comparison and Robustness Analysis of Residual-based Control Charts”, KSIE Spring Conference, Seoul, Rep. of Korea, May 22, 2007.
20. “A Linear Filtering Method for Statistical Process Control with Autocorrelated Data”, KIIE & KORMS Spring Joint Conference, Daejeon, Rep. of Korea, May 29~20, 2006.
21. “Optimal Filter Design Approach to Statistical Process Control”, KSQM Spring Conference, Incheon, Rep. of Korea, April 8, 2006.
22. “Dimensional Statistical Process Control for Low-Volume Production”, KIIE Fall Conference, Seoul, Rep. of Korea, November 25, 2005.
23. “Linear Filtering Methods for Statistical Process Control with Autocorrelated Data”, INFORMS Fall Conference, Denver, CO, October 24-27, 2004.
24. “Optimal Filter Design Approach to Statistical Process Control”, INFORMS Fall Conference, Denver, CO, October 24-27, 2004.
25. “Optimal Design of General Linear Filters for Statistical Process Control”, IIE Annual Conference, Houston, TX, May 15-19, 2004.
26. “Optimal Filter Design Approaches to Statistical Process Control for Autocorrelated Processes”, Pathways Student Research Symposium, Galveston, TX, November 14-15, 2003.
27. “Optimal Linear Filters for Control Charting”, INFORMS Fall Conference, Atlanta, GA, October 19-22, 2003.
28. “An Optimal Filter Design Approach to Statistical Process Control for Autocorrelated Processes”, INFORMS Fall Conference, San Antonio, TX, November 5-8, 2000.

MASS MEDIA

Video Clips

YouTube, 2015, “Smart Healthcare, Big Data, and Privacy Protection”, https://youtu.be/lt3andl_J2w

Media Articles

Yonhap News, 2015, “Exploring the Future of Big Data and IoT”, <http://www.yonhapnews.co.kr/photos/1990000000.html?cid=PYH20151202120700051&input=1196m>

Yonhap, 2015, “Invitation to Smart City..Busan U-IoT World Convention”, <http://www.yonhapnews.co.kr/bulletin/2015/12/02/0200000000AKR20151202042100051.HTML?input=1195m>

Yakup news , 2014, “ Big Data knows Hidden Demands of Consumers”,
<http://www.yakup.com/news/index.html?mode=view&cat=15&nid=177146>

PROFESSIONAL AFFILIATIONS

Institute for Operation Research and the Management Sciences (INFORMS)
Institute of Industrial Engineers (IIE)
Korea Big Data Society
Korea Institute of Industrial Engineers
Korea Society of Quality Management
The Society of Korea Industrial and System Engineers
Korea Society of IT Service
The Korea Institute of Communications and Information Science (KICS)
Institute for Operations Research and the Management Sciences

SERVICE

Government and Professional Institutions

- A **IoT (Internet of Things) Coordinator**, Busan Creative Economy Innovation Center, 2016-present
- D **Social Network Service (SNS) Data Analysis Advisory Committee**, Korean Culture and Information Service, 2015-2016
- D IA **Big Data Advisory Committee**, Future Growth Engine Initiative, 2015
- D IA **Data Brokering and Privacy Protection Advisory Committee**, Korea Data Base Agency, 2015-2016
- D IA **Data Brokering and Privacy Protection Advisory Committee**, National Information Society Agency, 2015
- D IA **Information and Communication Technology (ICT) Based Wellness Care Advisory Committee**
Ministry of Science, ICT, Future Planning, 2015-2015
- D IA **Big Data Advisory Committee**, Creative Economy Initiative, Public-Private Partnership, 2014-2015
- I **Privacy Protection Advisory Committee**, Ministry of the Interior, 2014
- D A **Big Data Advisory Committee**, Ministry of Culture, Sports and Tourism, 2013-2014
- D A **Panelist**, Proposal Review Panel, Korea Land and Geospatial Informatix Corporation, 2014-2014
- Panelist**, Proposal Review Panel, Korea Railroad, 2013
- D A **Panelist**, Proposal Review Panel, Korean Culture & Tourism Institute, 2013
- Panelist**, Proposal Review Panel, National Research Facilities and Equipment Center, 2012
- Panelist**, Proposal Review Panel, Korea Technology and Information Promotion Agency for SMEs
- Panelist**, Proposal Review Panel, Kyunggi SMB (Small and Medium Business Administration)
- Panelist**, Proposal Review Panel, National Research Foundation of Korea

Departmental

Department Chair, Department of Industrial and Management Systems Engineering, Kyung Hee University, South Korea, 2014-2015
Department Chair, Department of Industrial Engineering, Kyung Hee University, South Korea, 2008-2010

D decision support W workflow support I information exchange A artificial intelligence

Conference Organization

General Chair, Tourism Big Data Analysis Contest, Korea Culture & Tourism Institute, South Korea, 2014
Organizing Chair, KIIE Spring Annual Conference, Korean Institute of Industrial Engineering (KIIE), South Korea, 2009
Executive Director, The Society of Korean Industrial and System Engineers, South Korea, ????-????
Executive Director, Korea Institute of Industrial Engineers (KIIE), South Korea, ????-????

Editorial

Referee, The Institute of Industrial Engineers (IIE) Transactions
Referee, Industrial Engineering & Management Systems
Referee, KSII Transactions on Internet and Information Systems
Referee, Korea institute of Industrial Engineers (KIIE)
Referee, The Society of Korea Industrial and System Engineers (KISE)
Referee, IE Interface

COURSES TAUGHT

Regarding my teaching experience, I have taught twenty different courses so far: **Data Mining, CRM (Customer Relationship Management), Service Management, Statistics, Applied Statistics, Statistical Process Control, Advanced Statistical Quality Control, Time Series Analysis, Six Sigma, Forecasting Theory, Reliability Engineering, Reliability Management, Linear Algebra, Engineering Programming, Introduction to Industrial Engineering, Applied Programing Design for Industrial Engineering, Applied Experiments in Industrial & Management Systems Engineering, Special Topics in Statistical Process Control, Special Topics in CRM, and Special Topics in Time Series Analysis.**