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Background

I received my Ph.D. from Dept. of Computer Engineering at the Kyung Hee University, Korea in 2013. My advisor is Prof. Sungyoung Lee and I'm a member of both Ubiquitous Computing Laboratory and uLCRC (East-West Neo Medicinal u-Lifecare Research Center) advised by him. And I got my bachelor and master degrees in Computer Engineering from the Kyung Hee University in 2005 and 2007 respectively. Currently I am working as a postdoctoral research fellow funded by BK21+ program at Kyung Hee University from September, 2013.

My research areas of interest are listed below:

Big Data Analysis, Data Mining, Analysis Platform, Ubiquitous Computing, Context-aware, Activity Recognition, Human Behavior Analysis, Artificial Intelligence

Section 1: Education

1.1 Education

2013	Ph.D.	Kyung Hee University, Korea	Computer Engineering
2007	M.S.	Kyung Hee University, Korea	Computer Engineering
2005	B.S.	Kyung Hee University, Korea	Computer Engineering
2000	Diploma	Choongahm High School, Korea	Science & Engineering

1.2 Title of Ph.D. Graduation Thesis

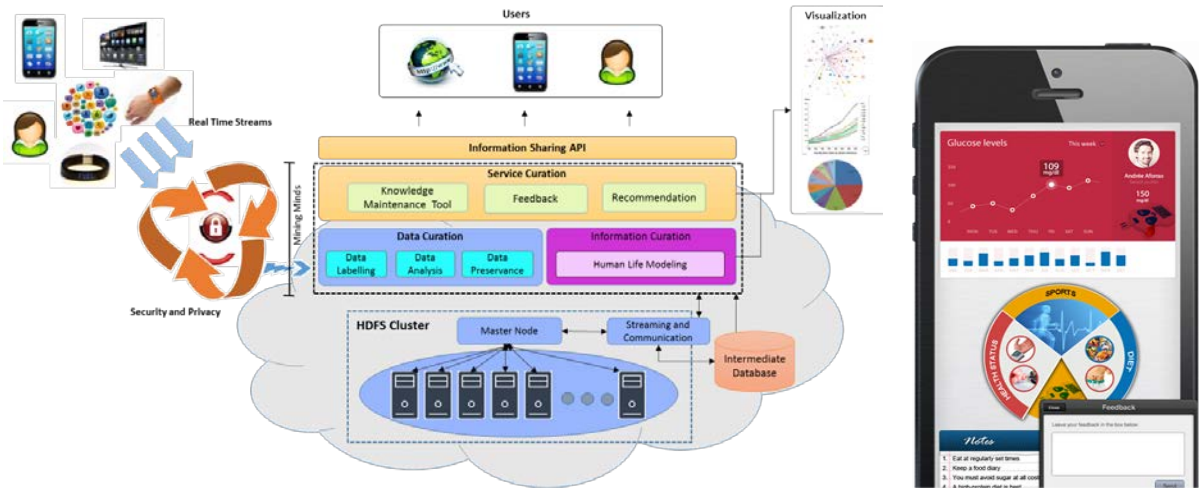
An Integrative Human Activity Recognition Framework based on Smartphone Multimodal Sensors
(Advisor: Prof. Sungyoung Lee, Kyung Hee University)

Section 2: Projects

2.1 On-going Project

05/2014 ~ Present, MiningMinds: Development of Personal Big Data Analysis Platform and Core Technologies

- Position: Co-Project Manager(Postdoctoral Research Fellow)
- Mining Minds is a collection of services, tools and techniques working collaboratively to investigate on human's daily routines to provide a personalized well-being and health-care support.
- Research issues
  - **Big Data Analysis and Modeling**: Data acquisition from diverse sources of data in online and offline manner, unified representation and an interoperable and sharable model.
  - **Human Behavior Analysis**: User interests and preferences learned from historical and contextual data from emotion, activity, diet and sleep patterns.
  - **Personalized Recommendation**: Context-aware recommendation generation for the target users according to their needs and situation.
  - **Knowledge Maintenance**: High quality knowledge creation and feedback-based knowledge maintenance.
  - **Adaptive UI/UX**: UI/UX Authoring tool - Provide UX based adaptive UI
- Mining Minds Project Website: http://www.miningminds.re.kr



[MiningMinds project overview and service application]

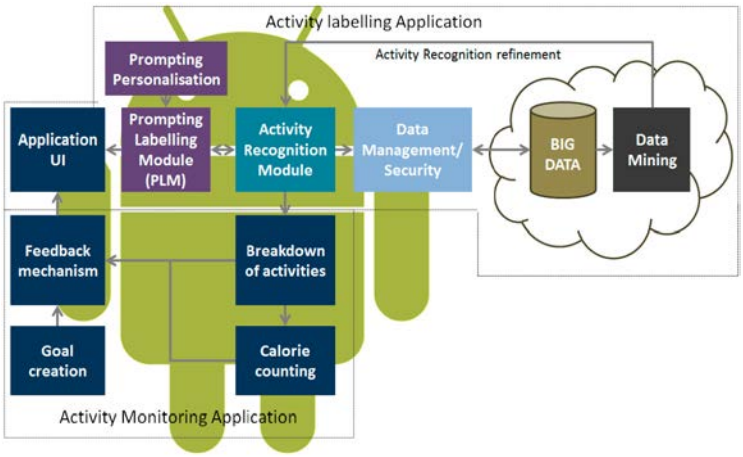
2.2 Past Projects

07/2011 ~ 12/2014, [Int'l Collaborative Research] Development of Robust Activity Recognition Algorithm by Analyzing Personal Big Data

