

# Mr. Young-woon Song

Embedded Systems & Robotics Engineer  
Ph.D. Candidate at POSTECH

📅 24 Jan 1997

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🏠 Korea → Munich

🌐 Korean (South)

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For more information, please refer to the indicated page numbers (📄 #) in my portfolio – [youngwoon-song.de](https://youngwoon-song.de)

## Education

📄 8–9

Sep 2019 – Aug 2026 (Expected)

Pohang University of Science and Technology (POSTECH), South Korea

Ph.D. Candidate in Convergence IT Engineering Integrated M.Sc.–Ph.D. Programme

Mar 2015 – Aug 2019

Pohang University of Science and Technology (POSTECH), South Korea

B.Sc. in Creative IT Engineering

Aug 2015 – Dec 2015

Stony Brook University, New York, USA  
Exchange Programme

Jun 2015 – Jul 2015

Rhode Island School of Design (RISD)  
Exchange Programme (The Netherlands)

Mar 2012 – Feb 2015

Daegu Science High School, School for the Gifted, South Korea

## Patents

📄 16–19

- Bicycle Robot Capable of Controlling Steering and Balance (2020)
- Crack Detection System for Nuclear Power Plant Containment Vessel (2025)
- Modular Wall-Climbing Robot System and Obstacle Avoidance Locomotion (2025)
- Retractable Apparatus for Observing Underwater (2022)

... and 8 more domestic patents

## Languages


📄 18–19

**Korean:** C2 (Native Language)

**English:** C1 (Professional Working Prof.)

**Greek:** B2+ (Advanced Prof.)

**Japanese:** B2 (Upper-Intermediate Prof.)

**German:** B1+ (Intermediate Prof.) 

## Experience

📄 10–11

Aug 2024 – Sep 2024

University of Tokyo (UTokyo), Japan

Graduate School of Engineering, International Internship Student Trainee

Aug 2016 – Feb 2017

Helmholtz Zentrum München (Helmholtz Munich), Germany 

Institute of Biological and Medical Imaging (IBMI), Research Internship

## Skills

📄 20–26

### Hard Skills

Robotics System Integration

Embedded HW Design

Embedded SW Development

Schematic Capture & PCB Layout

Circuit Design

Sensor & Actuator Integration

Hardware Testing & Validation

CAD & Prototyping

Design for Manufacturing (DFM)

PCB Assembly (PCBA)

Full-Stack Web Development

UI/UX Design

### Tech Stack

OrCAD & Altium Designer

Python

STM32

C / C++

ROS / ROS 2

RTOS

AVR (ATmega)

SolidWorks & CATIA

OpenCV

MATLAB

## Honours and Awards




📄 10–13

- Presidential Award (Grand Prize)** – The 59th National Science Fair of Korea
- Third Place Award** – Intel International Science and Engineering Fair (ISEF)
- Third Prize** – OECD NEA NEST Awards Event (at OECD Headquarters, Paris)

... and more

## Personal/Research Projects

📄 27–81

- Underwater Robot for Nuclear Power Plant** (2025–2026)  Led the hardware development for the €4M Robot Research Centre; engineered a Jetson-based interface board currently deployed in nuclear plant inspection robots.
- Modular Robot Control System “Vythos”** (2026)  Developed a modular robot control system featuring full galvanic isolation and high EMC robustness; custom-machined enclosures using manual milling while maintaining end-to-end ownership across hardware, software, and mechanical design.
- Autonomous Bicycle** (2017–2019)  Engineered the HW and SW for a self-balancing autonomous bicycle; patented the core technology and was featured on several national Korean broadcasting networks.

... and more