# Hyeonhak Shin

P/C Engineer / Aspiring Robot Engineer
POSCO DX
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## EDUCATION

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|---|---|---|
| Mar. 2018 ~ Aug. 2024 | **Korea University of Technology and Education** School of Computer Science and Engineering | Cheonan, Korea |

Thesis: Development of an AI-powered mock interview platform with Speech-to-Text (STT) capabilities

*B.S. in Computer Science and Engineering*
GPA: 3.5 / 4.5

## RESEARCH INTERESTS

- Physical AI
- Robotics
- Computer vision
- Spatial intelligence
- Autonomous Driving

## RESEARCH EXPERIENCES

- Research Student at Smart Unmanned Vehicle Lab(S.U.V. Lab), Korea Institute of Science and Technology, Korea (Jun. 2023 ~ Aug. 2023) / Research Intern, Develop Gazebo Camera Module For UGV, EGO-Swarm Code ROS2 Porting

- Research Intern at Robot Application Research Division, Korea Atomic Energy Research Institute, Korea (Jan. 2024 ~ Jun. 2024) / Robot Web Pannel Developer, SLAM Perfomance Test Engineer

- P/C Engineer at Iron Steel Making DX section, POSCO DX, Korea (Aug. 2025 ~ Present) / Process Computer (P/C) System Design at Gwangyang Steelworks

## AWARDS AND HONORS

- Grand Prize in the Unmanned Mobility Category at the 2023 University Creative Mobility Competition , Ministry of Land, Infrastructure and Transport of the Republic of Korea, Korea (Oct. 2023)

- Excellence Award (2nd Place) in the Embedded Robotics Track at the SAMSUNG SW AI

ACADEMY FOR YOUTH, Samsung Electronics, Korea (Nov. 2024)

- Excellence Award (3rd Place) in the Samsung Electronics DA Division – SSAFY Joint Project at the SAM, Samsung Electronics, Korea (Apr. 2025)

- Excellence Award (1st Place) in the Autonomous Project at the SAMSUNG SW AI ACADEMY FOR YOUTH, Samsung Electronics, Korea (May. 2025)

- 1st Place in the Project Exhibition & Presentation Competition at the SAMSUNG SW AI ACADEMY FOR YOUT, Samsung Electronics, Korea (Jun. 2025)

## ACTIVITIES

- **Autonomous Driving Research Society (K-ROAD)**
  Dec 2022 – Dec 2023
  Participated in the university's autonomous driving research club, developing perception and localization modules for autonomous vehicles.

- **SAMSUNG SW / AI Academy for Youth (SSAFY) 12th Embedded Robot Track**
  Jul 2024 – Jun 2025
  Trained in embedded systems and robotics software, focusing on AI-based robot control and real-world project implementation.

## SKILLS AND TECHNIQUES

- Programming Languages: C++, Python, Java, JavaScript

- Web Technologies: HTML, CSS, Node.js, Vue3, Django, FastAPI

- Networks: ROS1, ROS2, MQTT, Socket, Wireshark, OpenVPN, WebRTC, OPC

- Robotics:  Unitree Go1, ERP-42(Autonomous Driving Platform), Dobot Magician, Hiwonder Jethexa, Nanosaur

- Vision: OpenCV, PCL, 3D Lidar(Velodyne VLP-16, Cyglidar), Depth Camera(Intel realsense D435,455)

- Localization: IMU(EB-IMU, Wheeltec N100, Xsense), RTK-GPS(MRP-2000, SMC-2000)

- MicroProcessor: STM-32, Raspberry pi4, 5 , Jetson Nano, Orin, Arduino UNO

- Simulator: Gazebo, Nvidia Isaacsim, Mujoco, RoboDK, MORAI

- 3D Tools: Onshape, Solidworks

## PROJECTS

- STUDENT CREATIVE MOBILITY COMPETITION 2023 Unmanned Mobility part, Ministry of Land, Infrastructure and Transport of the Republic of Korea, Korea / Localization Lead, Vehicle position and heading estimation using RTK GPS and IMU (Mar. 2023 ~ Oct. 2023)

- Nanosaur Line Tracing, KOREATECH, Korea / Team Leader, Creation of a tracked Nanosaur vehicle using the Jetson Nano board (Mar. 2023 ~ Jun. 2023)

- Web Panel for Space Exploration Rover , Korea Atomic Energy Research Institute, Korea / Developer, Real-time visualization of ROS topics (e.g., motor RPM data) on the web panel using rosli (Jan. 2024 ~ Mar. 2024)

- Indoor SLAM Evaluation in Extreme Environment , Korea Atomic Energy Research Institute, Korea / Developer ,SLAM performance testing using NVIDIA Isaac Sim, Tuning and experiments with HDL Graph SL (Jan. 2024 ~ Jun. 2024)

- Mock Interview Website with STT , KOREATECH, Korea / Team Leader, Backend Developer, Automatic generation of interview answers and follow-up questions us (Sep. 2022 ~ Jun. 2023)

- RAG-based Chatbot Service, Samsumg SW AI Academy For Youth(SSAFY), Korea / Team Leader,

Construction of a LangChain and Upstage RAG pipeline (Dec. 2024 ~ Dec. 2024)

- Dobot Magician Project , Samsumg SW AI Academy For Youth(SSAFY), Korea / Team Leader, Control of Dobot in a ROS environment (via socket communication), Transmission of joint (Oct. 2024 ~ Nov. 2024)

- ROBOCOP (Unmanned Security Robot Control System) , Samsumg SW AI Academy For Youth(SSAFY), Korea / Autonomous Driving Implementation in Simulation (Jan. 2025 ~ Feb. 2025)

- Home-based Intelligent Voice Assistant System: Distributed Voice Event Detection and AI Assistant Integration (in collaboration with Samsung Electronics' DA Division) , Digital Appliance (DA) Business, Samsung Electronics, Korea / Embedded On-Device Keyword Recognition, Establishment and operation of a Docker container environmen (Feb. 2025 ~ Apr. 2025)

- GAEMI: Disaster Area Exploration Robot, SS, Korea / Robot Developer, Robot Motion Engineering, Robot - Controller - Web Network Engineering (Apr. 2025 ~ Jun. 2025)

- Virtual PLC Data Generator within a Steelworks Environment, POSCO DX, Korea / SW Developer, Developed a Python-based Virtual PLC Data Generator using OPC Client to replay PLC log (Aug. 2025 ~ Aug. 2025)

- Construction of No.1 Electric Ark Furnace at Gwangyang Steelworks, POSCO, POSCO DX, Korea / Managed the P/C design part of the No.1 Electric Furnace Project at Gwangyang Steelworks, including (Sep. 2025 ~ Present)