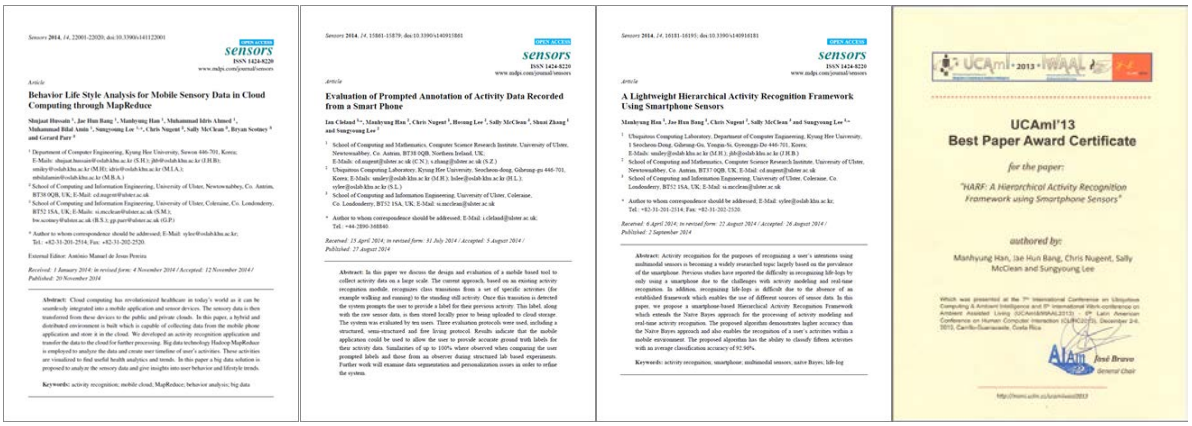
- Position: Visiting Scholar
- Investigated robust human activity recognition algorithm with Prof. Chris Nugent, University

of Ulster, U.K who is very well-known researcher in sensory data collection and big data processing for smart environment research. From 2011, I've visited and had a collaborative research with his team in U.K. for 2 months every year.

- 3 SCI papers, several patents and international papers were published including a Best Paper Award in 2013.



[System architecture of an activity labelling for robust activity recognition]



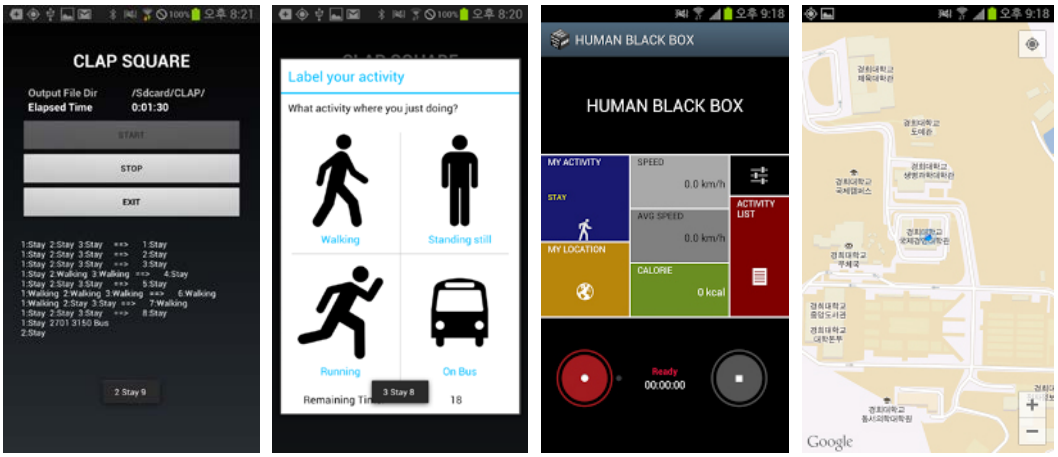
[Research outcomes of international collaborative research: 3 SCI papers, 1 best paper award]

01/2011 ~ 04/2014, Mobileware: Human Activity Recognition based on Smartphone Multimodal Sensors

- Position: Team Leader
- The main object of Mobileware is to develop Smartphone based activity and emotion recognition technologies on real environment and provide personalized services. We investigated a comprehensive approach for recognizing human's activity and context information that utilizes the multimodal sensors in Smartphones.
- For recognizing human's physical activities such as stay still, walking, jogging and cycling, GMM-based classifier is used. And audio data is used for recognizing vehicle contexts (Bus/Subway) by using HMM-based classifier. Also soft sensors information like GPS and Wi-Fi are utilized for improving an accuracy of activity recognition.
- Mobileware Website: http://uclab.khu.ac.kr/index_research.php?type=details&cellno=5
- **CLAP2 Project**: A mobile based tool to collect activity data on a large scale and provides

user feedback mechanism by prompting on a touch screen of Smartphone. It could be used to allow the users to provide accurate ground truth labels for their activity data.

- **HBB (Human Black Box) Project**: An android Smartphone application developed for providing both personalized and emergency services using smartphone. Action Logger core engine is used for acquiring activity labels. A fall detection algorithm and calculating calorie consumption engine are developed for this project.



