XIAOZHOU ZHANG

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Education

University of Pennsylvania — Philadelphia, PA
M.S.E. in Robotics; GPA: 4.00/4.00 — *May 2021*
M.S.E. in Computer and Information Science; GPA: 4.00/4.00 — *May 2021*

Mao Yisheng Honors College, Southwest Jiaotong University — Chengdu, China
B.E. in Mechanical Engineering; GPA: 3.60/4.00; Ranking: 1/21(Honors Class) — *Jun 2018*

Experience

iFLYTEK Research Institute — Suzhou, China
Computer Vision Research Intern — *Jun 2019 - Aug 2019*

- Leveraged Mask R-CNN on x-ray machine for prohibited items detection
- Implemented human keypoint detection by extending Mask R-CNN with such branch
- Developed GAN for super-resolution reconstruction on medical lesion images

GRASP Lab — Philadelphia, PA
Research Assistant — *Spring 2018*

- Assisted develop prototype of low-cost HRI platform Quori
- Designed trajectory for arm module which mimics ball joint of human shoulder
- Conducted systematic test to evaluate the performance of arm module
- Set up SLAM packages for autonomous navigation to human visitors

Chengdu Shimmer Duckweed Technology Co. Ltd — Chengdu, China
Co-founder/Chief Technology Officer — *May 2017 - Aug 2018*

- Developed product Duckweed for treating algae bloom and monitoring water quality
- Designed and built hardware structures, sensing circuit module with temperature and PH sensors
- Programmed STC microcontroller and data transmission module with SIM900A GPRS DTU
- Obtained **Patent for Inventions #201710328765.1** and **Patent for Utility Models #201720518974.8**

Projects

F1/10 Autonomous Car Racing — Philadelphia, PA
End to End Framework for 1:10 Scaled RC Car Autonomous Racing — *Fall 2019*

- Localized RC car using particle filter in global map created by Google Cartographer
- Implemented real time collision-free path planning with Informed RRT*
- Implemented raceline optimization using Covariance Matrix Adaptation Evolution Strategy
- Developed MPC pipeline with waypoint tracking and obstacle avoidance on CVXGEN

Quadrotor Planning and Vision — Philadelphia, PA
End to End Framework for Autonomous Quadrotor Navigation — *Spring 2019*

- Implemented path planning with A* and Dijkstra's algorithm
- Generated minimum snap trajectory for tracking
- Implemented pose estimation by VIO and optical flow
- Estimated and updated pose and velocity with Extended Kalman Filter

Serial Manipulator Kinematics and Planning — Philadelphia, PA
Introduction to Robotics Course Project — *Fall 2018*

- Formulated foward, inverse and velocity kinematics of 5 DOF Lynx robot
- Collision-free path planning with RRT and Artificial Potential Field
- Implemented A* and D* search algorithom on 2D map

Skills & Relevant Courses

Programming: C++/C, Python, MATLAB, JAVA

Platforms and Libraries: ROS, Pytorch, OpenAI-Gym

Courses: Autonomous Car Racing, Advanced Machine Perception, Advanced Robotics, Data-Driven Modeling, Reinforcement Learning