CHULHONG MIN

PRINCIPAL RESEARCH SCIENTIST AND TECH LEAD · DEVICE SYSTEMS TEAM · PERVASIVE SYSTEMS · NOKIA BELL LABS, CAMBRIDGE, UK

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Research Interests

MOBILE AND EMBEDDED SYSTEMS
EDGE ARTIFICIAL INTELLIGENCE
INTERNET OF THINGS
(W)EARABLE COMPUTING

Employment

Pervasive Systems Team, SDSR Lab, Nokia Bell Labs   *Cambridge, UK*
PRINCIPAL RESEARCH SCIENTIST AND TECH LEAD   *Jul. 2022 - PRESENT*

Pervasive Systems Team, SDSR Lab, Nokia Bell Labs   *Cambridge, UK*
RESEARCH SCIENTIST   *Feb. 2019 - Jun. 2022*

Department of Computer Science and Technology, University of Cambridge *Cambridge, UK*
VISITOR   *Mar. 2019 - Feb. 2021*

Pervasive Systems Team, APSS Lab, Nokia Bell Labs   *Cambridge, UK*
MEMBER OF TECHNICAL STAFF   *Mar. 2017 - Jan. 2019*

School of Computing, KAIST   *Daejeon, South Korea*
POSTDOCTORAL RESEARCHER   *Mar. 2016 - Dec. 2016*

Education

KAIST (Korea Advanced Institute of Science and Technology)   *Daejeon, South Korea*
PH.D. IN COMPUTER SCIENCE   *Feb. 2016*
- Advisor: Junehwa Song
- Dissertation: "User Support for Battery Management of Continuous Sensing Applications"
- *Outstanding Ph.D Thesis Award* in School of Computing at KAIST

KAIST (Korea Advanced Institute of Science and Technology)   *Daejeon, South Korea*
M.S. IN COMPUTER SCIENCE   *Aug. 2009*
- Advisor: Junehwa Song
- Thesis: "bOM: System Orchestration Framework in Sensor-rich Mobile Environment"

KAIST (Korea Advanced Institute of Science and Technology)   *Daejeon, South Korea*
B.S. IN COMPUTER SCIENCE   *Aug. 2007*

Publication

PEER-REVIEWED PUBLICATIONS (CONFERENCES AND JOURNALS)

[J.12] SensiX: A System for Best-effort Inference of Machine Learning Models in Multi-device Environments   *Paper*

Chulhong Min, Akhil Mathur, Alessandro Montanari, Fahim Kawsar,
IEEE Transactions on Mobile Computing, Early Access   *IEEE TMC*

[J.11] The City as a Personal Assistant: Turning Urban Landmarks into Conversational Agents for Serving Hyper Local Information

Utku Gunay Acer, Marc Van Den Broeck, **Chulhong Min**, Mallesham Dasari, Fahim Kawsar

Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies, Volume 6, Issue 2, July 2022, Article No.: 40, pp 1–31

Paper

ACM IMWUT

[J.10] ColloSSL: Collaborative Self-Supervised Learning for Human Activity Recognition

Yash Jain, Chi Ian Tang, **Chulhong Min**, Fahim Kawsar, Akhil Mathur

Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies, Volume 6, Issue 1, March 2022, Article No.: 17, pp 1–28

Paper

ACM IMWUT

[C.20] SleepGAN: Towards Personalized Sleep Therapy Music

Jing Yang, **Chulhong Min**, Akhil Mathur, Fahim Kawsar

IEEE International Conference on Acoustics, Speech and Signal Processing, Singapore, Singapore, May 2022.

Paper

ICASSP 2022

[J.09] In-Ear PPG for Vital Signs

Andrea Ferlini, Alessandro Montanari, **Chulhong Min**, Hongwei Li, Ugo Sassi, Fahim Kawsar

IEEE Pervasive Computing (Volume: 21, Issue: 1, 01 Jan.-Mar. 2022)

Paper

IEEE Pervasive Computing

[C.19] FatigueSet: A Multi-modal Dataset for Modeling Mental Fatigue and Fatigability

Manasa Kalanadhabhatta, **Chulhong Min**, Alessandro Montanari, Fahim Kawsar

EAI International Conference on Pervasive Computing Technologies for Healthcare, Tel Aviv, Israel, Dec. 2021.

Paper

PervasiveHealth 2021

[C.18] Deploying Collaborative Machine Learning Systems in Edge with Multiple Cameras

Si Young Jang, Utku Gunay Acer, **Chulhong Min**, Fahim Kawsar

International Conference on Mobile Computing and Ubiquitous Networking, Tokyo, Japan, Nov. 2021.

Paper

ICMU 2021

[C.17] Augmenting Conversational Agents with Ambient Acoustic Contexts

Chungjong Park, **Chulhong Min**, Sourav Bhattacharya, Fahim Kawsar

International Conference on Human-Computer Interaction with Mobile Devices and Services, Cyberspace, Oct. 2020.