[Screenshots of the CLAP2 and HBB applications]

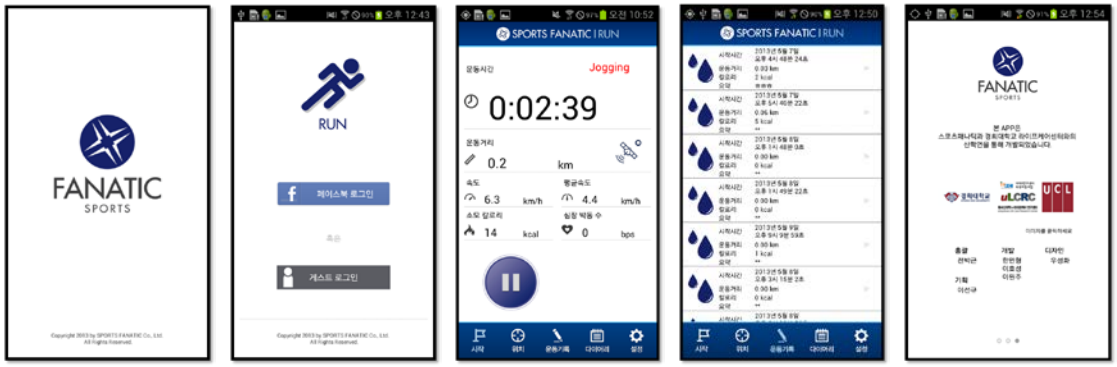
- HBB Google Play link: https://play.google.com/store/apps/details?id=khu.uclab.hosung.hbb

09/2006 ~ 12/2014, East-West Neo Medicinal u-Life Care Research Center (uLCRC)

- Position: Postdoctoral Research Fellow
- The ubiquitous Life Care Research Center (uLCRC), established in 2006 with a funding from Ministry of Knowledge Economy of Korea (MKE).
- uLCRC is a unique Information Technology Research Center dedicated to developing human lifecare technologies based on the principles of east-west neo medicine.
- We've developed core technologies for u-Lifecare applications such as inference algorithms, bio sensing techniques, smart objects and cloud platform for managing, processing, storing and inferring personal information securely.
- uLCRC Website: http://ulcrc.khu.ac.kr/eng

10/2012 ~ 08/2013, Sports Fanatic Run: Android Application for tracking user's fitness activities

- Position: Research Director
- Commercial smartphone application for tracking fitness activities. It used a GPS sensor data for collecting fitness information such as trajectory, distance, time, calories burned etc. and storing records in Smartphone.
- Collaborative work between the ubiquitous Life Care Research Center (uLCRC), Kyung Hee Univ. and Sports Fanatic Corp.



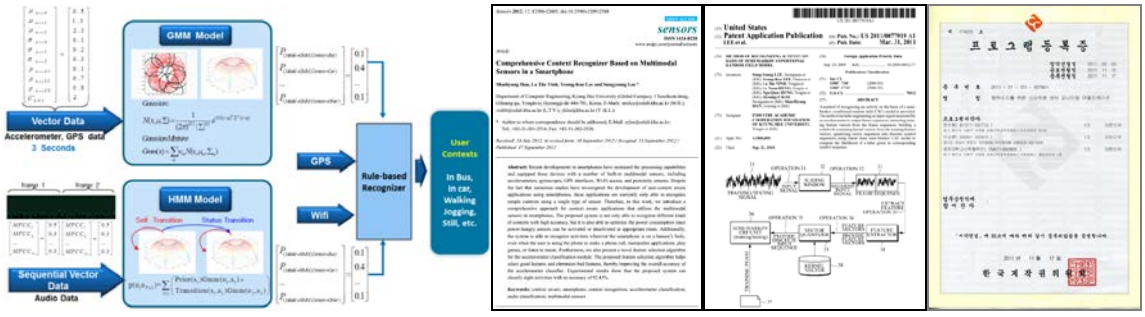
[Screenshots of the Sports Fanatic Run application]

- Google Play link: https://play.google.com/store/apps/details?id=kr.co.sportsfanatic.sfsc

[News articles: IT Today(Oct. 2, 2013), Herald Economy(Nov. 9, 2013)]

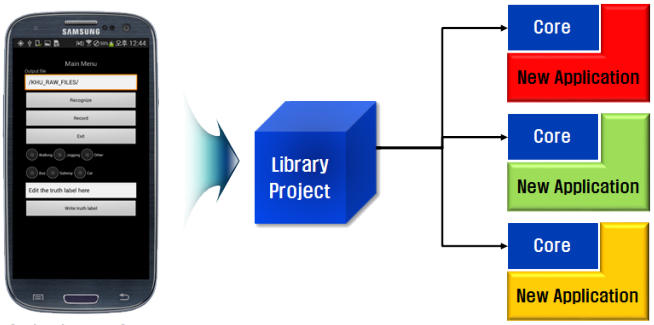
06/2010 ~ 09/2012, Action Logger: Smartphone sensor based activity recognition and logging application

- Position: Team Leader
- Action Logger provides a technology to detect user's activity and consumed calories. It uses accelerometer and GPS embedded in smartphone to recognize 5 different activities which are stay, walking, jogging, taking a bus and subway.
- The orientation and the position (Top/bottom pocket, bag, hand, etc.) of the smartphone is irrelevant. With action logger, you may review your daily activity and moved path with consumed calorie which could be used widely in healthcare, fitness, wellness, and entertainment services.



[Project outcomes: International journal paper, International (U.S.) patent and Program reg.]

- **Action Logger Open Source Project** is an activity recognition technology using multimodal sensors embedded in Smartphone which is developed by Mobileware team in Ubiquitous Computing Lab of Kyung Hee University. The whole algorithm of Action Logger could be loaded or modified by any developers who wish to use. This will bring you to develop novel activity recognition technology or applications. All of the source codes, collected data sets, and applications can be used for free for research purpose. Commercial usage needs permission by us, so please contact us in this case.

