

# JUNG WOOK PARK

Ph.D. in Computer Science and Human–Computer Interaction

E-mail: ubihuman@gmail.com | Website: <https://www.jungwook.com> | Phone: +1-404-670-0076

## RESEARCH INTERESTS

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Applied LLMs for Human-Computer Interaction, Edge AI, Autonomous Sensing Solutions, User Experience Research, Contextual Intelligence, Mobile and Embedded Computing, AI for Sustainable Systems, Renewable Energy Integration, Energy Transition, Advanced Materials

## EDUCATION

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- **Georgia Institute of Technology**, Atlanta, Georgia  
Doctor of Philosophy in Computer Science  
Advisors: Drs. Gregory Abowd and Rosa Arriaga  
August 2016 – December 2021
- **Ajou University**, Suwon, South Korea  
Master of Science in Electrical and Computer Engineering  
Thesis: Activity Recognition for Child Home Accident Prevention using Wearable Sensors  
Advisor: Dr. We-Duke Cho  
March 2007 – February 2010
- **Ajou University**, Suwon, South Korea  
Bachelor of Science in Electrical Engineering  
March 2003 – February 2007

## PROFESSIONAL EXPERIENCE

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- **Accenture Labs**, San Francisco, California  
Principal Researcher and Manager – Innovation Division  
Lead energy research, merging advanced materials with artificial intelligence computing, and drive innovation through collaboration with clients and university partners.  
June 2022 - February 2025
- **Georgia Institute of Technology**, Atlanta, Georgia  
Graduate Research Assistant – School of Interactive Computing  
Designed a wearable device to study smartphone use and wearable ecosystems for PTSD research, then shifted to compute-proximal energy harvesting and toolkit development  
August 2016 – December 2021
- **VMware, Inc**, Sandy Springs, Georgia  
Research Engineering Intern – Advanced Research and Development Team  
Developed a smartphone-based inaudible sound technique for detecting human-human interactions for

a security enhancement, leading to two U.S. patents and a Proof-of-Concept application  
May 2017 – August 2017

- **Yonsei University Hospital**, Seoul, South Korea  
Researcher – Health-Information Technology Acceleration Platform Technology Innovation Center  
Designed international medical information standards.  
May 2016 – June 2016
- **Carnegie Mellon University**, Pittsburgh, Pennsylvania  
Visiting Researcher – Human-Computer Interaction Institute  
Devised tools and algorithms for understanding human behavior and emotion.  
July 2015 – March 2016
- **LG Electronics**, Seoul, South Korea  
Research Engineer – Creative Innovation Center, Chief Technology Officer Division  
Designed and developed IoT and wearable devices, including smartwatches and smart glasses, through experimental prototyping  
September 2012 – June 2015
- **BIT Computer**, Seoul, South Korea  
Research Engineer (Military Service) – Ubiquitous Healthcare Department  
Conducted several research projects regarding ubiquitous healthcare.  
March 2010 – August 2012
- **University of Florida**, Gainesville, Florida  
Visiting Researcher – Mobile and Pervasive Computing Laboratory  
Developed assistive smart devices for children with mucopolysaccharidosis, the elderly, and the visually impaired.  
September 2008 – February 2010
- **Center of Excellence for Ubiquitous System**, Suwon, South Korea  
Associate Research Engineer – Well-being Life Care Team  
Devised an anti-stress solution and smart objects for well-being.  
May 2005 – December 2009

## EXTRA-CURRICULAR EXPERIENCE

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- **Project Lead**, Winged  
Georgia Institute of Technology, CREATE-X Program  
Proposed a startup concept to retrofit safety sensors in existing vehicles. Accepted into Georgia Tech's CREATE-X program, completing initial phases before discontinuing due to conflicts.  
May 2018 - August 2018
- **President**, Student Council, Department of Electrical Engineering Ajou University, Korea  
Developed strategic growth plans for the student council and organized events to foster community and strengthen student solidarity. March 2003 - February 2004

## GRANTS

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- **Georgia Tech-Oak Ridge National Laboratory** Seed Grant Program - Principal Investigator, 2020
- **National Science Foundation**, Smart & Connected Health (#1915504) - Core Student Contributor, 2019

## HONORS AND AWARDS

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- ACM CHI Best Paper Honorable Mention, 2023
- ACM PACM on IMWUT Distinguished Paper Award, 2020
- ITU Kaleidoscope: ICT for Health Best Paper Award, 2019
- Mobile App Development Award, Small and Medium Business Administration, Korea, 2010
- Ajou University Graduate Fellowship, 2007, 2009