Paper

MobileHCI 2020

[J. 08] Scalable Power Impact Prediction of Mobile Sensing Applications at Pre-installation Time

Chulhong Min, Youngki Lee, Chungkuk Yoo, Inseok Hwang, Younghyun Ju, Junehwa Song, Seungwoo Kang

IEEE Transactions on Mobile Computing, Volume 19, Issue 6, pp. 1448-1464, Jun. 2020

Paper

IEEE TMC 2020

- This paper is an extended version of the PowerForecaster paper published in SenSys 2015.

[C.16] A Closer Look at Quality-Aware Runtime Assessment of Sensing Models in Multi-Device Environments

Chulhong Min, Alessandro Montanari, Akhil Mathur, Fahim Kawsar

ACM Conference on Embedded Networked Sensor Systems, New York, USA, Nov. 2019.

Paper

ACM SenSys 2019

[J.07] Towards Interpersonal Assistants: Next-generation Conversational Agents

Inseok Hwang, Youngki Lee, Chungkuk Yoo, **Chulhong Min**, Dongsun Yim, John Kim

IEEE Pervasive Computing (Volume 18, Issue 2, p. 21-31, Aug. 2019

Paper

IEEE Pervasive Computing

[C.15] Tiger: Wearable Glasses for the 20-20-20 Rule to Alleviate Computer Vision Syndrome

Chulhong Min, Euihyeok Lee, Souneil Park, Seungwoo Kang

International Conference on Human-Computer Interaction with Mobile Devices and Services, Taipei, Taiwan, Oct. 2019

Paper

ACM MobileHCI 2019

- **Honorable Mention Award**

[C.14] An Early Characterisation of Wearing Variability on Motion Signals for Wearables   *Paper*

Chulhong Min, Akhil Mathur, Alessandro Montanari, Fahim Kawsar

International Symposium on Wearable Computers, London, UK, Sep. 2019.   *ISWC 2019*

[C.13] Automatic Smile and Frown Recognition with Kinetic Earables   *Paper*

Seungchul Lee, **Chulhong Min**, Alessandro Montanari, Akhil Mathur, Youngjae Chang, Junehwa Song, Fahim Kawsar

Augmented Human International Conference, Reims Champagne-Ardenne, France, Mar. 2019   *AH 2019*

[J.06] On Tracking the Physicality of Wi-Fi: A Subspace Approach   *Paper*

Mohammed Alloulah, Anton Isopoussu, **Chulhong Min**, Fahim Kawsar

IEEE Access (Volume: 7, p. 19965-19978, Feb. 2019   *IEEE Access*

[C.12] An Early Resource Characterisation of Wi-Fi Sensing on Residential Gateways   *Paper*

Chulhong Min, Mohammed Alloulah, Fahim Kawsar

ACM International Conference on Systems for Energy-Efficient Built Environments, Shenzhen, China, Nov. 2018   *ACM BuildSys 2018*

[J.05] Earables for Personal-Scale Behavior Analytics   *Paper*

Fahim Kawsar, **Chulhong Min**, Akhil Mathur, Alessandro Montanari

IEEE Pervasive Computing (Volume: 17, Issue: 3, Jul.-Sep. 2018   *IEEE Pervasive Computing*

[C.11] Zaturi: We Put Together the 25th Hour for You. Create a Book for Your Baby   *Paper, Video*

Bumsoo Kang, **Chulhong Min**, Wonjung Kim, Inseok Hwang, Chunjong Park, Seungchul Lee, Sung-Ju Lee, Junehwa Song

ACM Conference on Computer-Supported Cooperative Work and Social Computing, Portland, Oregon, USA, Feb. 2017   *ACM CSCW 2017*

[C.10] PADA: Power-aware Development Assistant for Mobile Sensing Applications   *Paper, Slide, Video*

Chulhong Min, Seungchul Lee, Changhun Lee, Youngki Lee, Seungwoo Kang, Seungpyo Choi, Wonjung Kim, Junehwa Song

ACM International Joint Conference on Pervasive and Ubiquitous Computing, Heidelberg, Germany, Sep. 2016   *ACM UbiComp 2016*

[J. 04] CoMon+: A Cooperative Context Monitoring System for Multi-Device Personal Sensing Environments   *Paper*

Youngki Lee, Seungwoo Kang, **Chulhong Min**, Younghyun Ju, Inseok Hwang, Junehwa Song

IEEE Transactions on Mobile Computing, Volume 15, Issue 8, pp. 1908-1924, Aug. 2016   *IEEE TMC 2016*

• This paper is an extended version of the CoMon paper published in MobiSys 2012.

[J. 03] PowerForecaster: Predicting Power Impact of Mobile Sensing Applications at Pre-installation Time   *Paper*

Chulhong Min, Youngki Lee, Chungkuk Yoo, Seungwoo Kang, Inseok Hwang, Junehwa Song

GetMobile: Mobile Comp. and Comm. Volume 20, Issue 1 (July 2016), pp. 30-33   *GetMobile 2016*

• This is an overview article of the PowerForecaster paper published in SenSys 2015.

