

Chulhong Min

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Research Interests

- Mobile and ubiquitous computing systems
- Human-computer interactions
- Context-aware computing
- Internet of things
- Sensor network systems

Employment

Post-Doctoral Researcher

School of Computing, KAIST, March 2016 ~ Present

Full-time Engineer

Network system group, Piolink, Inc. Korea, March 2004 ~ June 2006

Education

Ph.D. in Computer Science, February 2016

Korea Advanced Institute of Science and Technology (KAIST)

Advisor: Dr. Junehwa Song

Co-advisor: Dr. Youngki Lee

Dissertation: "User Support for Battery Management of Continuous Sensing Applications"

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

M.S. in Computer Science, August 2009

Korea Advanced Institute of Science and Technology (KAIST)

Advisor: Dr. Junehwa Song

Thesis: "bOM: System Orchestration Framework in Sensor-rich Mobile Environment"

B.S. in Computer Science, August 2007

Korea Advanced Institute of Science and Technology (KAIST)

Publication

Peer-reviewed Publications (Conferences and Journals)

1. Bumsoo Kang, **Chulhong Min**, Wonjung Kim, Inseok Hwang, Chunjong Park, Seungchul Lee, Sung-Ju Lee, and Junehwa Song. "Zaturi: We Put Together the 25th hour for you. Create a Book for Your Baby." To appear in *ACM Conference on Computer-Supported Cooperative Work and Social Computing (CSCW)*, Portland, USA, 2017.
2. **Chulhong Min**, Seungchul Lee, Changhun Lee, Youngki Lee, Seungwoo Kang, Seungpyo Choi, Wonjung Kim, and Junehwa Song. "PADA: Power-aware Development Assistant for Mobile Sensing Applications". In *Proceedings of ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp)*, Heidelberg, Germany, Sep.12-Sep.16, 2016.
3. Youngki Lee, Seungwoo Kang, **Chulhong Min**, Younghyun Ju, Inseok Hwang, and

