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SUMMARY

- Robotics Engineer and UX Designer with solid background in developing Human-Robot Interactions for social robots. Able to build, maintain and repair Robotic machines and write a code for the automation. Has a sound knowledge of Robotics tools(ROS, Rviz and Gazebo) and Programming Language(Python, C/C++, Shell, MATLAB).
- Hands on experience in developing Human-Robot Interaction between a personal robot and elderly people. Also worked on improving the accuracy of robot's *SLAM(Simultaneous Localization and Mapping)* by adopting *EKF(Extended Kalman Filter) Odometry* to *GMapping* and *Google Cartographer*.

EDUCATION

Yonsei University

Seoul, Korea

- Department of Mechanical Engineering
- Funded with National Scholarship from the Korean Student Aid Foundation

Mar 2014 - Present

Incheon Science High School(ISHS)

Incheon, Korea

- Mathematics & Physics Major
- Early Graduation (2013)

Mar 2011 - Feb 2013

EXPERIENCE

IHEI Workstation, Global Social Entrepreneur

Seoul, Korea

Team Leader of "Ollibot"

Oct 2019 - Present

- Social Challenge of developing Personal Robot prototype for elderly people to enhance their lives
- Collaboration with Elder care and Hospital community

Bear Robotics, Inc

Redwood City, CA

Intern

Mar 2019 - Present

- Develop foodservice robot "Penny" with artificial intelligence which builds social connections with human
- Optimization of Simultaneous Localization and Mapping(SLAM) with multi-robot operation in a diverse circumstances using Google Cartographer
- Designed Auto Tuning system for Extended Kalman Filter odometry of the robot to increase the accuracy of SLAM systems(GMapping & Google Cartographer)

ICRA 2019 RoboMaster AI Challenge

Montreal, Canada

Tech Lead of Algorithm Group

May 18 - 23 2019

- Finalist of DJI RoboMaster AI Challenge, ICRA 2019 (3rd Prize)
- Improved the Decision Making performance based on multi-robot operation with "*RoboRTS*" using costmap function written with roscpp and tested in a developed 1:1 Gazebo & V-REP Environment
- Deep Learning of multi-robot operation with "*RoboRTS*" using Multi-Agent DDPG Algorithm in a virtual environment

Dynamic Robotic Systems Lab, Seoul National University(SNU)

Seoul, Korea

Undergraduate Researcher

Jan 2019 - Mar 2019

- Built Multi-Task Function program for a Non-holonomic Mobile Manipulator simulated in virtual environment to achieve accurate and flexible movements.
- Built accurate 1:1 Gazebo environment and greatly reduced testing times.
- Designed the exterior prototype of a Non-holonomic Mobile Manipulator using SOLIDWORKS

Yonsei University

Seoul, Korea

Undergraduate Researcher

• Technology and Design Center(TDRC)

Apr 2018 - Jan 2019

- UX Design of Digital Social Robot "*DORI*" for elderly people in VR Environment to increase their social ability within

their social community and manage their lives

- Living Lab Experiment towards elderly people with Digital Social Robot "DORI" in order to collect the data from their livings and analyze their life cycle pattern to develop social robot's functionality

- **Digital Media Lab**

June 2018 - Oct 2018

- Multimodal Interaction Design for the semi-autonomous vehicle with the change of vibrotactile pattern in order to increase human response during the override of the semi-autonomous vehicle

SKILL

Programming: Python, C/C++, Shell Script, MATLAB, Arduino

Robotics Tool: ROS, Gazebo, V-REP, Rviz, Move It

CAD/CAE: SOLIDWORKS, AutoCAD, Rhino

Machining: Laser Cutter

Languages: Native Korean, Fluent English, Intermediate Japanese

ACHIEVEMENT

The Collaborative Institutional Training Initiative(CITI) Program
Certificate

University of Miami
Sep 2018

11th Korea Young Physicist Tournament(KYPT), Silver Medal
Award

Department of Korean Physics
Sep 2012

KAIST-GMU Research Camp
Certificate

Physics Department of KAIST
July 2011

**KLMA Science / Mathematics Program for Students(KSMP),
Award of Excellence**
Award

Korea Minjok Leadership Academy
Jan 2010

ACTIVITIES

Young Engineers Honor Society(YEHS)
Engineer Member

National Academy of Engineering of Korea
Jan 2018 - Present

Yonsei Studying Abroad Group
President

Yonsei University
Jan 2018 - Present

Yonsei Ice Hockey Team, Titans
President & Captain

Yonsei University
Dec 2017 - Jan 2019

2018 Off-Season Training, Edge School-Team Blitz
Translation Service

Calgary, Canada
July 2018 - Aug 2018

Military Service, Republic of Korea Marine Corps(ROKMC)
Infantry & Translator / Interpreter

Republic of Korea
Mar 2016 - Dec 2017

PUBLICATION

DIPLOMA, First Step to Nobel Prize in Physics(FSNPP)

International Advisory Committee

- 'Physical analysis about efficiency of the magnetic accelerator depending on the features of the ferromagnetism'

Sep, 2012

Journal of Science Technology, National Academy of Engineering of Korea(NAEK)

NAEK, Korea

- 'Analysis of scientific aspects about Architecture'

Aug, 2012

**Undergraduate Research Program(URP) at
Korea Foundation for the Advancement of Science & Creativity(KOFAC)**

KOFAC, Korea

Feb, 2012

- 'Prediction of the Analemma curve through the propensity of Analemma in Solar System', A Rank