

# Yubin Choi

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## RESEARCH INTERESTS

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Cyber-Physical Systems, Wireless Communications and Networking, AI/ML for Communication, IoT

## EDUCATION

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- **Seoul National University (SNU)** Mar 2024 – Present  
*M.S. in Electrical and Computer Engineering (ECE), advised by Prof. Saewoong Bahk* Seoul, South Korea
  - Overall GPA: 4.03/4.30
- **Yonsei University** Mar 2021 – Feb 2024  
*B.S. in Electrical and Electronics Engineering (EEE)* Seoul, South Korea
  - Overall GPA: 3.83/4.30
- **Chungnam National University** Mar 2017 – Feb 2021  
*Major in Mechatronics Engineering* Daejeon, South Korea
  - Two-year leave for mandatory military service
  - Transfer to Yonsei University

## PUBLICATIONS

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### International Journals

- [J.1] Dongrak Choi, [Yubin Choi](#), Yonghoon Jeong, Jeongyeup Paek, and Saewoong Bahk, ***D<sup>2</sup>-PLC: Holistic Design and Implementation of High-Datarate Duplex DC Power Line Communication Network***, *IEEE Internet of Things Journal (IoT-J)*, vol. 12, no. 21, Nov. 2025. [[PDF](#)]

### International Conferences

- [C.1] [Yubin Choi](#), Yunseo Nam, and Saewoong Bahk, **Intelligent Channel State Information Feedback Using Variable-Rate Autoencoder**, in *Proc. International Conference on ICT Convergence (ICTC)*, 2025. [[PDF](#)]
- [C.2] Dongrak Choi, Yonghoon Jeong, [Yubin Choi](#), and Saewoong Bahk, **Demo: A Programmable High-Throughput Duplex DC-PLC Testbed for Power and Data Integration**, in *Proc. IEEE International Conference on Network Protocols (ICNP)*, 2025. [[PDF](#)]
- [C.3] [Yubin Choi](#), Yunseo Nam, Dongrak Choi, Jeongyeup Paek, and Saewoong Bahk, **UniQ: A Universal-Rate Quantization Network for Beyond-5G Autoencoder-Based CSI Feedback**, submitted to *IEEE International Conference on Communications (ICC)*, 2026. [[PDF](#)]
- [C.4] Dongrak Choi, Yongjae Yoo, [Yubin Choi](#), Jeongyeup Paek, and Saewoong Bahk, **Escaping from the Shadow: Bottleneck-Aware UAV Placement for High-Throughput Relaying**, submitted to *IEEE Vehicular Technology Conference (VTC)*, 2026 spring. [[PDF](#)]

### Ongoing Projects

- [P.1] Yunseo Nam, [Yubin Choi](#), and Saewoong Bahk, **Vision-Assisted Multi-Modal Beamforming for FDD Millimeter-Wave MU-MIMO Systems**
- [P.2] Geonhee Lee, Sungbo Eo, [Yubin Choi](#), Jeongyeup Paek, and Saewoong Bahk, **FLASH: Frank-sequence based LoRa bAckscatter for Scalable High-throughput IoT**

## RESEARCH EXPERIENCE

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- **Network Laboratory (NETLAB), SNU** Jul 2023 – Aug 2023  
*Undergraduate Research Intern (Advisor: Prof. Saewoong Bahk)* Seoul, South Korea
  - MPTCP (Multi-Path Transmission Control Protocol)
- **Robotic And Mobile networks Laboratory (RAMO), Yonsei University** Jan 2023 – Jun 2023  
*Undergraduate Research Intern (Advisor: Prof. Seong-Lyun Kim)* Seoul, South Korea
  - Multi-Access Edge Computing (MEC), Remote Robot Control, Computer Vision, Low-Latency Communication

## ACADEMIC SERVICE

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- **Technical Program Committee Member, IEEE ICC (International Conference on Communications)** Dec 2025  
*IEEE Communications Society*
  - Review conference paper submissions in the Wireless Communications track, contributing to the technical program organization.

## PROJECTS

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- **URAN (Ultra Reliable Aerial Network) for UAM Operations** Aug 2024 – Dec 2024  
*Ministry of Science and ICT ITRC Project*
  - Developed a UAV placement design optimizing relay throughput.
- **Capstone Design** Spring 2023  
*advised by Prof. Seong-Lyun Kim @ RAMO*
  - Construction of a robot remote control system based on MEC using YOLOv5.
- **PYNQ-Based FPGA-ARM Integrated Game System** Fall 2022  
*Introductory Digital Labs (EEE3313.01), Yonsei University*
  - A multi-functional embedded system integrating Verilog, ARM, audio, and graphics for a Galaga-style shooting game.

## TEACHING EXPERIENCE

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- **Teaching Assistant** Sep 2025 – Dec 2025  
*Creative Engineering Design (400.018), Department of ECE, SNU*
  - Guided interactive sessions on Arduino programming and Raspberry Pi OS.
- **Tutor** Sep 2023 – Dec 2023  
*Tutoring Program (learnus-161), Center for Teaching and Learning Innovation, Yonsei University*
  - Provided guidance on Control Engineering (EEE3310.02-00).

## PATENTS

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- **Drone Relay Placement Apparatus for High-Quality Data Transmission in Cellular Shadow Areas** 2024  
*S. Park, J. Baek, Y. Yoo, D. Choi, and Y. Choi*
  - KR 10-2024-0195602 (filed)

## HONORS AND AWARDS

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- **Academic Excellence Award** Spring 2023  
*Yonsei University*
- **Best Paper Award: Construction of a Robot Remote Control System Based on MEC using YOLOv5** Summer 2023  
*Korean Institute of Communications and Information Sciences (KICS)*

## SKILLS

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- **Programming Languages:** Python, C/C++, LaTeX, Verilog
- **ML Frameworks:** PyTorch, TensorFlow
- **Modeling:** Blender, PTC Creo, SketchUp
- **Simulation Tools:** MATLAB, NVIDIA Sionna
- **Experiment Tools:** iPerf3, Wireshark, Linux tc, Nuvoton N76E003 MCU, Arduino, Raspberry Pi
- **Natural Languages:** Korean (Native), English (Fluent)

## OTHER EXPERIENCE

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- **Conscripted Firefighter, National Fire Agency** Aug 2019 – Apr 2021  
*Emergency Medical Services Unit, Fire Rescue Unit*  
*Cheongju, South Korea*
  - Completed mandatory military service as a conscripted firefighter under the Conscripted Firefighters Agency.
- **Olympic Broadcasting Services (OBS)** Jan 2018 – Mar 2018  
*Broadcast Training Programme Member*  
*PyeongChang, South Korea*
  - Participated in the Broadcast Training Programme for the 2018 PyeongChang Winter Olympics, supporting live production and media operations.