- Junehwa Song. "CoMon+: A Cooperative Context Monitoring System for Multi-Device Personal Sensing Environments" *IEEE Transactions on Mobile Computing (TMC)*, Vol. 15, Issue 8, Aug 2016.
4. **Chulhong Min**, Youngki Lee, Chungkuk Yoo, Seungwoo Kang, Inseok Hwang, and Junehwa Song. "PowerForecaster: Predicting Power Impact of Mobile Sensing Applications at Pre-installation Time" *GetMobile: Mobile Computing and Communications (GetMobile)*. Vol. 20, Issue 1, July 2016.
 5. **Chulhong Min**, Youngki Lee, Chungkuk Yoo, Seungwoo Kang, Sangwon Choi, Pillsoon Park, Inseok Hwang, Younghyun Ju, Seungpyo Choi, and Junehwa Song. "PowerForecaster: Predicting Smartphone Power Impact of Continuous Sensing Applications at Pre-installation Time" In *Proceedings of ACM Conference on Embedded Networked Sensor Systems (SenSys)*, Seoul, Korea, Nov.1-Nov.4, 2015.
 6. **Chulhong Min**, Chungkuk Yoo, Inseok Hwang, Seungwoo Kang, Youngki Lee, Seungchul Lee, Pillsoon Park, Changhun Lee, Seungpyo Choi, and Junehwa Song. "Sandra Helps You Learn: the More You Walk, the More Battery Your Phone Drains" In *Proceedings of ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp)*, Osaka, Japan, Sep.7-Sep.11, 2015.
 7. **Chulhong Min**, Seungwoo Kang, Chungkuk Yoo, Jeehoon Cha, Sangwon Choi, Younghun Oh, and Junehwa Song. "Exploring Current Practices for Battery Use and Management of Smartwatches" In *Proceedings of International Symposium on Wearable Computers (ISWC)*, Osaka, Japan, Sep.7-Sep.11, 2015.
 8. Inseok Hwang, Chungkuk Yoo, Chanyou Hwang, Dongsun Yim, Youngki Lee, **Chulhong Min**, John Kim, and Junehwa Song. "TalkBetter: Family-driven Mobile Intervention Care for Children with Language Delay" In *Proceedings of ACM Conference on Computer-Supported Cooperative Work & Social Computing (CSCW)*, Baltimore, USA, Feb.15-Feb.19, 2014.
- Best Paper Award**
Media Coverage: NewScientist, Feb. 1. 2014.
9. Youngki Lee, **Chulhong Min**, Chanyou Hwang, Jaeung Lee, Inseok Hwang, Younghyun Ju, Chungkuk Yoo, Miri Moon, Uichin Lee, and Junehwa Song. "SocioPhone: Everyday Face-to-Face Interaction Monitoring Platform using Multi-phone Sensor Fusion" In *Proceedings of ACM Conference on Mobile Systems, Applications, and Services (MobiSys)*, Taipei, Taiwan, Jun.25-Jun.28, 2013.
 10. Youngki Lee, **Chulhong Min**, Younghyun Ju, Seungwoo Kang, Yunseok Rhee, and Junehwa Song. "An Active Resource Orchestration Framework for PAN-Scale, Sensor-Rich Environments" *IEEE Transactions on Mobile Computing (TMC)*, Vol. 13, Issue 3, May 2013
 11. Younghyun Ju, Youngki Lee, Jihyun Yu, **Chulhong Min**, Insik Shin, and Junehwa Song. "SymPhoney: A Coordinated Sensing Flow Execution Engine for Concurrent Mobile Sensing Applications" In *Proceedings of ACM Conference on Embedded Network Sensor Systems (SenSys)*, Toronto, Canada, Nov.6-Nov.9, 2012.
 12. Youngki Lee, Younghyun Ju, **Chulhong Min**, Seungwoo Kang, Inseok Hwang, and Junehwa Song. "CoMon: Cooperative Ambience Monitoring Platform with Continuity and Benefit Awareness" In *Proceedings of ACM Conference on Mobile Systems, Applications, and Services (MobiSys)*, Low Wood Bay, Lake District, United Kingdom, Jun.25-Jun.29, 2012.
 13. Youngki Lee, Sitharam S. Iyengar, **Chulhong Min**, Younghyun Ju, Seungwoo Kang, Taiwoo Park, Jinwon Lee, Yunseok Rhee, and Junehwa Song. "MobiCon: Mobile Context Monitoring Platform for Sensor-Rich Dynamic Environments" *Communications of the*

ACM (CACM), Vol. 55, Issue 3, March 2012

14. Younghyun Ju, **Chulhong Min**, Youngki Lee, Jihyun Yu, and Junehwa Song. “An Efficient Dataflow Execution Method for Mobile Context Monitoring Applications” In *Proceedings of IEEE International Conference on Pervasive Computing and Communications (PerCom)*, Lugano, Switzerland, Mar.19-Mar.23, 2012.
15. Seungwoo Kang, Youngki Lee, **Chulhong Min**, Younghyun Ju, Taiwoo Park, Jinwon Lee, Yunseok Rhee, Junehwa Song. “Orchestrator: An Active Resource Orchestration Framework for Mobile Context Monitoring in Sensor-rich Mobile Environments” In *Proceedings of IEEE International Conference on Pervasive Computing and Communications (PerCom)*, Mannheim, Germany, Mar.29-Apr.2, 2010.

Peer-reviewed Workshop Publications

1. Sebastian Deterding, Andrés Lucero, Jussi Holopainen, **Chulhong Min**, Adrian Cheok, Annika Waern, and Steffen Walz. “Embarrassing Interactions”, In *Proceedings of the 33rd Annual ACM Conference Extended Abstracts on Human Factors in Computing Systems (CHI EA)*, Seoul, Korea, Apr.18-Apr.23, 2015
2. **Chulhong Min**, Saumay Pushp, Seungchul Lee, Inseok Hwang, Youngki Lee, Seungwoo Kang, and Junehwa Song. “Uncovering Embarrassing Moments in In-situ Exposure of Incoming Mobile Messages”, In *Proceedings of the 3rd ACM Workshop on Mobile Systems for Computational Social Science (MCSS)*, Seattle, USA, Sep.13, 2014
3. SangJeong Lee, **Chulhong Min**, Chungkuk Yoo, and Junehwa Song. “Understanding Customer Malling Behavior in an Urban Shopping Mall using Smartphones” In *Proceedings of ACM Workshop on Mobile Systems for Computational Social Science (MCSS)*, Zurich, Switzerland, Sep.9, 2013