[C.09] PowerForecaster: Predicting Smartphone Power Impact of Continuous Sensing Applications at Pre-installation Time   *Paper, Slide, Talk*

Chulhong Min, Youngki Lee, Chungkuk Yoo, Seungwoo Kang, Sangwon Choi, Pillsoon Park, Inseok Hwang, Younghyun Ju, Seungpyo Choi, Junehwa Song

ACM Conference on Embedded Networked Sensor Systems, Seoul, Korea, Nov. 2015   *ACM SenSys 2015*

[C.08] Sandra Helps You Learn: the More You Walk, the More Battery Your Phone Drains   *Paper, Slide*

Chulhong Min, Chungkuk Yoo, Inseok Hwang, Seungwoo Kang, Youngki Lee, Seungchul Lee, Pillsoon Park, Changhun Lee, Seungpyo Choi, Junehwa Song

ACM International Joint Conference on Pervasive and Ubiquitous Computing, Osaka, Japan, Sep. 2015   *ACM UbiComp 2015*

[C.07] Exploring Current Practices for Battery Use and Management of Smartwatches   *Paper, Slide, Dataset*

Chulhong Min, Seungwoo Kang, Chungkuk Yoo, Jeehoon Cha, Sangwon Choi, Younghan Oh, Junehwa Song

International Symposium on Wearable Computers, Osaka, Japan, Sep. 201   *ISWC 2015*

[J. 02] An Active Resource Orchestration Framework for PAN-Scale, Sensor-Rich Environments   *Paper*

Youngki Lee, **Chulhong Min**, Younghyun Ju, Seungwoo Kang, Yunseok Rhee, Junehwa Song

IEEE Transactions on Mobile Computing, Vol. 13, Issue 3, Mar. 2014   *IEEE TMC 2014*

- This paper is an extended version of the Orchestrator paper published in PerCom 2010.

[C. 06] TalkBetter: family-driven mobile intervention care for children with language delay   *Paper*

Inseok Hwang, Chungkuk Yoo, Chanyou Hwang, Dongsun Yim, Youngki Lee, **Chulhong Min**, John Kim, Junehwa Song

ACM Conference on Computer-Supported Cooperative Work and Social Computing, Baltimore, USA, Feb. 2014   *ACM CSCW 2014*

- Best Paper Award
- **Media Coverage**: NewScientist, Feb. 1 2014. Click **here** to see the article.

[C.05] SocioPhone: Everyday Face-to-Face Interaction Monitoring Platform using Multi-phone Sensor Fusion   *Paper*

Youngki Lee, **Chulhong Min**, Chanyou Hwang, Jaeung Lee, Inseok Hwang, Younghyun Ju, Chungkuk Yoo, Miri Moon, Uichin Lee, Junehwa Song

ACM International Conference on Mobile Systems, Applications, and Services, Taipei, Taiwan, Jun. 2013   *ACM MobiSys 2013*

[C.04] SymPhoney: A Coordinated Sensing Flow Execution Engine for Concurrent Mobile Sensing Applications   *Paper*

Younghyun Ju, Youngki Lee, Jihyun Yu, **Chulhong Min**, Insik Shin, Junehwa Song

ACM Conference on Embedded Network Sensor Systems, Toronto, Canada, Nov. 2012   *ACM SenSys 2012*

[C.03] CoMon: Cooperative Ambience Monitoring Platform with Continuity and Benefit Awareness   *Paper*

Youngki Lee, Younghyun Ju, **Chulhong Min**, Seungwoo Kang, Inseok Hwang, Junehwa Song

ACM Annual International Conference on Mobile Systems, Applications, and Services, Low Wood Bay, Lake District, United Kingdom, Jun. 2012   *ACM MobiSys 2012*

[J.01] MobiCon: Mobile Context Monitoring Platform for Sensor-Rich Dynamic Environments   *Paper*

Youngki Lee, Sitharam S. Iyengar, **Chulhong Min**, Younghyun Ju, Seungwoo Kang, Taiwoo Park, Jinwon Lee, Yunseok Rhee, Junehwa Song

Communications of the ACM, Vol. 55, Issue 3, Mar. 2012   *CACM 2012*

[C.02] An Efficient Dataflow Execution Method for Mobile Context Monitoring Applications   *Paper*

Younghyun Ju, **Chulhong Min**, Youngki Lee, Jihyun Yu, Junehwa Song

IEEE International Conference on Pervasive Computing and Communications, Lugano, Switzerland, Mar. 2012 *IEEE PerCom 2012*

[C.01] Orchestrator: An Active Resource Orchestration Framework for Mobile Context Monitoring in Sensor-rich Mobile Environments   *Paper*

Seungwoo Kang, Youngki Lee, **Chulhong Min**, Younghyun Ju, Taiwoo Park, Jinwon Lee, Yunseok Rhee, Junehwa Song

IEEE International Conference on Pervasive Computing and Communications, Menheim, Germany, Mar. 2010   *IEEE PerCom 2010*

THESES

[T.02] User Support for Battery Management of Continuous Sensing Applications
Chulhong Min

Ph.D. Thesis, School of Computing, KAIST, Korea, Feb. 2015

- **Outstanding Ph.D. Thesis Award** in School of Computing at KAIST

[T.01] bOM: System Orchestration Framework in Sensor-rich Mobile Environment
Chulhong Min