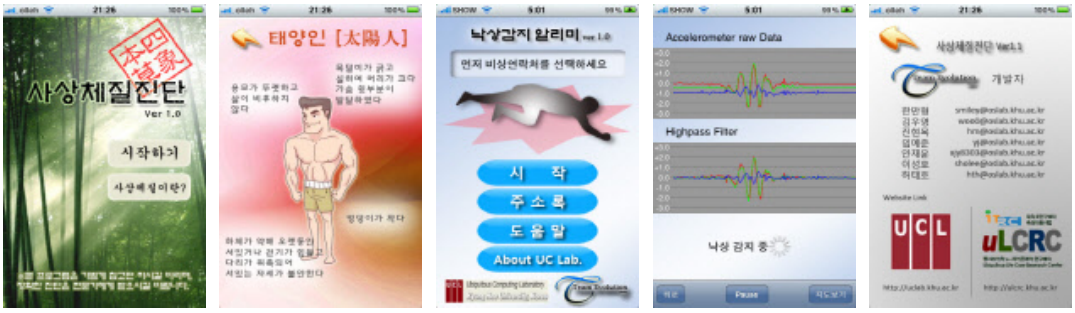


Action Logger App.

- ALOSP(Action Logger Open Source Project) Website: http://uclab.khu.ac.kr/ActionLogger/

12/2009 ~ 05/2010, iPhone Application: Sasang Constitution Diagnosis Application and Fall Detection Application

- Position: Team Leader
- u-Healthcare services using a smartphone have lots of possibilities by its mobility, portability and powerful processing power. In this project, we've developed two smartphone applications based on the iOS platform for iPhone and iPod.
- **Sasang constitution diagnosis**(사상체질진단) application diagnose a person's character conveniently and quickly with only 23 questions. The Sasang typology is a traditional Korean medical typology which categorizes people into four types based on their traits. It had been ranked #1 in the Appstore for a week and downloaded over 150,000.
- **Fall detection(**낙상감지 알리미) application monitors human's activities in real-time and if a fall has been detected, it makes noisy sound and notify his/her location to designated persons such as care-givers, nurses or doctors by SMS. Falling is a major cause of personal injury, especially for the elderly. The WHO estimate (2002) that 392,000 people die in falls every year.



[Screenshots of the applications]

10/2009 ~ 09/2010, Intelligent Lifestyle Service Provider (i-LiSP)

- Position: Researcher
- i-LiSP is one of modules in the SC^3 project. It aims to provide intelligent services to the users by analyzing their context information. Service is an act of help, assistance or recommendations. Many various kinds of services are considered in i-LiSP, such as entertainment, medication or sport services and so on.
- Context information used in i-LiSP are comprehensive which are obtained from various sources. They mainly include: ①The sensor information from sensors, ②The activity information from Human Activity Recognition Engine or ③The high-level context information from CAME Engine.

10/2008 ~ 09/2009, Activity Recognition Systems for Human Behavior (Humanware)

- Position: Team Leader
- The goal of Humanware Research Team is to recognize the actions and objective of one or more users from a series of observations on the user's actions and surrounding environment.
- The series of observations on the user's action can be observed through stream of sensory data. The sensors can be audio/video sensors, body attached sensors (e.g. accelerometer) or simple and ubiquitous sensors (e.g. Berkley Motes). Main focus of this project is to recognize an activity of daily livings using the combination of aforementioned sensors.
- Collaborated with SAMSUNG Electronics

01/2008 ~ 07/2008, Assisted-Living and Residential Monitoring Network (AlarmNet) – a wireless sensor network for smart healthcare

- Position: Visiting Researcher
- Advisor: Prof. John A. Stankovic (BP America Professor)
- Development of an Activity Recognition Module for supporting knowledge processing in the AlarmNet Systems. The AlarmNet architecture for smart healthcare possesses the essential elements such as integration with existing medical systems, long-term monitoring, wearable sensors and assistance to the elderly and chronic patients.

- Especially detecting and reasoning a Diabetes and Depression based on raw sensing data from several sensors deployed at home environment.

UNIVERSITY of VIRGINIA

- AlarmNet Website: http://www.cs.virginia.edu/wsn/medical

08/2006 ~ 09/2008, Context-aware Middleware System for Ubiquitous Systems (CAMUS)

- Position: Team Leader
- Development of Context-aware Middleware for providing Ubiquitous Service to Users in Smart Spaces(Smart Home, Smart Office or Smart Hospital etc.), CAMUS group is focused on developing context aware middleware that will facilitated the easy and faster development of smart systems for ubiquitous environment.
- Funded by Ubiquitous Appliance Solution Technology Development Project of Ministry of

Commerce, Industry and Energy (MOCIE), Korea

- CAMUS team website: http://uclab.khu.ac.kr/camus

09/2006 ~ 01/2007, Building Ubiquitous Computing Lab. Website

- Position: Design, Developer(Exclusive Work)
- From designing all images to server configuration and build up the DB System
- Using Windows Server 2003, MySQL, IIS Server, PHP, HTML, Photoshop, Illustrator and Macromedia Flash
- Visit UCLab. Website for more information: http://uclab.khu.ac.kr

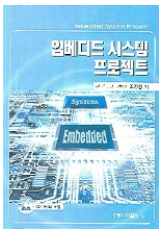
08/2005 ~ 09/2006, Development of DRCM (Dynamic Reconfigurable Context-aware Middleware) Project

- Position: Sensing Agent Developer
- Implement Lightweight Context-aware Middleware on OSGi platform working on JVM and building demonstration room called Smart Office. We've been tested the performance of our Lightweight Middleware (DRCM) and made Demonstration Movie. The target platform of DRCM is mobile hand-held Devices (PDA, PMP, Cell or Smart Phone) because the code size is only 113KB.

