

# Jae-Ho Choi

*Ph.D Candidate, Dept. of EE, POSTECH*

*Address* Unit 310, LG Research Bld., 77 Cheongam-Ro. Nam-Gu. Pohang. Gyeongbuk. Korea.  
37673

*E-Mail*                      [jhchoi93@postech.ac.kr](mailto:jhchoi93@postech.ac.kr)                      [gogoho77@gmail.com](mailto:gogoho77@gmail.com)

*Website* <https://jhchoi93.github.io/>

## RESEARCH INTEREST

- **Wireless Sensing**

- Radar Signal Processing
- RF-Based Indoor Localization
- RF-Based Crowd Counting
- RF-Based Health Monitoring
- SAR Image Detection / Classification

- Machine/Deep Learning for RF Data

- Radio-Centric Network, Learning scheme
- Clutter-Invariant Learning
- Data-Efficient Learning
- Domain Adaptation

- **Sensor Fusion**

- Multi-Modal Learning
- Sensor Calibration

\* RF: Radio Frequency, SAR: Synthetic Aperture Radar

## EDUCATION

Ph.D., Dept. of Electrical Eng., POSTECH, Pohang, Korea

Feb. 2019 – present

*GPA: 3.95/4.3*

Advisors: Prof. Kyung Tae Kim

M.S., Dept. of Electrical Eng., POSTECH, Pohang, Korea

Feb. 2017 – Feb. 2019

GPA: 3.73/4.3

Advisor: Prof. Kyung Tae Kim

B.E., Dept. of Computer Sci., Korea Univ., Seoul, Korea

Mar. 2011 – Feb. 2017

GPA: 4.12/4.5, Major GPA 4.29/4.5

Advisor: Prof. Seong Deok Cha

\* Military Service: Korean Army, Honorable Discharge (Jul. 2013 – Mar. 2015)

## PROFESSIONAL EXPERIENCE

Research Assistant, POSTECH

Feb. 2017 – present

*Intelligent Radar Systems & Signal Processing Lab.*

## Internship, Samsung Electronics

Jun. 2016 – Aug. 2016

*Memory Division, Flash Circuit Design Team*

## HONOR & AWARD

---

- Feb, 2022. **Excellence Prize**, *POSTECH-EE Outstanding Research Award*.
- Oct, 2021. **Encouragement Prize**, *KAI Aerospace Paper Award*.
- Nov, 2020. **Silver Prize**, *Electromagnetic Paper Award Sponsored by Korean Institute of Electromagnetic Engineering and Science/Korea Communication Agency*.
- Nov, 2019. **Grand Prize**, *Electromagnetic Paper Award Sponsored by Korean Institute of Electromagnetic Engineering and Science/Korea Communication Agency*.
- Aug, 2018. **Best Paper Award (IEEE Seoul Chapter)**, *2018 KIEES Summer Conference*.