M.S. Thesis, School of Computing, KAIST, Korea, Aug. 2009

PEER-REVIEWED WORKSHOPS

[W.11] Vision Paper: Towards Software-Defined Video Analytics with Cross-Camera Collaboration

Juheon Yi, **Chulhong Min**, Fahim Kawsar

International Workshop on Challenges in Artificial Intelligence and Machine Learning for Internet of Things, Coimbra, Portugal, Nov. 2021

Paper

ACM AIChallengeIoT 2021

[W.10] Towards Automatic Recognition of Perceived Level of Understanding on Online Lectures using Earables

Dongwoo Kim, **Chulhong Min**, Seungwoo Kang

ACM Workshop on Earable Computing, Virtual, Sep. 2021

Paper

ACM EarComp 2021

[W.09] Designing Memory Aids for Dementia Patients using Earables

Matija Franklin, David Lagnado, **Chulhong Min**, Akhil Mathur, Fahim Kawsar

ACM Workshop on Earable Computing, Virtual, Sep. 2021

Paper

ACM EarComp 2021

[W.08] Group Supervised Learning: Extending Self-Supervised Learning to Multi-Device Settings

Yash Jain, Chi Ian Tang, **Chulhong Min**, Fahim Kawsar, Akhil Mathur

ICML 2021 Workshop Self-Supervised Learning for Reasoning and Perception in conjunction with ICML 2021, Virtual, Jul. 2021

Poster

Self-Supervised Learning for Reasoning and Perception 2021

[W.07] Resource Characterisation of Personal-Scale Sensing Models on Edge Accelerators

Mattia Antonini, Tran Huy Vu, **Chulhong Min**, Alessandro Montanari, Akhil Mathur, Fahim Kawsar

International Workshop on Challenges in Artificial Intelligence and Machine Learning for Internet of Things, New York, USA, Nov. 2019

Paper

ACM AIChallengeIoT 2019

[W.06] Mom, I see You Angry at Me! Designing a Mobile Service for Parent-child Conflicts by In-situ Emotional Emphaty

Chungkuk Yoo, Seungwoo Kang, Inseok Hwang, **Chulhong Min**, Seonghoon Kim, Wonjung Kim, Junehwa Song

ACM Workshop on Mobile Systems for Computational Social Science, Seoul, South Korea, Jun. 2019

Paper

ACM MCSS 2019

[W.05] Cross-Modal Approach for conversational Well-being Monitoring with Multi-Sensory Earables

Chulhong Min, Alessandro Montanari, Akhil Mathur, Fahim Kawsar

ACM Workshop on Computing for Well-being, Singapore, Singapore, Oct. 2018

Paper

ACM WellComp 2018

[W.04] Exploring Audio and Kinetic Sensing on Earable Devices

Chulhong Min, Akhil Mathur, Fahim Kawsar

ACM Workshop on Wearable Systems and Applications, Munich, Germany, Jun. 2018

Paper

ACM WearSys 2018

[W.03] Embarrassing Interactions

Sebastian Deterding, Andrés Lucero, Jussi Holopainen, **Chulhong Min**, Adrian Cheok, Annika Waern, Steffen Walz

ACM Conference Extended Abstracts on Human Factors in Computing Systems, Seoul, Korea, Apr. 2015

Paper, Slide

ACM CHI EA 2015

[W.02] Uncovering Embarrassing Moments in In-situ Exposure of Incoming Mobile Messages

Chulhong Min, Saumay Pushp, Seungchul Lee, Inseok Hwang, Youngki Lee, Seungwoo Kang, Junehwa Song

Paper

ACM Workshop on Mobile Systems for Computational Social Science, Seattle, USA, Sep. 2014

ACM MCSS 2014 (UbiComp Adjunct)

[W.01] Uncovering Embarrassing Moments in In-situ Exposure of Incoming Mobile Messages

SangJeong Lee, **Chulhong Min**, Chungkuk Yoo, Junehwa Song

Paper

ACM Workshop on Mobile Systems for Computational Social Science, Zurich, Switzerland, Sep. 2013

ACM MCSS 2013 (UbiComp Adjunct)

OTHER PUBLICATIONS (INVITED PAPERS, DEMOS, POSTERS, VIDEOS, AND PH.D FORUM)

[P.07] Towards Recognizing Perceived Level of Understanding for Online Lectures using Earables

Dongwoo Kim, **Chulhong Min**, Seungwoo Kang
ACM Conference on Embedded Networked Sensor Systems, Yokohama, Japan, Nov. 2020

Poster

ACM SenSys 2020

[P.06] Automatic Recognition of Vocal Reactions in Music Listening using Smart Earbuds

Euihyeok Lee, Dongwoo Kim, **Chulhong Min**, Seungwoo Kang
ACM Conference on Embedded Networked Sensor Systems, Yokohama, Japan, Nov. 2020

Poster

ACM SenSys 2020

[D.10] eSense - Open Earable Platform for Human Sensing

Fahim Kawsar, **Chulhong Min**, Akhil Mathur, Alessandro Montanari, Marc Van den Broeck, Utku Gunay Acer
ACM Conference on Embedded Networked Sensor Systems, Shenzhen, China, Nov. 2018