## PATENTS

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- Upper Extremity Prosthetic Device with Enhanced Spring Designs  
U.S. Patent and Trademark Office, 2924 — Patent Number: US20240091041A1 — Pending
- Method of Manufacturing Transient Electronics  
U.S. Patent and Trademark Office, 2023 — Patent Number: US20240080991A1 — Pending
- Generating Sensor-Based Identifier (Server Side)  
U.S. Patent and Trademark Office, 2019 — Patent Number: US20190199719A1 — Awarded
- Generating Sensor-Based Identifier (Client Side)  
U.S. Patent and Trademark Office, 2019 — Patent Number: US11010461B2 — Awarded
- Wearable Glass-type Device and Method of Controlling the Device  
South Korea, 2013 — Patent Number: 1021957730000 — Awarded
- System for Detecting Sleep Disorder with Sensor Unit Attached to Trousers  
South Korea, 2012 — Patent Number: 1013876140000 — Awarded
- In-Ear Type Apparatus for Measuring Number of Mastication and System for Correcting Abnormal Mastication Habit — South Korea, 2011 — Patent Number: 1011985980000 — Awarded
- In-Ear Type Apparatus for Measuring Blood Pulse and In-Ear Type Hearing Aid Capable of Measuring Blood Pulse  
South Korea, 2011 — Patent Number: 1012255540000 — Awarded
- Toddler Care System and Method  
South Korea, 2012 — Patent Number: 1011313290000 — Awarded

## CONFERENCE/WORKSHOP

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- **Co-Organizer**, The 3rd International Workshop on Ubiquitous Mobile Instrumentation (UbiMI 2016)  
*In conjunction with ACM UbiComp 2016, Heidelberg, Germany*
- **Web Chair**, The 19th International Conference on Mobile Computing and Networking (MobiCom 2013)  
*Miami, Florida, USA*
- **Online Community Chair** and **Registration Co-Chair**, The 11th ACM International Conference on Ubiquitous Computing (ACM UbiComp 2009)  
*Orlando, Florida, USA*

## TECHNICAL SKILLS

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- **Graphic and 3D Design**: Adobe Creative Suite, Autodesk Fusion 360
- **Programming**: Python, C, C#, JAVA, NET, SQLite, Swift
- **Hardware**: Circuit Design, Hardware Fabrication, Multi-material 3D Printing, RF Communication
- **Mobile Applications**: Android, Android Wear, iOS, WatchOS
- **Simulation and Modeling**: MATLAB, Weka, OrCad, Eagle CAD, SolidWorks, Ansys

## PUBLICATIONS

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- Jung Wook Park, “Fine-Tuning LLMs for Predicting Vehicle-to-Grid Adoption: Modeling Willingness and Preferences,” (Manuscript in preparation)
- Jung Wook Park, Aditi Maheshwari, Rosalie Hsin-Ju Lin, Andreea Danielescu, “A Comprehensive Review of Ambient Energy Harvesting in Interactive Systems,” *Proc. ACM Interact. Mob. Wearable Ubiquitous Technol (IMWUT)* (Under Review).
- Jung Wook Park, Eric M. Gallo, Andreea Danielescu, Shad Round, “Unlocking the Potentials of Vibration Energy Harvesting,” *Proc. ACM Interact. Mob. Wearable Ubiquitous Technol (IMWUT)* (Under Review).
- Alex Inman, Bitan Soltan Mohammadlou, Kateryna Shevchuk, James FitzPatrick, Jung Wook Park, Noah Pacik-Nelson, Iryna Roslyk, Eric M. Gallo, Raghav Garg, Flavia Vitale, Andreea Danielescu, Yury Gogotsi, “MXene-enabled textile-based energy grid utilizing wireless charging,” *Materials Today*, 2024.
- Jung Wook Park, Sienna Xin Sun, Tingyu Cheng, Dong Whi Yoo, Jiawei Zhou, Youngwook Do, Gregory D. Abowd, Rosa I. Arriaga, “Exergy: A Toolkit to Simplify Creative Applications of Wind Energy Harvesting,” *Proc. ACM Interact. Mob. Wearable Ubiquitous Technol (IMWUT)*, 7, 1, Article 25 (March 2023), 28 pages.
- Tingyu Cheng, Taylor Tabb, Jung Wook Park, Eric M. Gallo, Aditi Maheshwari, Gregory D. Abowd, Hyun-joo Oh, Andreea Danielescu, “Functional Destruction: Utilizing Sustainable Materials’ Physical Transiency for Electronics Applications,” *Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems (CHI '23)*, Association for Computing Machinery, New York, NY, USA, Article 366, 1–16. \*Honorable Mention Award.

