Yiyi Yan

Robotic Engineer

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SUMMARY

Robotic Engineer specializing in motion planning, state estimation, and control for robotic arms and unmanned aerial vehicles (UAVs), with expertise in sim-to-real deployment. Proficient in C++ and Python, with extensive experience developing in ROS2 and Linux on embedded devices. Skilled in designing and implementing full-stack robotic solutions, optimizing performance, and enhancing autonomy for real-world applications.

WORK

Robotic Engineer (Performance)

Covariant AI (Acquired by Amazon) - Emeryville, CA (remote) / Sept. 2022 - Oct. 2024

Developed a digital twin framework for sim-to-real deployment in robotic pick-and-place tasks. Optimized motion planning algorithms, enhanced gripper configurations, and designed station layouts to improve item placement and scanning efficiency.

Robotic Arm | Isaac Sim | Python | NumPy | TrajOpt | Motion Control | ML | ABB | Fanuc

Embedded Software Engineer (Intern)

D.Y. Innovations - Shenzhen, China / Jan.-July 2022

Designed and implemented a visual guidance system for aircraft navigation in GNSS-denied environments, prototyped in ROS2, deployed on Jetson Xavier, and validated on a test aircraft.

UAV | C++ | ROS2 | Ardupilot | UE4 | OpenCV | Linux

Weir Motion Metrics - Vancouver, Canada / May-Dec. 2020

Configured a simulation environment to model and replay the kinematics and sensor data. Migrated the core C++ application from Windows to CentOS, optimizing system compatibility, performance, and modularity.

C++ | Linux | RTOS | Webots | IMU | Qt | Visual Studio

Research Assistant

UBC CARIS Lab - Vancouver, Canada / Aug. 2019 - May 2020

Researched kinesthetic teaching methods to identify optimal strategies for robotic manipulation tasks. Explored and identified security risks in UAVs, including MITM and DoS attacks, in telemetry communication using the Mavlink protocol.

Moveit2 | OMPL | PR2 | ROS | UAV | PX4 | LFD | AES | Mavlink

SKILLS

Languages: C++, Python, Rust, C
Tools: ROS & ROS2, Isaac Sim, Webots, Gazebo, UE4, Docker, Bazel, CMake, JupyterLab, SolidWorks, OnShape
Other: RTOS, CI/CD, Version Control, Three.js, ML & DL toolkits

OTHER PROJECTS

- Kept up with literature reviews on different areas of the robotics field, exploring applications and challenges that the industry is facing.
- **UBC UAS**: Developed a payload system that releases a UGV from a UAV, which then navigates and delivers to a target location. Reference *code base*.
- **UBC Rapid's 3D Printing Service**, which provides the cheapest 3D printing service on campus to the UBC community.
- **TreeSAP**: Ecosystem analysis service for trees on the UBC campus using PCL, OpenCV, and CNN.
- **Helping Hands**: Gesture-controlled robotic arm for assisting and remote control.
- **Quantum Friendship Network**: Model for evaluating friendship, with a quantum computer!

EDUCATION

Bachelor of Computer Engineering / 2022

University of British Columbia, Vancouver, Canada

Additional

- Completed two co-op terms
- Concentrated on applied mathematics

ACTIVITIES / INTERESTS

Aims to learn something new every day, loves outdoor activities like hiking, biking, and running, plays badminton and volleyball, enjoys painting, reading nonfiction, and spontaneously bursts into singing Daft Punk with a ukulele.