Demo

ACM SenSys 2018

[P.05] Exploring Situation-aware Dynamic Message Screening for Mobile Messengers

Seungchul Lee, Saumay Pushp, **Chulhong Min**, Junehwa Song
ACM International Joint Conference on Pervasive and Ubiquitous Computing, Singapore, Singapore, Oct. 2018

Poster

ACM UbiComp 2018

[P.04] Towards a Wearable Assistant to Prevent Computer Vision Syndrome

Euiheok Lee, **Chulhong Min**, Seungwoo Kang
ACM International Joint Conference on Pervasive and Ubiquitous Computing, Singapore, Singapore, Oct. 2018

Poster

ACM UbiComp 2018

[D.09] eSense - Open Earable Platform for Human Sensing

Fahim Kawsar, **Chulhong Min**, Akhil Mathur, Alessandro Montanari, Marc Van den Broeck, Utku Gunay Acer
ACM International Joint Conference on Pervasive and Ubiquitous Computing, Singapore, Singapore, Oct. 2018

Demo

ACM UbiComp 2018

[P.03] Audio-kinetic Model for Automatic Dietary Monitoring with Earable Devices

Chulhong Min, Akhil Mathur, Fahim Kawsar
ACM International Conference on Mobile Systems, Applications, and Services, Munich, Germany, Jun. 2018

Poster

ACM MobiSys 2018

[D.08] eSense: Earable Platform for Human Sensing

Fahim Kawsar, **Chulhong Min**, Akhil Mathur, Marc Van den Broeck, Utku Gunay Acer, Claudio Forlivesi
ACM International Conference on Mobile Systems, Applications, and Services, Munich, Germany, Jun. 2018

Demo

ACM MobiSys 2018

[D.07] Zaturi: Blending Hours Spent at Work and Hours Devoted to Children

Bumsoo Kang, Wonjung Kim, Inseok Hwang, Chunjong Park, Seungchul Lee, **Chulhong Min**, Sung-Ju Lee, Junehwa Song

Demo

ACM Conference on Computer-Supported Cooperative Work and Social Computing, Portland, Oregon, USA, Feb. 2017

ACM CSCW 2017

[D.06] User Support for Power Management of Continuous Sensing Applications   *Demo*

Chulhong Min, Chungkuk Yoo, Sangwon Choi, Pillsoon Park, Seungchul Lee, Seungpyo Choi,
Seungwoo Kang, Youngki Lee, Inseok Hwang, Younghyun Ju, Junehwa Song

ACM Conference on Embedded Networked Sensor Systems, Seoul, Korea, Nov. 2015   *ACM SenSys 2015*

[V.01] TalkBetter: Smartphone-supported Intervention in Family Conversation for   *Video*
Children with Language Delay

Inseok Hwang, Chungkuk Yoo, Chanyou Hwang, Dongsun Yim, Youngki Lee, **Chulhong Min**, John Kim,
Junehwa Song

ACM conference on Computer supported cooperative work and social computing, Baltimore, USA, Feb. 2014   *ACM CSCW 2014*

[D.05] SocioPhone: Everyday Face-to-Face Interaction Monitoring Platform using   *Demo*
Multi-phone Sensor Fusion

Youngki Lee, **Chulhong Min**, Chanyou Hwang, Jaeung Lee, Inseok Hwang, Younghyun Ju, Chungkuk
Yoo, Miri Moon, Uichin Lee, Junehwa Song

ACM Annual International Conference on Mobile Systems, Applications, and Services, Taipei, Taiwan, Jun.   *ACM MobiSys 2013*
2013

[D.04] ACM HotMobile 2013 Demo Brining In-situ Social Awareness to Mobile Systems: *Demo*
Conversational Turn Monitoring and its Applications

Chulhong Min, Inseok Hwang, Jaeung Lee, Chanyou Hwang, Chungkuk Yoo, Miri Moon, Taiwoo Park,
Changhoon Lee, Haechan Lee, Yuhwan Kim, Younghyun Ju, Youngki Lee, Uichin Lee, Junehwa Song

ACM Mobile Computing and Communication Review, vol. 17, no. 3 (2013)   *MC2R 2013*

- In ACM Workshop on Mobile Computing Systems and Applications, Jekyll Island, USA, Feb. 2013
- **Best Demo Award**

[P.02] Towards Crowd-aware Sensing Platform for Metropolitan Environments   *Poster*

Saumay Pushp, **Chulhong Min**, Youngki Lee, Chi Harold Lie, Junehwa Song

ACM Conference on Embedded Network Sensor Systems, Toronto, Canada, Nov. 2012   *ACM SenSys 2012*

[D.03] MobiCon: Mobile context monitoring platform, Incorporating Context-awareness
to Smartphone-centric Personal Sensor Networks

Youngki Lee, Younghyun Ju, **Chulhong Min**, Jihyun Yu, Junehwa Song

IEEE Communications Society Conference on Sensor, Mesh and Ad Hoc Communications and Networks,   *IEEE SECON 2012*
Seoul, Korea, Jun. 2012