## SELECTED PUBLICATION

---

### International Journal & Top Conference

- [1] **J.-H. Choi**, K.-B. Kang, K.-T. Kim, "Fusion-rPPG: Video-RF Fusion Transformer for Advanced Remote Physiology Measurement," *AAAI Conf. Artif. Intell. (AAAI)*, Submitted.
- [2] K.-B. Kang, **J.-H. Choi**, K.-M. Lee, K.-T. Kim, "Efficient Small UAV Detection Chain Using Both Range Profile and Doppler Spectrum," *IEEE Trans. Aerosp. Electron. Syst. (TAES)*, Submitted.
- [3] **J.-H. Choi**, J.-E. Kim, K.-T. Kim, "Radar-Based People Counting under Heterogeneous Clutter Environments," *IEEE Internet Things J. (IoTJ)*, Submitted.
- [4] N.-H. Jeong, M. Kim, **J.-H. Choi**, K.-T. Kim, "Beam Scheduling of Maritime Multifunctional Radar Based on Binary Integration," *IEEE Sensors J. (SensJ)*, Submitted.
- [5] **J.-H. Choi**, K.-B. Kang, K.-T. Kim, "Remote Respiration Monitoring of Moving Person Using Radio Signals," *Proc. Eur. Conf. Comput. Vis. (ECCV)*, Oct. 2022.
- [6] N.-H. Jeong, **J.-H. Choi**, G. Lee, J.-H. Park, K.-T. Kim, "Feature Selection for SAR Target Discrimination and Efficient Two-Stage Detection Method," *Remote Sens.*, Aug. 2022. (2021 IF: 5.349)
- [7] **J.-H. Choi**, J.-E. Kim, K.-T. Kim, "Deep Learning Approach for Radar-Based People Counting," *IEEE Internet Things J. (IoTJ)*, May. 2022. (2021 IF: 10.238)
- [8] **J.-H. Choi**, M.-J. Lee, N.-H. Jeong, G. Lee, K.-T. Kim, "Fusion of Target and Shadow Regions for Improved SAR ATR," *IEEE Trans. on Geosci. Remote Sens. (TGRS)*, Apr. 2022. (2021 IF: 8.125)
- [9] K.-B. Kang, **J.-H. Choi**, B.-L. Cho, J.-S. Lee, K.-T. Kim, "Analysis of Micro-Doppler Signatures of Small UAVs Based on Doppler Spectrum," *IEEE Trans. Aerosp. Electron. Syst. (TAES)*, Oct. 2021. (2021 IF: 3.491)
- [10] I.-O. Choi, M. Kim, **J.-H. Choi**, J.-K. Park, S.-H. Park, K.-T. Kim, "Robust Cardiac Rate Estimation of an Individual," *IEEE Sensors J. (SensJ)*, Jul. 2021. (2021 IF: 4.325)
- [11] **J.-H. Choi**, J.-E. Kim, K.-T. Kim, "People Counting Using IR-UWB Radar Sensor in a Wide Area," *IEEE Internet Things J. (IoTJ)*, Apr. 2021. (2021 IF: 10.238)
- [12] **J.-H. Choi**, J.-E. Kim, N.-H. Jeong, S.-H. Jin, K.-T. Kim, "Accurate People Counting Based on Radar: Deep Learning Approach," *IEEE Radar Conf. (RadarConf)*, Sep. 2020.
- [13] J.-E. Kim, **J.-H. Choi**, K.-T. Kim, "Robust Detection of Presence of Individuals in an Indoor Environment using IR-UWB Radar," *IEEE Access*, Jun. 2020. (2021 IF: 3.476)

## PATENT (DOMESTIC)

---

- RADAR-BASED DETECTION SYSTEM USING DOMAIN ADAPTATION, {KR Patent pending; 1020200182698}.
- PEOPLE COUNTING APPARATUS BASED ON RADAR USING DEEP LEARNING, {KR Patent granted; 1022801900000}.

## PARTICIPATED PROJECT

---

### RF-Based Indoor Localization

Jun. 2020 – present

*Sponsored by POSTECH, Korea*

- Collecting indoor human data based on Camera-RF calibrated system
- Developing indoor localization platform for smart campus using RF-based IoT technology

### Sensor Fusion

Apr. 2020 – Mar. 2022

*Sponsored by Agency for Defense Development, Korea*

- Collecting multi-sensory (EO-IR-SAR) dataset for drone-borne classification/detection
- Developing sensor fusion algorithm for complementary fusion among multi-modal inputs

### RF Sensing in Challenging Scenarios

Jul. 2019 – present

*Sponsored by National Research Foundation, Korea*

- Developing RF sensing solutions from heterogeneous clutter conditions
- Developing contactless health monitoring systems from moving individuals

### RF-Based Crowd Counting

Jul. 2017 – Aug. 2018

*Sponsored by Samsung Electronics, Korea*

- Developing RF-based crowd counting system based on machine/deep learning framework

## ACADEMIC SERVICE

---

### Journal Reviewer

IEEE Internet of Things Journal (**IoTJ**)  
IEEE Sensors Journal (**SensJ**)  
IEEE Transactions on Aerospace and Electronic Systems (**TAES**)  
IEEE Access  
Remote Sensing

### Conference Reviewer

European Conference on Computer Vision (**ECCV**)

## TEACHING

---

### Teaching Assistant, POSTECH

Fall 2021

*AI-Based Energy Engineering (Grad. course)*

### Teaching Assistant, POSTECH

Spring 2017

*Micro-processor (Undergrad. course)*

## REFERENCE

---

**Prof. Kyung Tae Kim**, Full professor, POSTECH

Relationship: MS & Ph.D. advisor

E-mail: [kkt@postech.ac.kr](mailto:kkt@postech.ac.kr)

**Prof. Sung Ho Kim**, Full professor, Yeong-Nam University

Relationship: Collaborator

E-mail: [sunghokim@yu.ac.kr](mailto:sunghokim@yu.ac.kr)

**Prof. In Oh Choi**, Assistant professor, Korea Maritime University

Relationship: Collaborator

E-mail: [inohchoi@kmou.ac.kr](mailto:inohchoi@kmou.ac.kr)