YEXIN ZHANG

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EDUCATION

University of Pennsylvania — **Philadelphia, PA United States**
Master of Robotics — *Sep 2023 - May 2025(expected)*
ShanghaiTech University — **Shanghai, China**
Bachelor of Engineering in Electrical and Information Engineering — *Sep 2019 - Jun 2023*

TECHNICAL SKILLS

Languages JAVA, C/C++, Python, MATLAB, HTML/CSS, JavaScript, Verilog, VHDL
Technologies Node.js, Express.js, React.js, MongoDB, SQL, Qt, jQuery, AWS, OpenCV, Git, Unix, Linux

PROFESSIONAL EXPERIENCE

AMNR Lab, ShanghaiTech University — **Shanghai, China**
Research Assistant — *Jun 2021 - Jun 2023*

- **Acoustic Manipulation Platform(team of 4)**
  - Built an application with **Qt**, enhancing research efficiency by creating functions for real-time image display and recording, parameter settings, task execution, and experiment data storage.
  - Developed a **C++** program for oscilloscope data extraction, and real-time visualization of waveforms with a Butter-worth filter, resulting in an improvement of the Signal-to-Noise Ratio (SNR) by a factor of 11.5.
  - Implemented an FPGA controller, enabling hologram updating at 11 FPS through CAN, facilitating bidirectional phase data transmission, and integrating real-time phase data visualization into the software interface.
  - Implemented interactive control within the camera interface, enabling object manipulation through trajectory dragging or one-click object capture, leading to an 70% reduction in experimental time and boosting efficiency.
  - Integrated user input of simulation parameters, allowing users to overlay simulated acoustic field distributions on camera images for quick mode suitability assessment.
- **Micro-Robot Calibration System**
  - Developed an application using **Qt** for micro-camera calibration by controlling the needle hydrophone's movement, achieving an impressive average localization accuracy with only a 39-um error.
  - Automated the acoustic field scanning process of the hydrophone, reducing scanning time by 80%.
  - Conducted image Jacobian matrix calibration using the least mean square method, ensuring system accuracy.
  - Created a sub-pixel feature extraction algorithm for precise micron particle localization using **OpenCV**.

P&G — **Remote**
Robotics Software Engineering Intern — *Apr 2023 - Jun 2023*

- Developed and implemented an advanced object detection algorithm using **Open3D** to accurately recognize and classify multiple objects in complex backgrounds, achieving a remarkable 97.5% accuracy rate.
- Collaborated with a cross-functional team of 5 to integrate the algorithm into the UR10 palletizing robot, optimizing performance and enhancing the overall object detection capabilities.
- Designed and Implemented an efficient path-planning strategy model for UR10 palletizing robot using **Matlab**.

PROJECTS

Full-Stack Web Application — *Jun 2022*

- Developed a Todo-List application using **Express.js**, **Node.js**, and **React.js** for efficient task management.
- Created a RESTful API server, facilitating CRUD operations on tasks stored in **MongoDB Atlas**.
- Created a user-friendly task management dashboard and deployed it on Cyclic for cloud-based accessibility.

AR Menu Design(team of 4) — *Sep 2021*

- Developed an AR application by Unity Vuforia to provide customers with more information about the cuisine;
- Designed and optimized the application interface to improve user experience and drive sales.