Leo Park

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Work Experience

Kookmin University - South Korea **April 2024 – June 2024**

Capstone Project Mentor

- Mentored two teams of undergraduate engineering students on their capstone design projects, focusing on marketability strategies and technical skills, and conducted two weekly meetings with each team
- Contributed to the development and implementation of AI algorithms, embedded systems, and backend solutions, primarily utilizing Python, C++, and Firebase

Lab2Market **June 2023 – September 2023**

Product Engineering Intern

- Utilized socket communication and Python/C++ with a UR (Universal Robot) collaborative robot to implement a computer vision based pick and place algorithm that automatically retrieves and organizes semiconductor chip trays
- Increased efficiency in semiconductor chip production by 45% by reducing human labor and downtime
- Held weekly meetings to iterate over several computer vision and AI algorithms to find the best fit for the environment

In2Wise - ETRI (Electronics and Telecommunications Research Institute) **June 2022 – September 2022**

Machine Learning Engineering Intern

- Developed an MLOPS system for observing the natural environment and collecting data using an IoT device
- Worked on edge computing and model compression/pruning to speed up process on microcontrollers
- Developed a curriculum and a web application, using streamlit and tkinter, to educate ~1000 undergraduate students in using ML for real-life applications, such as agricultural data collection and analysis

Publications

- Hwang jun, Kim min Gyu, Yang tae dong, Im jung hyun, Woo min woo, **Park Ihyun**, & Parkjunseok (2024-06-19). Smart knee sleeve design that uses IMU sensors to determine squat movements. Proceedings of Symposium of the Korean Institute of communications and Information Sciences, 제주.
- **Ihyun Leo Park**, Park minsu, Kim gyunha, Baek siwoo, & Lee Jaehyeong (2024-06-19). A Study on the Voice modulation system and resulting prevention of deepfake voices systems. Proceedings of Symposium of the Korean Institute of communications and Information Sciences, 제주.

Education

University of California, San Diego **June 2023**

Bachelor of Science, Electrical Engineering

Projects

Wearable device using ESP32

- Engineered a custom wearable device using an ESP32 and multiple sensors, including an accelerometer for gesture detection and pedometer and a camera as a heart rate monitor using photoplethysmography and openCV
- Utilized the Gaussian mixture model to find the abnormal thresholds for the heart rate monitor
- Implemented bluetooth to communicate with a local device to give live updates regarding software and data

Text to object classification vehicle using YOLO (You Only Look Once)

- Developed an autonomous vehicle that detects text through a camera then automatically retrieves the specified item using a mechanical arm meant to assist in retrieval tasks for the disabled
- Classified text using tesseract and EAST (Efficient and Accurate Scene Text detector), detected the specified object using the YOLO algorithm, and controlled the vehicle using a VESC along with the PyVESC library, all mounted on Jetson Nano

Pinball Machine using Arduino

- Constructed a pinball machine from scratch using wood boards, Arduino, breadboards, electrical components and motors
- Used solenoid motors as flippers and BLDC motors and sensors as obstacles, then mounted them on laser cut wood boards
- Programmed using Arduino C in non-blocking style to execute simultaneous actions (flipper control, score tracking etc.)

Skills

Technical: Python, C/C++, JavaScript, MatLab, Microcontrollers, ROS/ROS2, Oscilloscopes, Function Generators, Kubernetes, Docker, Edge Devices, Electrical/Analog Circuits, Soldering, Signal Processing, HTML, Verilog, Assembly, SolidWorks
Libraries: OpenCV, NumPy, MySQL, PyTorch, TensorFlow/Keras, MatPlotLib, Scikit-Learn, Pandas, Pillow, Jax
Languages: Korean (fluent in reading and writing)