[P.01] Poster: Towards Mobile GPU-Accelerated Context Processing for Continuous   *Poster*
Sensing Applications on Smartphones

Chulhong Min, Wookhyun Han, Inseok Hwang, SangJeong Lee, Youngki Lee, Insik Shin, Junehwa Song

ACM International Conference on Mobile Systems, Applications, and Services, Low Wood Bay, Lake District,   *ACM MobiSys 2012*
United Kingdom, Jun. 2012

[D.02] Demo: SenseTogether- Cooperative Ambience Monitoring Platform with   *Demo*
Continuity and Benefit Awareness

Youngki Lee, Younghyun Ju, **Chulhong Min**, Seungwoo Kang, Inseok Hwang, Junehwa Song

ACM International Conference on Mobile Systems, Applications, and Services, Low Wood Bay, Lake District,   *ACM MobiSys 2012*
United Kingdom, Jun. 2012

[F.01] SensorShader: Mobile GPU-Accelerated Context Processing Engine for Sensing
Applications on Smartphones

Chulhong Min

MobiSys Ph.D. Forum, Low Wood Bay, Lake District, United Kingdom, Jun. 2012   *MobiSys Ph.D. Forum 2012*

[I.02] Healthopia: Towards Your Well-Being in Everyday Life (Invited Paper)   *Paper*

Chulhong Min, Chungkuk Yoo, Youngki Lee, Junehwa Song

International Symposium on Applied Sciences in Biomedical and Communication Technologies, Barcelona,   *ISABEL 2011*
Spain, Oct. 2011

[D.01] Demo: CoMon – Resource-aware Cooperative Context Monitoring System for Smartphone-centric Sensor-rich PANs

Youngki Lee, Younghyun Ju, **Chulhong Min**, Seungwoo Kang, Yunseok Rhee, Junehwa Song

ACM International Conference on Mobile Systems, Applications, and Services, Washington, DC, USA, Jun. 2011

Demo

ACM MobiSys 2011

[I.01] A Mobile Context Monitoring Platform for Pervasive Computing Environments (Invited paper)

Youngki Lee, **Chulhong Min**, Younghyun Ju, Saumay Pushp, Junehwa Song

IEEE International Conference on Digital Ecosystems and Technologies Conference, Daejeon, Korea, May 2011

IEEE DEST 2011

Patent

ISSUED

Communication device for predicting power consumption of mobile application, communication system including same, method of predicting power consumption of mobile application and method of providing predicted power consumption of mobile application, using same

US APPLICATION NO. 10928877B2

USA

Feb. 23, 2021

Mobile apparatus, audio book creating system having the same and method of creating audio book using the same

KOREA PATENT NO. 10-2019-101591

South Korea

Sep. 02, 2019

Development assistant apparatus of mobile sensing application, development assistant system having the same, method of assisting development of mobile sensing application using the same

KOREA PATENT NO. 10-2019-0029298

South Korea

Mar. 20, 2019

Language delay treatment system and control method for the same

U.S. PATENT NO. 9875668

USA

Jan. 23, 2018

Mobile device executing face-to-face interaction monitoring, method of monitoring face-to-face interaction using the same, and interaction monitoring system including the same, and mobile interaction monitoring application executed on the same

U.S. PATENT NO. 9813879

USA

Nov. 7, 2017

Mobile apparatus supporting cooperative context monitoring, method of cooperative context monitoring using the same and cooperative context monitoring system including the same

U.S. PATENT NO. 9756095

USA

Sep. 5, 2017

Communication apparatus for predicting power consumption of mobile application, communication system having the same, method of predicting power consumption of mobile application

KOREA PATENT NO. 10-1758267-0000

South Korea

Jul. 10, 2017

Mobile apparatus for executing sensing flow for mobile context monitoring, method of executing sensing flow using the same, method of context monitoring using the same and context monitoring system including the same

U.S. PATENT NO. 9367664B2

USA

Jun. 14, 2016

Mobile device executing face-to-face interaction monitoring, method of monitoring face-to-face interaction using the same, and interaction monitoring system including the same, and mobile interaction monitoring application executed on the same

KOREA PATENT NO. 10-1559364-0000

South Korea

Oct. 5, 2015

Mobile apparatus for executing sensing flow for mobile context monitoring, method of executing sensing flow using the same, method of context monitoring using the same and context monitoring system including the same

Korea Patent No. 10-1549002-0000

South Korea

Aug. 26, 2015

Mobile apparatus executing efficient dataflow execution for mobile context monitoring, method of executing dataflow using the same, method of context monitoring using the same and context monitoring system including the same

U.S. Patent No. 9015729

USA

Apr. 21, 2015

Language delay treatment system and control method for the same

Korea Patent No. 10-1478459-0000

South Korea

Dec. 24, 2014

Mobile apparatus executing efficient dataflow execution for mobile context monitoring, method of executing dataflow using the same, method of context monitoring using the same and context monitoring system including the same

Korea Patent No. 10-1758267-0000

South Korea

May 29, 2014

Mobile apparatus supporting context monitoring, method of monitoring context using the same and context monitoring system having the same