Other Publications (Invited Papers, Demos, Posters, Video, and PhD Forum)

1. Bumsoo Kang, Wonjung Kim, Inseok Hwang, Chunjong Park, Seungchul Lee, **Chulhong Min**, Sung-Ju Lee, and Junehwa Song. “Zaturi: Blending Hours Spent at Work and Hours Devoted to Children” To appear in *ACM Conference on Computer-Supported Cooperative Work and Social Computing (CSCW)*, Portland, USA, 2017.
2. **Chulhong Min**, Chungkuk Yoo, Sangwon Choi, Pillsoon Park, Seungchul Lee, Changhun Lee, Seungpyo Choi, Seungwoo Kang, Youngki Lee, Inseok Hwang, Younghyun Ju, and Junehwa Song. “Demo: User Support for Power Management of Continuous Sensing Applications” In *Proceedings of ACM Conference on Embedded Network Sensor Systems (SenSys)*, Seoul, Korea, Nov.1-Nov.4, 2015.
3. Inseok Hwang, Chungkuk Yoo, Chanyou Hwang, Dongsun Yim, Youngki Lee, **Chulhong Min**, John Kim, Junehwa Song. “Video: TalkBetter: Smartphone-supported Intervention in Family Conversation for Children with Language Delay” In *Proceedings of ACM Conference on Computer Supported Cooperative Work & Social Computing (CSCW)*, Baltimore, USA, Feb.15-Feb.19 2014
4. **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, and Junehwa Song. “ACM HotMobile 2013 Demo: Brining In-situ Social Awareness to Mobile Systems: Conversational Turn Monitoring and its Applications”, *ACM Mobile Computing and Communication Review (MC2R)*, vol. 17, no. 3 (2013)
5. **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, and Junehwa Song. “Demo: Brining In-situ Social Awareness to Mobile Systems: Conversational Turn Monitoring and its Applications”, In *ACM Workshop on Mobile Computing Systems and Applications (HotMobile)*, Jekyll Island, USA, Feb.26-Feb.27, 2013

Best Demo Award

6. Saumay Pushp, **Chulhong Min**, Youngki Lee, Chi Harold Lie, and Junehwa Song. “Poster: Towards Crowd-aware Sensing Platform for Metropolitan Environments” In *Proceedings of ACM Conference on Embedded Network Sensor Systems (SenSys)*, Toronto, Canada, Nov.6-Nov.9, 2012
7. Youngki Lee, Younghyun Ju, **Chulhong Min**, Jihyun Yu, and Junehwa Song. “Demo: MobiCon: Mobile context monitoring platform, Incorporating Context-awareness to Smartphone-centric Personal Sensor Networks” In *Proceedings of IEEE Communications Society Conference on Sensor, Mesh and Ad Hoc Communications and Networks (SECON)*, Seoul, Korea, Jun.18-Jun.21 2012
8. **Chulhong Min**, Wookhyun Han, Inseok Hwang, SangJeong Lee, Youngki Lee, Insik Shin, and Junehwa Song. “Poster: Towards Mobile GPU-Accelerated Context Processing for Continuous Sensing Applications on Smartphones” In *Proceedings of ACM Conference on Mobile Systems, Applications, and Services (MobiSys)*, Low Wood Bay, Lake District, United Kingdom, Jun.25-Jun.29 2012
9. Youngki Lee, Younghyun Ju, **Chulhong Min**, Seungwoo Kang, Inseok Hwang, and Junehwa Song. “Demo: SenseTogether- Cooperative Ambience Monitoring Platform with Continuity and Benefit Awareness” In *Proceedings of ACM Conference on Mobile Systems, Applications, and Services (MobiSys)*, Low Wood Bay, Lake District, United Kingdom, Jun.25-Jun.29 2012
10. **Chulhong Min**. “SensorShader: Mobile GPU-Accelerated Context Processing Engine for Sensing Applications on Smartphones” *MobiSys PhD Forum*, Low Wood Bay, Lake District, United Kingdom, Jun. 25 2012
11. **Chulhong Min**, Chungkuk Yoo, Youngki Lee, and Junehwa Song. “Healthopia: Towards Your Well-Being in Everyday Life (Invited paper)” In *Proceedings of International Symposium on Applied Sciences in Biomedical and Communication Technologies (ISABEL)*, Barcelona, Spain, Oct.26-Oct.29 2011
12. Youngki Lee, Younghyun Ju, **Chulhong Min**, Seungwoo Kang, Yunseok Rhee and Junehwa Song. “Demo: CoMon - Resource-aware Cooperative Context Monitoring System for Smartphone-centric Sensor-rich PANs” In *Proceedings of ACM Conference on Mobile Systems, Applications and Services (MobiSys)*, Washington, DC, USA, Jun.28- Jul.1 2011
13. Youngki Lee, **Chulhong Min**, Younghyun Ju, Saumay Pushp, and Junewha Song. “A Mobile Context Monitoring Platform for Pervasive Computing Environments (Invited paper)” In *Proceedings of IEEE International Conference on Digital Ecosystems and Technologies Conference (DEST)*, Daejeon, Korea, May 31-Jun.3 2011.

