Bat Nemekhbold

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Education

Kookmin University *Seoul, South Korea*
BS in Mechanical Engineering *Mar 2018 – Feb 2022*

- GPA: 4.04/4.50
- **Relevant Coursework:** Artificial Intelligence, Automatic Control, Deep Learning, Dynamics, Linear Algebra, Numerical Analysis, Modern Control Engineering, Probability and Statistics

Experience

Robotics Software Engineer, AI Motion Team *Seongnam-si, South Korea*
Plaif *Jan 2023 – present*

- Currently developing dual-arm behavior coordination and motion planning for a real-time upper-body robotic system
- Built internal robotics tools, including kinematics, collision-checking, motion planning, and trajectory smoother
- Designed control and data interfaces for reinforcement and imitation learning systems utilizing MuJoCo and ROS2
- Automated demonstration collection pipelines, capturing human demonstrations and generating predefined trajectories via motion planning, enabling scalable data acquisition for policy training
- Architected and integrated motion sequence and task planning systems for various pick-and-place solutions, employing advanced manipulation skills and planning techniques to enhance efficiency and adaptability in robotic operations
- Built ROS drivers and hardware interfaces for collaborative robots, improving real-time performance
- Defined communication protocols to facilitate interaction and data exchange across various modules and machines
- Streamlined development and deployment with Docker and CI/CD

Robotics Engineer Intern, Dev Team *Seoul, South Korea*
Cheung Won SFA (CWSFA) *Mar 2022 – Nov 2022*

- Enhanced mobile robots' navigation using SLAM with Nav2, leading to more accurate self-driving capabilities
- Developed intuitive GUIs with Qt for seamless control and scenario management for multiple robotics systems
- Designed circuit diagrams and wrote firmware in C for the FADUINO-32TA, integrating it with ROS
- Optimized computer vision algorithms for detecting smart farm railroads, reducing CPU usage by 35%
- Designed and implemented a deep learning network for smart farm railroad detection, achieving 95% accuracy

Undergraduate Researcher, IAS Lab *CA, USA*
University of California, Irvine *Dec 2019 – Feb 2020*

- Utilized Gazebo to simulate both aerial and ground robots, employing SLAM techniques to navigate through maps generated with a lidar sensor, contributing to enhanced robotic autonomy and mapping capabilities

Skills

Programming Languages: Python, C++, Rust, Bash, Java, JavaScript, SQL

Robotics: ROS/ROS2, OMPL, MoveIt, Nav2, Mujoco, Pinocchio, BehaviorTree.CPP

Technologies: Linux, Git, Docker, CMake, Pytorch, Numpy, Scipy, Pandas, Eigen, FastAPI, React, PostgreSQL

Languages: Mongolian (Native), English (Fluent), Korean (Fluent)

Selected Projects

Speech-based Basketball Live Boxscore App *June 2024 – Aug 2024*
Personal

- Developed the server-side of a real-time speech-based basketball live boxscore web application that transcribes and processes live commentary to update game statistics dynamically
- Tools Used: FastAPI, PostgreSQL, Azure, OpenAI APIs (GPT3.5 & Whisper)

Energy Trend Monitoring System *Jan 2022 – Feb 2022*
Daewoong Pharmaceutical

- Identified the important factors in charge of energy trends at Daewoong Pharmaceutical factories using EDA
- Tools Used: Python, Pytorch, Pandas, Numpy

Capstone Design Project: Autonomous Scooter *Mar 2021 – June 2021*
Kookmin University

- Led the development of motor control software for Arduino, integrated 3D hardware models with URDF, and implemented autonomous driving using Intel RealSense D435 and ROS on Raspberry Pi 4
- Tools Used: Python, C, ROS, RPi4, Arduino