U.S. Patent No. 8599710

USA

Jan. 16, 2014

Mobile apparatus supporting cooperative context monitoring, method of cooperative context monitoring using the same and cooperative context monitoring system including the same

Korea Patent No. 10-1394966-0000

South Korea

Sep. 24, 2012

Mobile apparatus supporting context monitoring, method of monitoring context using the same and context monitoring system having the same

Korea Patent No. 10-1183124-0000

South Korea

Sep. 10, 2012

A system for providing group interactive contents

Korea Patent No. 10-0959591-0000

South Korea

May 17, 2010

Multi-game supporting system using body-attached sensors and digital sport equipments

Korea Patent No. 10-0943039-0000

South Korea

Feb. 10, 2010

Pending

A method for quality-aware runtime assessment of sensing models in multi-device environments

WO, PCT/IB2020/058107

WO, PCT

Aug 31, 2020

A System for Equalising Running Times of Human Sensing Applications in Wearable Environments

GB, National Patent, 2011855.0

GB

Jul 30, 2020

A System for Runtime Automatic Compilation and Optimisation of Deep Learning Models for Edge Accelerators

GB, National Patent, 2006801.1

GB

May 7, 2020

A Mobile System that Supports Social Mode-enabled Applications through Everyday Social Interaction Monitoring

Europe Patent No. 20275053.5

Europe

Mar. 5, 2020

Personalisation of Audio Models via Characterisation and Matching of User Voice Biometrics without Transmission of User's Data

GB, National Patent 1916021.7

GB

Nov. 4, 2019

A method for quality-aware runtime assessment of sensing models in multi-device environments
US

US Application No. 62/903565
Sep. 20, 2019

A method for automatic and dynamic configuration of cameras using ear-worn sensors
Europe

Europe Patent No. 19158220.4
Feb. 20, 2019

A system for the detection of facial expression on kinetic earables
Europe

Europe Patent No. 19161913.9
Mar. 14, 2019

Signal subspace extent determination for Wi-Fi sensing, Application
Europe

Europe Patent No. 18194599.9
Sep. 14, 2018

A method for augmenting user interface on earbuds using audio-kinetic model
Europe

Europe Patent No. 18188821.5
Aug. 14, 2018

A method for battery-balanced model processing and retraining for separate smart earpieces, Application
Europe

Europe Patent No. 17201078.7
Nov. 10, 2017

Occupancy detection using the MIMO structured model for minimising environmental effects, Application
Europe

Europe Patent No. 17275148.9
Sep. 22, 2017

Communication apparatus for predicting power consumption of mobile application, communication system having the same, method of predicting power consumption of mobile application
PCT

PCT Patent Pending, PCT/KR2017/002548
Mar. 9, 2017

Method for displaying information for user terminal and control equipment for the same
South Korea

Korea Patent No. 10-1385195-0000
Apr. 8, 2014

Honors & Awards

2019	**Honorable Mention Award**, ACM MobileHCI	*Taipei, Taiwan*
2016	**Outstanding Ph.D. Thesis Award**, KAIST	*South Korea*
2014	**Best Paper Award**, ACM CSCW	*Baltimore, MD, USA*
2013	**Qualcomm Fellowship Award**, Qualcomm	*South Korea*
2013	**Best Demo Award**, ACM HotMobile	*Georgia, USA*
2013	**Participation Prize**, Samsung Human Tech Thesis Prize	*South Korea*
2008	**Best Teaching Assistant Award**, KAIST, Fall semester	*South Korea*
2008	**Best Teaching Assistant Award**, KAIST, Spring semester	*South Korea*

Tutorials

2019	**Building Embedded AI Systems - A Practical Approach**, ACM MobiCom	*Los Cabos, Mexico*
2018	**Designing Connected Data Products**, ACM UbiComp	*Singapore, Singapore*

Talks

Earable Computing for Personal-scale Behavioral Analytics
Daejeon, Korea

KAIST, Invited Talk
Jul. 2021

What is Next for Sensory AI Systems? A Journey toward Making AI Work in the Real World

Yonsei University, Special Seminar

Incheon, Korea

Jun. 2021

What is Next for AI Systems? A Journey toward Making AI Work in the Real World

Postech, Special Seminar

Pohang, Korea

May 2021

Sensory AI Software Platform for Multi-device Environments

ICTC, Special Session Invited Talk

Jeju Island, Korea

Oct. 2020

Sensory AI Software Platform for Multi-device Environments

IEEE SMARTCOMP, Industry Track Invited Talk

Bologna, Italy

Sep. 2020

A Closer Look at Quality-Aware Runtime Assessment of Sensing Models in Multi-Device Environments

ACM SenSys

New York, USA

Nov. 2019

An Early Characterisation of Wearing Variability on Motion Signals for Wearables

ISWC

London, UK

Sep. 2019

Making AI Work in Multi-device World

Dept. of Computer Science and Engineering, Seoul National University

Seoul, South Korea

Jun. 2019

An Early Resource Characterisation of Wi-Fi Sensing on Residential Gateways

ACM BuildSys

Shenzhen, China

Nov. 2018

Cross-Modal Approach for conversational Well-being Monitoring with Multi-Sensory Earables

