Jae-Hyun Park

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Intelligent Radar System & Signal Processing Lab (IRAS) | Google Scholar | Personal Homepage

Research Interest

Radar architecture, radar signal processing, cognitive radar, micro-motion sensing, human activity recognition, and intelligent sensing applications.

Education

Pohang University of Science and Technology (POSTECH) Sep 2021 – *Expected Aug 2025*
Ph.D. Candidate in Electrical Engineering
Thesis: Next-Generation Continuous-Wave Radars
Advisor: Prof. Kyung-Tae Kim

Yeungnam University Mar 2019 – Feb 2021
M.S. in Electronic Engineering
Thesis: A Study on Short Range Continuous Wave Radar System for Precision Detection
Advisor: Prof. Jong-Ryul Yang

Yeungnam University Mar 2013 – Feb 2019
B.S. in Electronic Engineering

International Journal Publications

- **Jae-Hyun Park**, J.-K. Park, J.-H. Jeong, and K.-T. Kim, "Detection and Feature Extraction of Small UASs Using Adaptive Hybrid CW Radar with Hybrid Zoom FFT," *Elsevier Measurement* (Accepted), Apr 2025.
- **Jae-Hyun Park**, J.-K. Park, J.-H. Jeong, and K.-T. Kim, "Double-Conversion FMCW Radar for Extension of Maximum Unambiguous Range," *IEEE Transactions on Instrumentation and Measurement*, doi: 10.1109/TIM.2024.3470064, Sep 2024.
- J.-K. Park, **Jae-Hyun Park**, and K.-T. Kim, "MPSK-MIMO FMCW Radar-Based Indoor Multipath Recognition," *IEEE Sensors Journal*, doi: 10.1109/JSEN.2024.3430082, Jul 2024.
- J.-K. Park, **Jae-Hyun Park**, and K.-T. Kim, "Multipath Signal Mitigation for Indoor Localization Based on MIMO FMCW Radar System," *IEEE Internet of Things Journal*, doi: 10.1109/JSEN.2024.3430082, Jul 2023.
- I.-S. Lee, **Jae-Hyun Park**, and J.-R. Yang, "Detrending Technique for Denoising in CW Radar," *Sensors*, doi: 10.3390/s21196376, Sep 2021.
- **Jae-Hyun Park** and J.-R. Yang, "Multiphase Continuous-Wave Doppler Radar With Multiarc Circle Fitting Algorithm for Small Periodic Displacement Measurement," *IEEE Transactions on Microwave Theory and Techniques*, doi: 10.1109/TMTT.2020.3041264, Nov 2021.
- E. Hyun, Y. S. Jin, **Jae-Hyun Park**, and J.-R. Yang, "Machine Learning-Based Human Recognition Scheme Using a Doppler Radar Sensor for In-Vehicle Applications," *Sensors*, doi: 10.3390/s20216202, Oct 2020.
- **Jae-Hyun Park** and J.-R. Yang, "Two-tone continuous-wave Doppler radar based on envelope detection method," *Microwave and Optical Technology Letters*, doi: 10.1002/mop.32446, May 2020.
- J. Y. Sim, **Jae-Hyun Park**, and J.-R. Yang, "Vital-Signs Detector Based on Frequency-Shift Keying Radar," *Sensors*, doi: 10.3390/s20195516, Sep 2020.
- **Jae-Hyun Park**, Y.-J. Jeong, G.-E. Lee, J.-T. Oh, and J.-R. Yang, "915-MHz Continuous-Wave Doppler Radar Sensor for Detection of Vital Signs," *Electronics*, doi: 10.3390/electronics8050561, May 2019.
- C. H. Choi, **Jae-Hyun Park**, H. N. Lee, and J.-R. Yang, "Heartbeat detection using a Doppler radar sensor based on the scaling function of wavelet transform," *Microwave and Optical Technology Letters*, doi:

10.1002/mop.31823, 2019.

- J. Y. Kim, **Jae-Hyun Park**, S. Y. Jang, and J.-R. Yang, "Peak Detection Algorithm for Vital Sign Detection Using Doppler Radar Sensors," *Sensors*, doi: 10.3390/s19071575, Apr 2019.
- B.-Y. Yoo, **Jae-Hyun Park**, and J.-R. Yang, "Quasi-Circulator Using an Asymmetric Coupler for Tx Leakage Cancellation," *Electronics*, doi: 10.3390/electronics7090173, 2018.