Granted Patents

1. Mobile apparatus executing face to face interaction monitoring, method of monitoring face to face interaction using the same, interaction monitoring system including the same and interaction monitoring mobile application executed on the same, Korea Patent, No. 10-1559364-0000. (Issue Date: Oct. 5, 2015)
2. Mobile apparatus for executing sensing flow for mobile context monitoring, method of

- executing sensing flow using the same, method of context monitoring us, Korea Patent No. 10-1549002-0000 (Issue Date: Aug. 26, 2015)
3. 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. (Issue Date: Apr. 21, 2015)
 4. Language delay treatment system and control method for the same, Korea Patent No. 10-1478459-0000. (Issue Date: Dec. 24, 2014)
 5. 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. 10-1403949-0000. (Issue Date: May 29, 2014)
 6. Mobile apparatus operating 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. (Issue Date: May 8, 2014)
 7. Method for displaying information for user terminal and control equipment for the same, Korea Patent No. 10-1385195-0000. (Issue Date: Apr. 8, 2014)
 8. Mobile apparatus supporting context monitoring, method of monitoring context using the same and context monitoring system having the same, U.S. Patent No. 08599710. (Issue Date: Jan. 16, 2014)
 9. Mobile apparatus supporting context monitoring, method of context monitoring using the same and context monitoring system including the same, Korea Patent No. 10-1183124-0000. (Issue Date: Sep. 10, 2012)
 10. A system for providing group interactive contents, Korea Patent No. 10-0959591-0000. (Issue Date: May 17, 2010)
 11. Multi-game supporting system using body-attached sensors and digital sport equipments, Korea Patent No. 10-0943039-0000. (Issue Date: Feb. 10, 2010)

Pending Patents

1. Communication apparatus for predicting power consumption of mobile application, communication system having the same, method of predicting power consumption of mobile application and method of providing predicted power consumption of mobile application, Korea Patent Pending, Application No. 10-2016-0028759. (Application Date: Mar. 10, 2016)
2. Mobile apparatus and method for dynamically screening of mobile contents based on users' situational contexts, Korea Patent Pending, Application No. 10-2015-0129261. (Application Date: Sep. 11, 2015)
3. 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 Pending, Application No. 14302440. (Application Date: Jun. 12, 2014)
4. A coordinated sensing flow execution engine for concurrent mobile sensing applications, U.S. Patent Pending, Application No. 14073217. (Application Date: Nov. 6, 2013)
5. Family-driven socio-interactive care for children with language delay: a smartphone-supported in-situ intervention approach, U.S. Patent Pending, Application No. 14047177. (Application Date: Oct. 7, 2013)

6. Mobile apparatus supporting cooperative context monitoring, method of cooperative context monitoring using the same and cooperative context monitoring system including the same, PCT Patent Pending, Application No. PCT/KR2013/004335. (Application Date: May 16, 2013)
7. System for playing online game using exercising information, Korea Patent Pending, Application No. 10-2009-0050273. (Application Date: Jun. 8, 2009)