12/2004 ~ 09/2005, Interactive Digital-TV Systems

- Position: System Developer
- Development of MHP-based Set-top Box for Interactive Digital Broadcasting System, Funded by Driving Force Project for the Next Generation Project of Gyeonggi Provincial Gov., Korea

09/2004 ~ 12/2004, Development of QIV (QT Image Viewer)



- Position: Embedded System Developer
- QIV project was term project of undergraduate class Advances Computer Engineering, Embedded Systems (B4616201), the result of this project was published by book, Embedded System Project and used as a lecture note of Embedded Systems Lab. I Class.
- *Embedded System Project, Chapter 12, QT Image Viewer, 1/31/2006, ISBN-10 : 8972835250, ISBN-13 : 9788972835257, pp.358*

12/2002 ~ 05/2003, Building Reliable Web Service by Implementing Private UDDI Registry

- Position: DB Designer, Client & Web Interface Developer
- The result of this project was published by book, *BIT Project vol.92*, the book contained detailed information about this project and source code of results. I was a member of CX222 (Client/Server Expert Team)
- *BIT Project vol.92, Chapter 1, 11/25/2003, ISBN-10: 8985957953, ISBN-13: 9788985957953, CX222/JX223/SX224, pp.650*

Section 3: Publications

3.1 Papers

[23] Banos, O., Bilal Amin, M., Ali Khan, W., Afzel, M., Ahmad, M., Ali, M., Ali, T., Ali, R., Bilal, **M., Han**, M., Hussain, J., Hussain, M., Hussain, S., Hur, T. H., Bang, J. H., Huynh-The, T., Idris, M., Kang, D. W., Park, S. B., Siddiqui, M., Vui, L. B., Fahim, M., Khattak, A. M., Kang, B. H. and Lee, S, *An Innovative Platform for Person-Centric Health and Wellness Support*, Proceedings of the International Work-Conference on Bioinformatics and Biomedical Engineering (IWBBIO 2015), Granada, Spain, April 15-17, 2015

[22] **Manhyung Han**, Jae Hun Bang, Chris Nugent, Sally McClean, Sungyoung Lee , *A Lightweight Hierarchical Activity Recognition Framework using Smartphone Sensors*, Journal of Sensors (SCIE, IF:2.048), Vol. 14, Issue 9, pp.16181-16195, 2014

[21] Ian Cleland, **Manhyung Han**, Chris Nugent, Hosung Lee, Shuai Zhang, Sally McClean and Sungyoung Lee, *Evaluation of prompted annotation of activity data recorded from a smart phone*, Journal of Sensors, (SCIE, IF 2.048), Vol. 14, Issue 9, pp.15861-15879, 2014

[20] Shujaat Hussain, Jae Hun Bang, **Manhyung Han**, Muhammad Idris Ahmed, Muhammad Bilal Amin, Chris Nugent, Sally McClean, Bryan Scotney, Gerard Parr and Sungyoung Lee, *Behavior Life Style analysis for mobile sensory data in cloud computing through MapReduce*, Journal of Sensors (SCIE, IF:2.048), Vol.14, Issue 11, pp.22001-22020 , 2014

[19] **Manhyung Han**, Jae Hun Bang, Chris Nugent, Sally McClean and Sungyoung Lee, *HARF: A Hierarchical Activity Recognition Framework using Smartphone Sensors*, 7th International Conference on Ubiquitous Computing & Ambient Intelligence (UCAmI), December 2-6, 2013
* Winner of UCAmI 2013 Best Paper Award

[18] Ian Cleland, **Manhyung Han**, Chris Nugent, Hosung Lee, Shuai Zhang, Sally McClean and Sungyoung Lee, *Mobile based prompted labeling of large scale activity data*, 5th International Work-conference on Ambient Assisted Living (IWAAL), December 2-6, 2013

[17] Shujaat Hussain, Muhammad Bilal Amin, Jae Hun Bang, **Manhyung Han**, Chris Nugent, Sally McClean, Bryan Scotney, Gerard Parr and Sungyoung Lee, *Activity recognition and resource optimization in mobile cloud through MapReduce*, 15th International Conference on E-Health Networking, application & service, October 9-12, 2013

[16] **Manhyung Han** and Sungyoung Lee, *Personalized Activity Modeling and Real-time Activity Recognition based on Smartphone Multimodal Sensors*(스마트폰 멀티모달 센서 기반 개인화 행위모델링 및 실시간 행위인지), Journal of KIISE(Softwares and Applications), Vol. 40, No. 6, pp. 332-341, June, 2013

[15] **Manhyung Han**, La The Vinh, Young-Koo Lee and Sungyoung Lee, *Comprehensive Context Recognizer Based on Multimodal Sensors in a Smartphone*, Journal of Sensors

(SCIE, IF 1.953), Vol. 12, No. 9, pp. 12588-12605, 2012

[14] Asad Masood Khattak, Zeeshan Pervez, **Manhyung Han**, Sumgyoung Lee and Chris Nugent, *DDSS: Dynamic Decision Support System for Elderly*, The 25th IEEE International Symposium on Computer-Based Medical Systems (CBMS 2012), Rome, Italy, June 20-22, 2012

[13] Yongkoo Han, **Manhyung Han**, Jehad Sarkar, Sungyoung Lee and Young-koo Lee, A framework for supervising the lifestyle diseases using long-term activity monitoring, Journal of Sensors (SCIE, IF 1.953), Vol. 12, No. 5, pp. 5363-5379, April 26, 2012

[12] Asad Masood Khattak, Phan Tran Ho Truc, Le Xuan Hung, La The Vinh, Viet-hung Dang, Donghai Guan, Zeeshan Pervez, **Manhyung Han**, Sungyoung Lee and Young-koo Lee, *Towards Smart Homes Using Low Level Sensory Data*, Journal of Sensors(SCIE), IF 1.953, ISSN: 1424-8220, 2011