International Conference Presentations

- **Jae-Hyun Park**, J.-H. Jeong, and K.-T. Kim, "Measurement of Blink Duration Using a Continuous-Wave Radar Sensor and Continuous Wavelet Transform," in *Proc. Int. Conf. on Sensing Technology (ICST)*, Sydney, Australia, Dec. 2024.
- **Jae-Hyun Park**, J.-Y. Sim, and J.-R. Yang, "Multi-Phase CW Doppler Radar for Measuring Small Periodic Displacement," in *Proc. 17th European Radar Conf. (EuRAD)*, Utrecht, Netherlands, Jan. 2021.
- J. Kim, **Jae-Hyun Park**, and J.-R. Yang, "Analysis Algorithm for Vital Signal Detection Based on Doppler Radar Sensor System," in *Proc. 6th Int. Symp. on Sensor Science (I3S)*, Kenting, Taiwan, Aug. 2018.

Domestic Journal Publications

- **Jae-Hyun Park**, J. Y. Kim, S. Y. Jang, H. J. Ji, J. Y. Sim, and J.-R. Yang, "Short-range radar sensor system using continuous-wave signals," *Journal of the Korean Institute of Electromagnetic Engineering and Science*, vol. 31, no. 2, Feb. 2020, doi: 10.5515/KJKIEES.2020.31.2.143.

Domestic Conference Presentations

- Presented 18 papers at major Korean conferences (2017–2024), covering radar systems, signal processing, and biomedical sensing using CW/FMCW radar platforms.

Patents

- **Jae-Hyun Park**, K.-T. Kim, and B.-D. Lim, "Dual Mode Radar System and Target Detection and Identification Method Using the Same," POSTECH Industry-Academic Cooperation Foundation and COBRA Co., Ltd., Korean Patent No. 10-2739977, Nov. 28, 2024.
- J.-R. Yang and **Jae-Hyun Park**, "Radar Apparatus and Method for Measuring Distance of Target Using the Same," Yeungnam University IACF, Korean Patent Application No. 10-2020-0074278, Jun. 18, 2020.
- J.-R. Yang, **Jae-Hyun Park**, and B.-Y. Yoo, "Sensor Module Using Different Frequencies to Recognize Motion of Target Object and Driving Method of the Same," Yeungnam University IACF, Korean Patent No. 10-2062321, Dec. 27, 2019.
- J.-R. Yang, J.-Y. Kim, **Jae-Hyun Park**, and S.-Y. Jang, "System and Method for Determining Drowsy State of Passengers," Yeungnam University IACF, Korean Patent No. 10-1938045, Jan. 7, 2019.

Awards and Honors

- Encouragement Prize, Research Achievement Competition, POSTECH, Korea (Feb. 2025)
- Outstanding Paper Award, The Korean Institute of Electromagnetic Engineering and Science (KIEES), Korea (Aug. 2022)
- Excellent Paper Award, The Institute of Electronics Engineers of Korea (IEEK), Korea (Jan. 2021)
- Best Research Award, Yeungnam University, Korea (Dec. 2020)
- Bronze Prize, X-Core Practical Research Group, Korea (Dec. 2020)
- Outstanding Paper Award, KIEES, Korea (Aug. 2018)

Research Projects

- Development of a 4-channel radar sensor for object detection, **KICOX (Korea Industrial Complex Corporation)**, Korea, Apr. 2017 – Apr. 2018.
- Large-area CMOS plasmonic detector array for real-time sub-THz imaging, **IITP (Institute for Information & Communications Technology Planning & Evaluation)**, Korea, Aug. 2018 – Aug. 2020.
- Phase-difference measurement of high-power RF signal based on power detection, **KERI (Korea Electrotechnology Research Institute)**, Korea, Aug. 2018.
- High-sensitivity millimeter-wave detector based on energy detection characteristics, **NRF (National Research Foundation of Korea)**, Korea, Jan. 2019 – Jan. 2021.
- Miniaturization of high-power RF circulators, **KERI (Korea Electrotechnology Research Institute)**, Korea, Aug. 2018 – Jul. 2019.
- Intelligent radar platform technology for smart environments, **IITP**, Korea, Jun. 2019 – Dec. 2020.
- Radar sensor and EM wave characterization for driver and passenger monitoring, **Korea University-Industry Association**, Korea, Jul. 2019 – May. 2020.
- High-speed and precise target detection and clutter suppression based on reference SAR imagery, **ADD (Agency for Defense Development)**, Korea, Mar. 2020 – Aug. 2022.
- Study on SAR jamming techniques and implementation strategies, **LIG Nex1**, Korea, May. 2021 – Feb. 2022.
- Multi-function radar target information fusion based on correlation analysis across dual-band systems, **ADD**, Korea, Jun. 2021 – Sep. 2023.
- Modeling study of satellite SAR electronic warfare simulation environments, **ADD**, Korea, Dec. 2021 – Nov. 2023.
- Next-generation multistatic radar imaging system for smart monitoring, **IITP**, Korea, Jan. 2022 – Present.

References

- **Prof. Kyung-Tae Kim**
  Professor
  Department of Electrical and Electronic Engineering
  Pohang university of science and technology (POSTECH)
  Ph.D. Advisor
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  Department of Electrical and Electronic Engineering
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