Awards

- Outstanding Ph.D. Thesis Award, School of Computing, KAIST, 2016
- Best Paper Award, ACM CSCW 2014
- Qualcomm Fellowship Award, 2013
- Best Demo Award, ACM HotMobile 2013
- Participation Prize, SAMSUNG Human Tech Thesis Prize, 2013
- Best Teaching Assistant Award, Computer Science, KAIST, Fall 2008
- Best Teaching Assistant Award, Computer Science, KAIST, Spring 2008

Talks

1. Future Internet Forum Workshop, “Resource Orchestration Platform for Life-immersive Sensing Applications”, October 2016, Seoul, Korea
2. UbiComp, “PADA: Power-aware Development Assistant for Mobile Sensing Applications”, September 2016, Heidelberg, Germany
3. Bell Labs, “Ecosystem-wide Support for Power Impact-Awareness for Mobile Sensing Applications”, September 2016, Antwerp, Belgium
4. Naver Labs, “Ecosystem-centric Power Management for Continuous Sensing Applications”, February 2016, Sungnam, Korea
5. SenSys. “PowerForecaster: Predicting Smartphone Power Impact of Continuous Sensing Applications at Pre-installation Time”, November 2015, Seoul, Korea
6. UbiComp, “Sandra: the More You Walk, the More Battery Your Phone Drains”, September 2015, Osaka, Japan
7. ISWC, “Exploring Current Practices for Battery Management of Smartwatches”, September 2015, Osaka, Japan
8. Research Center for UX-oriented Mobile Software Platform, KAIST “An Active Resource Use Orchestration Framework for Mobile Context Monitoring in Sensor-rich Mobile Environments”, February 2013, Daejeon, Korea
9. POSTECH, “CoMon: Cooperative Ambience Monitoring Platform with Continuity and Benefit Awareness”, August 2012, Pohang, Korea
10. MobiSys PhD Forum, “SensorShader: Mobile GPU-Accelerated Context Processing Engine for Sensing Applications on Smartphones”, June 2012, Lake District, United Kingdom

Scholarly Services

Organizing Committee

1. IEEE MDM 2017, Local Arrangement Co-Chair

Program Committee

1. IEEE MDM 2017
2. ACM CHI 2015 Workshop, Embarrassing Interactions
3. MobiSys PhD Forum 2015

External Conference Reviewing (papers)

1. IEEE INFOCOM 2017
2. ACM CHI 2015, 2017
3. ACM CSCW 2017
4. ACM UbiComp 2015, 2016
5. ACM IMWUT Nov 2016
6. ACM MobileHCI 2016
7. ACM ISWC 2015, 2016
8. ACM TVX 2015, 2016
9. ACM SUI 2015, 2016
10. ACM EICS 2015
11. ACM IDC 2015
12. ACM DIS 2016
13. ACM CHI Play 2016
14. ACM ACI 2016
15. ACM VRST 2016
16. ACM ISS 2016
17. MobiQuitous 2016
18. ACM CHI 2015 Workshop, Embarrassing Interactions

External Conference Reviewing (short papers, work-in-progress, posters, and demos)

1. ACM UbiComp Posters 2015, 2016
2. ACM CHI Work-in-progress 2015
3. ACM IUI Demonstrations and posters 2015, 2016
4. ACM TVX Work-in-progress 2015
5. ACM IDC Short papers 2015
6. ACM CHI PLAY Work-in-progress 2015
7. ACM MobileHCI Poster 2015
8. COMSNETS Poster 2016
9. ACM CSCW Poster 2016

Professional Experiences

Teaching Assistant

KAIST, March 2008 ~ December 2011

Part-time Engineer

École National Supérieure des Telecommunications (ENST), France, August, 2002

Exchange Student

Institut national des sciences appliquées de Lyon (INSA de Lyon), France, Sep. 2001 ~ Jul. 2002

Skills

- Mobile and sensor programming: Android, NesC
- Programming: C/C++, Java
- System programming: Linux kernel programming, Android framework and kernel programming
- Data analysis platforms: Matlab, Weka, R
- Power measurement tools: Monsoon power monitor, Agilent 34410A digital multimeter