ACM WellComp

Singapore, Singapore

Oct. 2018

Exploring Audio and Kinetic Sensing on Earable Devices

ACM WearSys

Munich, Germany

Jun. 2018

Resource Orchestration Platform for Life-immersive Sensing Applications

Future Internet Forum Workshop

Seoul, South Korea

Oct. 2016

PADA: Power-aware Development Assistant for Mobile Sensing Applications

ACM UbiComp

Heidelberg, Germany

Sep. 2016

Ecosystem-wide Support for Power Impact-Awareness for Mobile Sensing Applications

Nokia Bell Labs

Antwerp, Belgium

Sep. 2016

Ecosystem-centric Power Management for Continuous Sensing Applications

Naver Labs

Sungnam, South Korea

Feb. 2016

PowerForecaster: Predicting Smartphone Power Impact of Continuous Sensing Applications at Pre-installation Time

ACM SenSys

Seoul, South Korea

Nov. 2015

Sandra: the More You Walk, the More Battery Your Phone Drains

ACM UbiComp

Osaka, Japan

Sep. 2015

Exploring Current Practices for Battery Management of Smartwatches

ACM ISWC

Osaka, Japan

Sep. 2015

An Active Resource Use Orchestration Framework for Mobile Context Monitoring in Sensor-rich Mobile Environments

Research Center for UX-oriented Mobile Software Platform

Daejeon, South Korea

Feb. 2013

CoMon: Cooperative Ambience Monitoring Platform with Continuity and Benefit Awareness

Pohang, South Korea

POSTECH

Aug. 2012

SensorShader: Mobile GPU-Accelerated Context Processing Engine for Sensing Applications on Smartphones

Lake District, UK

ACM MOBISYS PHD FORUM

Aug. 2012

Scholarly Services

ORGANISING COMMITTEE

2022	**ACM UbiComp/ISWC,** Workshop chair	*Cambridge, UK and Atlanta, USA*
2022	**ACM IASA,** Program chair	*Portland, Oregon, USA*
2021	**ACM EarComp,** Program chair	*Cyberspace*
2020	**ACM SenSys,** Poster and demo chair	*Yokohama, Japan*
2019	**ACM EarComp,** Local arrangement	*London, United Kingdom*
2019	**ACM WearSys,** Program chair	*Seoul, South Korea*
2019	**ACM MobiSys,** Demo and video chair	*Seoul, South Korea*
2018	**ACM UbiComp,** Publication chair	*Singapore, Singapore*
2017	**IEEE MDM,** Local organising chair	*Daejeon, South Korea*

EDITORSHIP

2017-	**ACM IMWUT,**

PROGRAM COMMITTEE MEMBERSHIP

2022	**ACM MobiSys,**	*Portland, OR, USA*
2022	**ACM MobiCom,**	
2022	**PerCom Industry Track,**	*Pisa, Italy*
2021	**COMSNETS,**	*Bengaluru, India*
2021	**ICMU,**	*Tokyo, Japan*
2021	**MobiQuitous,**	*Beppu, Japan*
2021	**ICMU,**	*Tokyo, Japan*
2021	**ACM HotMobile,**	*Cyberspace*
2021	**COMSNETS,**	*Bengaluru, India*
2021	**MFSens,** co-located with ICDCN	*Nara, Japan*
2020	**WearSys 2020,**	*Toronto, Canada*
2020	**WCNC 2020,**	*Seoul, South Korea*
2020	**COMSNETS 2020,**	*Bengaluru, India*
2019	**ACM EarComp,**	*London, UK*
2019	**PervasiveHealth,**	*Trento, Italy*
2019	**ACM MobiSys,**	*Seoul, South Korea*
2019	**MUSICAL,** co-located with IEEE PerCom	*Kyoto, Japan*
2017	**IEEE MDM,**	*Daejeon, South Korea*
2015	**Embarrassing Interactions,** ACM CHI Workshop	*Seoul, South Korea*
2015	**MobiSys PhD Forum,**	*Florence, Italy*

EXTERNAL REVIEWER

IEEE Computer Society,

IEEE Transactions on Mobile Computing (TMC),

IEEE Pervasive Computing,

Ad Hoc Networks,

IEEE INFOCOM, *2017*

ACM CHI, *2015, 2017, 2018*

ACM CSCW, *2017, 2021*

ACM UbiComp, *2015, 2016*

ACM IMWUT, *Nov. 2016, Feb. 2017*

ACM MobileHCI, *2016, 2017*

ACM UIST, *2017, 2018*

ACM ISWC, *2015, 2016, 2017*

ACM CHI Play, *2016*

ACM TVX, *2015, 2016, 2017*

ACM EICS, *2015*

ACM IDC, *2015, 2017*

ACM SUI, *2015, 2016*

ACM DIS, *2016, 2017*

ACM ACI, *2016*

ACM VRST, *2016*

ACM ISS, *2016*

MobiQuitous, *2016*

ACM HRI, *2017*

IEEE SECON, *2017*