[11] **Manhyung Han**, Yong-Koo Han, Hyoung-Il Kim and Sungyoung Lee, *Mobile Activity Sensor Logger for Monitoring Chronic Disease Patients*, The 8th International Conference on Wearable Micro and Nano Technologies for Personalized Health (pHealth 2011), Lyon, France, June 29 - July 1, 2011

[10] Md. Kamrul Hasan, **Manhyung Han**, Sungyoung Lee and Young-Koo Lee, *A Sensor Network System for Event Attribution in Multi-user Home Environment*, Accepted in ICAI'10 - The 2010 International Conference on Artificial Intelligence, Las Vegas, USA, July 12-15, 2010

[9] Asad Masood Khattak, La The Vinh, Dang Viet Hung, Phan Tran Ho Truc, Le Xuan Hung, D. Guan, Zeeshan Pervez, **Manhyung Han**, Sungyoung Lee and Young-Koo Lee, *Context-aware Human Activity Recognition and Decision Making*, 12th International Conference on e-Health Networking, Application Services(IEEE HealthCom 2010), Lyon, France, July 1-3, 2010

[8] **Manhyung Han** and Sungyoung Lee, *Recognizing Activity Pattern based on Activity Particles using Topic Models*, Summer KICS Conference 2010, Jeju Island, Korea, June 23-25, 2010

[7] La The Vinh, Hung Xuan Le, Hung Quoc Ngo, Hyoung Il Kim, **Manhyung Han**, Young-Koo Lee and Sungyoung Lee, *Semi-Markov Conditional Random Fields for Accelerometer-Based Activity Recognition*, Applied Intelligence(SCI), ISSN: 0924-669X, IF: 0.775, 2010

[6] Le Xuan Hung, Sungyoung Lee, Phan Tran Ho Truc, La The Vinh, Asad Khattak, **Manhyung Han**, Dang Viet Hung, Mohammad M. Hassan, Miso (Hyung-Il) Kim, Kyo-Ho Koo, Young-Koo Lee and Eui-Nam Huh, *Secured WSN-integrated Cloud Computing for u-Life Care*, 7th Annual IEEE CCNC 2010 Conference http://www.ieee-ccnc.org/2010/, Las Vegas, USA, January 9-12, 2010

[5] Xuan Hung Le, Sungyoung Lee, Ismail Butun, Murad Khalid, Ravi Sankar, Miso (Hyoung-IL) Kim, **Manhyung Han**, Young-Koo Lee and Heejo Lee, *An Energy Efficient Access*

Control Scheme for Sensor Networks based on Elliptic Curve Cryptography, Journal of Communications and Networks, ISSN: 1229-2370, Vol. 11, No. 6, pp. 599-606, Dec. 2009

[4] Asad Masood Khattak, Khalid Latif, **Manhyung Han**, Sungyoung Lee, Young-Koo Lee and Hyoung-Il Kim, *Change Tracer: Tracking Changes in Web Ontologies*, 21st IEEE International Conference on Tools with Artificial Intelligence(ICTAI 2009), Newark, NJ, USA, November 2-4, 2009

[3] Hong-Sop Kim, **Manhyung Han** and Geo-Su Yim, *An Activity Recognition Algorithm using a Distributed Inference based on the Hidden Markov Model in Wireless Sensor Networks*, pp.231-236, vol. 16, Journal of KSCI (Korean Society of Computer Information), Dec. 2008

[2] Hong-Sop Kim, Geo-Su Yim, **Manhyung Han** and Keum-Suk Lee, *Design and Implementation of a 3D Pointing Device using Inertial Navigation System*, pp.83-92, vol. 12, Journal of KSCI(Korean Society of Computer Information), Nov. 2007

[1] **Manhyung Han** and Sungyoung Lee, *Agent-based Autonomic Sensing Framework for Context-aware Middleware*, KICS Conference 2006, Jeju Island, Korea, Jul. 2006

3.2 Patents

[7] **Manhyung Han** and Sungyoung Lee, *Method for recognizing user context using complex sensors*(복합 센서를 이용한 사용자 상황 인식 방법), Reg. No. 10-1367964, Domestic Patent Registration, February 20, 2014

[6] Sungyoung Lee and **Manhyung Han**, *Method for producing personalized user activity model*(개인화된 사용자 행위 모델의 생성 방법), Appl. No. 10-2013-0053234, Domestic Patent Application, May 10, 2013

[5] Sungyoung Lee, Young-Koo Lee, La The Vinh, Le Xuan Hung, Ngo Quoc Hung, Hyoung Il Kim and **Manhyung Han**, *Method for activity recognition based semi Markov conditional random fields*(세미 마르코프 조건부 랜덤 필드 모델 기반의 행동 인식 방법), Reg. No. 10-1163834, Domestic Patent Registration, Jul. 2, 2012

[4] **Manhyung Han**, *Smartphone Sensor Monitoring Application for Activity Recognition*(행위인지를 위한 스마트폰 센서 모니터링 어플리케이션), Reg. No. 2011-01-121-007901, Program Registration, Korea Software Copyright Committee, Nov. 17, 2011

[3] Sungyoung Lee, Young-Koo Lee, La The Vinh, Le Xuan Hung, Ngo Quoc Hung, Hyoung Il Kim and **Manhyung Han**, *Method of Recognizing Activity on Basis of Semi-Markov Conditional Random Field Model*, Appl. No. 12/886,800, U.S. Patent, Sep. 21, 2010

[2] Sungyoung Lee, Young-Koo Lee, Asad Masood Khattak, Hyoung Il Kim and **Manhyung Han**, *Method for Reconciling Mappings in Dynamic/Evolving Web-Ontologies Using Change History Ontology*, Appl. No. 12/576,342, U.S. Patent, Oct. 9, 2009

