BO, SU

+1 (408) 529-8081 • boyings@andrew.cmu.edu • linkedin.com/in/bo-su-98300212b • collections.bobobobobobo.net

SUMMARY

Bo is a graduate student at Carnegie Mellon University passionately committed to designing and building interactive robots capable of interacting and learning from the environment and human behavior. Bo brings experience in motion planning and trajectory optimization for robotic arms, and is proficient in C/C++, Python, and CUDA.

EDUCATION

Carnegie Mellon University, Pittsburgh, PA   **Sep. 2022 - Present (Expected May. 2024)**
M.S. in Electrical & Computer Engineering
Courses: ML Signal Processing, Kinematics, Dynamics & Control, Parallel Computing, Deep Learning, FPGA
University of California, San Diego, CA   **Sep. 2019 - Jun. 2021**
B.S. in Computer Science
Courses: Advanced Datastructures, Operating Systems, Computer Graphics, Computer Architecture, Network

WORK EXPERIENCE

CMU Intelligent Control Lab - Research Assistant   Oct. 2022 - Present, Pittsburgh, PA
- Explored layout optimization of multi-robot workcell by finding optimal robot placement and pick-and-place trajectories given obstacles and timing constraints.
- Explored human industrial robot control through electronic tactile skin. Applied tactile sensing and machine learning to improve human-robot collaboration and safe control.
- Explored learning from physical human feedback on robotic arms where the user expresses their intent through physically intervening the robot motion.

Siemens Lab - Advanced Robotics and AI Internship   Jun. 2023 - Aug. 2023, Berkeley, CA
- Developed robot arm control software running on Siemens PLCs. Implemented a event-driven control system that coordinates the motion of multiple robot arms and conveyors and plans collision-free paths.

Nexuni - Part-Time R&D Engineer   Nov. 2020 - Dec. 2023, Taipei, Taiwan
- Developed robot arm control software for automating part of the biomedical testing process. Achieved 34% reduction in testing time compared to hard-coded teach pendant software by introducing online trajectory optimization.
- Developed robust lane following algorithms using stereo vision and lidar to control the company's autonomous outdoor security robot.
- Developed control software for the company's pick-and-place Semiconductor Testing Handler. Designed an online planning algorithm based on Bipartite Matching and reduced the make span by 31%.

San Diego Supercomputer Center - Research Assistant   Jan. 2022 - Aug. 2022, La Jolla, CA
- Explored Automated Knowledge Graph Construction through Natural Language Processing. Advised by Dr. Amarnath Gupta.

ShaYangYe Motors - R&D Engineer   Aug. 2018 - Sep. 2018, Taipei, Taiwan
- Served as an R&D engineer in the Computer Vision team developing autonomous navigation system for Automated Guided Vehicle (AGV).

PUBLICATIONS

Su, B. Y., Wu, Y., Wen, C. & Liu, C. (2024). Optimizing Multi-Touch Textile and Tactile Skin Sensing Through Circuit Parameter Estimation. In *2024 IEEE International Conference on Robotics and Automation (ICRA)*

Su, B. Y., Wei, Z., McCann, J., Yuan, W., & Liu, C. (2023). Customizing Textile and Tactile Skins for Interactive Industrial Robots. *ASME Letters in Dynamic Systems and Control*

Shek, A., **Su, B. Y.**, Chen, R., & Liu, C. (2023). Learning from physical human feedback: An object-centric one-shot adaptation method. In *2023 IEEE International Conference on Robotics and Automation (ICRA)*

PROJECTS

HackerFab Sep. 2023 - Present
- Developed a vision based lithography stage controller, achieving less than 0.2um positioning accuracy through adaptive control.

Temporal relation extraction with a graph-based deep biaffine attention model Sep. 2021 - Apr. 2022
- Extract temporal relations among events from massive raw text by combining deep learning models and temporal logic solvers. Achieving state-of-the-art accuracy while being 24% more computationally efficient.

NoDistort: Drawing Distortion Recovery System for Shaky Screens Sep. 2015 - Apr. 2017
- Leveraging cellphone motion sensors, NoDistort computes the displacement and posture of the device and corrects the distorted drawings, improving handwriting recognition accuracy by 29% under shaky conditions.

SKILLS

Programming: C/C++, Python, CUDA, Matlab, PLC, Julia, Golang, Javascript, Java, Shell Script

Software & Libraries: ROS, PyTorch, Drake, Docker, Git, Github Actions, Linux