- Jung Wook Park, Ben Greenspan, Taylor Tabb, Eric Gallo, Andreea Danielescu, “3D Printed Energy Return Elements for Upper Limb Sports Prosthetics,” *MDPI, Prosthesis*, 2023, 5, 13–34.
- Tingyu Cheng, Jung Wook Park, Jiachen Li, Charles Ramey, Hongnan Lin, Gregory D. Abowd, Carolina Brum Medeiros, HyunJoo Oh, Marcello Giordano, “PITAS: Sensing and Actuating Embedded Robotic Sheet for Physical Information Communication,” *CHI Conference on Human Factors in Computing Systems (CHI '22)*, Association for Computing Machinery, New York, NY, USA, 2022.
- Dingtian Zhang, Canek Fuentes-Hernandez, Raaghesh Vijayan, Yang Zhang, Yunzhi Li, Jung Wook Park, Yiyang Wang, Yuhui Zhao, Nivedita Arora, Ali Mirzazadeh, Youngwook Do, Tingyu Cheng, Saiganesh Swaminathan, Thad Starner, Trisha L. Andrew, Gregory D. Abowd, “Flexible computational photodetectors for self-powered activity sensing,” *npj Flexible Electronics*, volume 6, Article number: 7, 2022.
- Jung Wook Park, Tingyu Cheng, Mohit Gupta, et al., “Applying Compute-proximal Energy Harvesting to Develop Self-Sustained Systems for Automobiles,” *IEEE Pervasive Computing*, 2021.
- Youngwook Do, Jung Wook Park, Yuxi Wu, et al., “Smart Webcam Cover: Exploring the Design of an Intelligent Webcam Cover to Improve Usability and Trust,” *PACM IMMUT*, 2021.
- Jung Wook Park, Alishan Hassan, Tingyu Cheng, et al., “Demo Abstract: A Simulation and Prototyping Toolkit for Airflow Energy Harvesting in Vehicles,” *SenSys '21*, 2021.
- Youngwook Do, Linh Thai Hoang, Jung Wook Park, et al., “Spidey Sense: Designing Wrist-Mounted Affective Haptics for Communicating Cybersecurity Warnings,” *DIS '21*, 2021.
- Jung Wook Park, “PhD Forum: Uncovering opportunities for energy harvesting technologies,” *SenSys '20*, 2020.
- Dingtian Zhang, Jung Wook Park, Yang Zhang, et al., “OptoSense: Towards Ubiquitous Self-Powered Ambient Light Sensing Surfaces,” *PACM IMMUT*, 2020.
- Jung Wook Park, Hayley I. Evans, Hue Watson, et al., “Growing Apart: How Smart Devices Impact the Proximity of Users to Their Smartphones,” *IEEE Pervasive Computing*, 2020.
- Jung Wook Park, Aditi Shah, Rosa I. Arriaga, Santosh Vempala, “Redesigning a Basic Laboratory Information System for the Global South,” *ITU Kaleidoscope*, 2019. (Second Best Paper)
- Hyoseok Yoon, Se-Ho Park, Kyung-Taek Lee, Jung Wook Park, et al., “A Case Study on Iteratively Assessing and Enhancing Wearable User Interface Prototypes,” *Symmetry*, 2017.
- Jung Wook Park, SeungJun Kim, and Anind K. Dey, “Integrated Driving Aware System in the Real-World: Sensing, Computing and Feedback,” *CHI '16 Extended Abstracts*, 2016.
- Jang-Ho Park, Dae-Geun Jang, Jung Wook Park, Se-Kyoung Youm, “Wearable Sensing of In-Ear Pressure for Heart Rate Monitoring with a Piezoelectric Sensor,” *Sensors (MDPI)*, 2015.
- Yunyoung Nam and Jung Wook Park, “Child Activity Recognition Based on Cooperative Fusion Model of a Triaxial Accelerometer and a Barometric Pressure Sensor,” *IEEE Journal of Biomedical and Health Informatics*, 2013.
- Yunyoung Nam and Jung Wook Park, “Physical Activity Recognition using a Single Triaxial Accelerometer and a Barometric Sensor for Baby and Child Care in a Home Environment,” *Journal of Ambient Intelligence and Smart Environments*, 2013.

- Jung Wook Park and Abdelsalam Helal, "TouchView: Cognitive Assistance for MPS Children," *UbiComp*, 2009.
- Jung Wook Park, Chao Chen, Hicham Elzabadi, Abdelsalam Helal, "SmartPlug: Creating Self-Sensing Spaces using Atlas Middleware," *UbiComp*, 2009.
- Heyoung Lee, Jung Wook Park, Abdelsalam Helal, "Estimation of Indoor Physical Activity Level Based on Footstep Vibration Signal Measured by MEMS Accelerometer for Personal Health Care," *MELT09*, 2009.
- Jung Wook Park, Yoo Suk Jung, Hui Jung Park, Soon Dong Kim, We-Duke Cho, "WIS: A Well-being Index based Health Care System in Smart Home," *IEEE Percom*, 2009.
- Jung Wook Park, Soung Hun You, Hui Jung Park, We-Duke Cho, "Development of Baby Caring System by Utilizing Context-Awareness," *UCS2007*, 2007.
- Soung Hun You, Hui Jung Park, U In Byun, Tae Soo Kim, Jung Wook Park, We Duke Cho, "Developing Intelligent Smart Home by Utilizing Community Computing," *UCS2007*, 2007.