[1] **Manhyung Han**, *Sensor Data based Multiple Inference Activity Recognition Framework for Disease Recognition*(질병인지를 위한 센서데이터 기반의 복합추론 행위인지 프레임워크), Reg. No. 2008-01-199-006354, Program Registration, Korea Software Copyright Committee, Nov. 25, 2008

3.3 Book Chapters

[2] Jinsung Cho, *Embedded System Project, Chapter 12, QT Image Viewer (Manhyung Han)*, ISBN-10 : 8972835250, ISBN-13 : 9788972835257, pp.358, Jan. 2006

[1] Hyunjung Cho, *BIT Project vol.92, Chapter 1 (CX222, Manhyung Han)*, ISBN-10: 8985957953, ISBN-13: 9788985957953, pp.650, Nov. 2003

Section 4: Courses in Graduate School

4.1 Ph.D. Courses

Title	Code	Lecturer	Grade
Advanced Computer Technology I	C5847700	Prof. Young-Jae Song	B+
Machine Learning	C5851000	Prof. Andrey V. Gavrilov	A+
System Structure for Ubiquitous City and Village	C5849100	Prof. Yong-Ok Chin	A+
Advanced Computer Technology II	C5880100	Prof. Young-Jae Song	A+
Data and Information Visualization	C5802500	Prof. Brian J. d'Auriol	B+
Probability and Statistics and Its Applications	C4124900	Prof. Daeyoung Lee	A-
Topics in Functional Programming	C5848200	Prof. Brian J. d'Auriol	B+
Distributed Processing Systems	C1407000	Prof. Eui-Nam John Huh	A
Network System Optimization	C6699100	Prof. Intae Ryoo	A
Network Security	C4552400	Prof. Jee Hoo Jeong	B+
Future Internet	C6699000	Prof. Choong Seon Hong	A
Query Processing	C5733300	Prof. Youngkoo Lee	A+
GPA	**3.842/4.3 (89.58%)**		

4.2 M.S. Courses

Title	Code	Lecturer	Grade
4G Mobile Communication System	G4685001	Prof. Kyesan Lee	A
Wireless Network	G4482501	Prof. Jeonggeun Kim	A
Next Generation Access Technology	C4974800	Dr. Seokhoon Kim	A+
Advanced Network Management System	C4233400	Dr. Seokhoon Kim	A+

Distributed Systems	C1406900	Prof. Sungyoung Lee	A+
System Design & User Interface	C5031300	Prof. Yllias Chali	A+
Computer Networking Technology	C4246600	Dr. Seokhoon Kim	A+
Queuing Theory	C3626900	Prof. Mohammad A.U. Khan	A-
GPA	**4.15/4.3 (93.13%)**		

Section 5: Research & Scholarly Activities

5.1 International Research Collaboration

07/2013 ~ 08/2013, University of Ulster (Jordanstown), Northern Ireland, U.K.

- Position: Visiting Scholar
- Advisor: Prof. Christopher Nugent
- Design and development of the CLAPP (Crowd Labelling Application), a mobile based tool to collect activity data on a large scale and provides user feedback mechanism by prompting on a touch screen of Smartphone. It could be used to allow the users to provide accurate ground truth labels for their activity data.
- For recognizing complicated behaviors of human, the Shimmer sensor based posture and gesture recognition are investigated. It communicates with Smartphone for delivering, logging and processing collected sensor data on mobile platform.

06/2012 ~ 08/2012, University of Ulster (Coleraine), Northern Ireland, U.K.

- Position: Visiting Scholar
- Advisor: Prof. Bryan Scotney, Prof. Sally McClean and Prof. Christopher Nugent
- Development of human activity recognition systems using smartphone sensors and its extension. For human activity recognition, collecting and processing technologies are investigated of physical sensor data on Smartphone, audio information and bio data using Shimmer physiological sensors. Univ. of Ulster provides theoretical and technical support how to analyze physiological data.
- As an extension of Smartphone-base AR, emotion recognition based on human's activities, ambient sound or voice and Cloud technology for storing activity information from Smartphone and further processing(inference, long-term pattern analysis, data mining etc.) are studied with Univ. of Ulster, Coleraine.

07/2011 ~ 08/2011, University of Ulster (Jordanstown), Northern Ireland, U.K.

- Position: Visiting Scholar
- Advisor: Prof. Christopher Nugent
- Development of a Smartphone-based activity recognition and logging technologies for providing life-care services. The sensors embedded in Smartphone are utilized for human activity recognition and also used biological information collected from the Bluetooth enabled physiological sensors such as EEC, ECG, EKG, blood pressure etc.
- Writing an EU-FP7 project proposal based on both common research interests in KHU and

Univ. of Ulster and outcome of smartphone-based activity recognition research for continuous research collaboration.

02/2011 ~ 06/2011, Fraunhofer IDMT, Oldenburg, Germany

- Position: Internship – Global internship program funded by NRF
- Fraunhofer is Europe's largest application-oriented research organization. Fraunhofer IDMT (Institute for Digital Media Technology), one of the branches of Fraunhofer, is specialized in audio and visual application technologies.
- Development of a continuous speech recognition module for controlling human support systems by voice commands based on German and English speech corpus worked with Hearing Speech and Audio Technology (HAS) led by Dipl.-Ing. Stefan Goetze.

01/2008 ~ 07/2008, University of Virginia, Charlottesville, VA, U.S.

- Position: Visiting Researcher
- Advisor: Prof. John A. Stankovic (BP America Professor)
- Development of an Activity Recognition module for supporting knowledge processing in the AlarmNet Systems. The AlarmNet architecture for smart healthcare possesses the essential elements of each of the future medical applications described before, namely: integration with existing medical practices and technology, real-time, long-term monitoring, miniature, wearable sensors and assistance to the elderly and chronic patients. Especially detecting symptoms of Diabetes and Depression based on raw sensing data from several sensors deployed at home environment are mainly investigated.

5.2 Conference Participation

- Presenter of Accepted Paper, *HARF: A Hierarchical Activity Recognition Framework using Smartphone Sensors*, 7th International Conference on Ubiquitous Computing & Ambient Intelligence (UCAmI), December 2-6, 2013, Guanacaste, Costa Rica
- Asian Science Seminar(ASS), Life-Support Technologies in Super-Aging Society, August 26 – September 1, 2012, Hokkaido/Tokyo, Japan
- Presenter of Accepted Paper, *Mobile Activity Sensor Logger for Monitoring Chronic Disease Patients*, The 8th International Conference on Wearable Micro and Nano Technologies for Personalized Health(pHealth), June 29 - July 1, 2011, Lyon, France
- Presenter of Accepted Paper, *Recognizing Activity Pattern based on Activity Particles using Topic Models*, Summer KICS Conference 2010, July 23-25, 2010, Jeju Island, Korea
- mHealth Summit 2009, A Public-Private Partnership of the Foundation for the National Institutes of Health, October 29-30, 2009, Washington, D.C., USA
- Pervasive 2009, The 7th International Conference on Pervasive Computing, May 11-14, 2009, Nara, Japan
- The 8th International Conference on Ubiquitous Computing(UbiComp) 2006, September 17-21, 2006, Orange County, CA, USA
- Presenter of Accepted Paper, *Security for Ubiquitous Computing: Problems and Proposed Solution*, The 12th IEEE International Conference on Embedded and Real-Time Computing

Systems and Applications(RTCSA) 2006, August 16-18, 2006, Sydney, Australia

- Presenter of Accepted Paper, *Agent-based Autonomic Sensing Framework for Context-aware Middleware*, Summer KICs Conference 2006, July 5-7, 2006, Jeju Island, Korea
- The International Conference on Information Networking(ICOIN) 2006, January 16-19, 2006, Sendai, Japan

5.3 Invited Speech

- *Multimodal Sensor-based Activity Recognition in a Smartphone and its Applications*, 5th Workshop on Sustainable Medical Collaboration in East & West(SMCEW), East-West Neo Medicinal u-Lifecare Research Center, Kyung Hee University, Korea, November 22, 2013

- *An example of building ubiquitous Space: Smart Office-Context Modeling based on Ontology*, Ubiquitous Computing and Networks(UCN) Project, 21C Frontier R&D Project of MIC, Ajou University, Korea, November 18, 2006

5.4 Certificate of Achievement & Qualification

12/2002 ~ 05/2003	Client/Server Expert Course	BIT Computer, Seoul, Korea
10/2002 ~ 11/2002	Microsoft Developer Course	BIT Computer, Seoul, Korea
07/2002 ~ 08/2002	Java Programming Course	BIT Computer, Seoul, Korea
12/05/2005	Information Processing Engineer	Human Resources Development Service of Korea
05/17/2002	Internet Information Miner 1st Class	IT Human Resources Development Center of Korea

5.5 Language

- Korean(My native language) / English(Using fluently in reading, writing and communicating)
- TOEIC speaking : 150(Level 6)

5.6 Knowledge and Skills

- Programming: Java, C/C++, Embedded C, PHP, JSP
- Operation System: Windows, Android, iOS, Linux, Embedded Linux
- Network Technology: WPAN(ZigBee, RFID), Web Service(SOAP)
- Others: Macromedia Flash, Adobe Photoshop & Illustrator, Adobe Premier, Sony Vegas

5.7 Scholarship & Awards

- December 2013, Best Paper Award, UCAmI 2013
- May 2013, Achievement Award by The Electronic Times, ITRC Forum 2013
- December 2010, Global Internship Program, NRF(USD 10,000)

- September 2007, KOSEF S&T Graduate Scholarship, NRF(USD 12,000)
- August 2007, Excellence Research Paper Scholarship, KHU(USD 2,400)
- August 2007, Excellence Researcher Scholarship, KHU (USD 900)
- March 2007, Research Assistantship, KHU (USD 5,000)
- December 20, 2006, Scientific Research Scholarship(Conference) , KHU (USD 250)
- November 23, 2006, Excellence Researcher Scholarship, KHU (USD 900)
- September 2006, Research Assistantship, KHU (USD 5,000)
- May 30, 2006, Scientific Research Scholarship, KHU (USD 900)
- April 25, 2006, Research Assistantship, KHU (USD 3,431)
- 1st & 2nd Semester, 2005, Administration Assistantship, KHU (USD 10,394)

** The sums written above are approximately converted Korean WON into USD*

Section 6: Employments

6.1 Lectures

Title	Code	Position	Affiliation	Period
Advanced Object Oriented Programming	CSE20202	Lecturer	Kyung Hee Univ.	03/2014 ~ 06/2014
Advanced Object Oriented Programming	B1092603	Lecturer	Kyung Hee Univ.	09/2013 ~ 12/2013
Advanced Object Oriented Programming	B1092602	Lecturer	Kyung Hee Univ.	03/2012 ~ 06/2012

6.2 Assistants

03/2007 ~ 06/2007	Research Assistant	Dept. of Computer Engineering, Kyung Hee University
03/2006 ~ 02/2007	Network Manager	IT Center, Kyung Hee University

Section 7: Advisor Information

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