Yifei Dong

Roswiesenstrasse 7, 8051 Zurich
Switzerland
+41 763900853
yifdong326@gmail.com
Website | *LinkedIn* | *Github* | *Portfolio*

Education

2019 - Now **ETH Zurich**, *M.Sc.*, Mechanical Engineering, *GPA: 5.6/6.0*

2015 - 2019 **Shanghai Jiao Tong University**, *B.Sc.*, Mechanical Engineering, *GPA: 3.75/4.0*
Tsien Hsue-shen Honors Program & Zhiyuan Honors Program of Engineering (Top 5%)

Experience

2022 - Now **F&P Robotics AG**, *Zürich*
Software Engineer Intern | in Lio Team
1. High-level skills (door opening, human-robot interaction) development of a service robot
2. A real-time handle detector combining gripper camera and radar information in a CNN

2020 - 2021 **Robotic Systems Lab, ETH**, *Zürich*
Graduate Researcher | with Prof. Marco Hutter

Master Thesis | Mobile Door State Estimation and Parameter Identification | Video | Thesis | Git
1. A reliable framework of door state estimation and parameter identification for manipulation
2. A novel 3D door tracking algorithm by fusing RGB-D images and robot odometry
3. Collection of data on doors, composed of RGB-D data, robot odometry and ground truth
4. Hardware experiment on ALMA for open-loop visual servoing handle grasping

Semester Thesis | Contact-implicit MPC for Mobile Manipulation | Video | Thesis
1. Object-augmented legged robot system capable of multi-contact multi-object manipulation
2. Dually functioning of a robot's leg in gait generation and object manipulation
3. Reformulation of CIO - a relaxed version of non-smooth complementarity contact model
4. Various multi-object contact-rich manipulation tasks in Gazebo simulation

2020 **Mixed Reality and AI Lab, Microsoft**, *Zürich*
Graduate Researcher | with Prof. Marc Pollefeys
Topic: Object Mesh Reconstruction Using RGB-D Cameras | Video | Thesis | Git
1. Generation of camera trajectories and scene maps using BAD-SLAM and ORB-SLAM2
2. Implementation of background removal, image registration and mesh reconstruction algorithms
3. Calibration of depth images using a heuristic fitting and deep learning approach

2022 **Vitestro**, *Remote*
Short-term | in Computer Vision Team
Processing image data from a 2D ultrasound probe, reconstructing vein segments, and finding a suitable vessel parameterization and puncture location in the autonomous blood drawing system

2019 **SAIC Motor**, *Shanghai*
Research Intern | in EPKS Lab
Bachelor Thesis | Strategy Optimization of Autonomous Emergency Braking
Simulation of AEB combining vehicle dynamics and ultrasonic distance sensors

2018 **NIO Inc.**, *Shanghai*
Research Intern | in ADAS Lab
LiDAR simulation of an autonomous vehicle in various traffic scenes. The success rate is increased by 12% of pedestrians detection and obstacle avoidance.

2017 - 2018 **FSAE Racing Team, SJTU**, *Shanghai*
Undergraduate Mechanical Engineer
1. Algorithm development of autonomous lane keeping assist systems and traffic sign recognition
2. Rectification of chassis system and fabrication of a sandwich panel carbon fiber monocoque

2016 - 2017 **Institute of Intelligent Vehicle, SJTU**, *Shanghai*
Undergraduate Researcher | with Prof. Min Xu
Topic: Structural Design and Locomotion Formulation of Snake Robot | Video
Design of a novel serpentine robot with functions of autonomous obstacle avoidance and sinusoidal locomotion

Publication

2019 **3-DOF Plum Processing System for Surface-Curving and Core-Deprivation**, *patent publication of China*, *Video*
Minghao Gou, Yifei Dong, Ximing Mai, Kai Yang, Weizhong Guo

Honors

2021, 2022 **ETH Scholarship for International Students**
2019 **Excellence Award**, *BAIC Automobile Invitational Tournament*
2018 **Second Prize**, *Tan Kah Kee Invention Award*
2016, 2018 **General Motors Scholarship**
2017 **Huawei Scholarship**
2016, 2017 **Zhiyuan College Honors Scholarship**, *Top 3%*

Skills

Programming Python (proficient), C++ (proficient), MATLAB (intermediate), C, C#
Tools OpenCV, Open3D, PCL, YOLO, Git, Docker, ROS, Gazebo, Simulink, PyTorch, TensorRT, Jira, Bitbucket, Gitlab, Unity, LaTex, Adobe Premiere/Photoshop, ANSYS
Hardware NVIDIA Jetson Xavier, Intel Realsense D515, Microsoft Azure Kinect, STM32, Arduino
Language English (proficient), Chinese (native), German (Goethe B1)
CAD SolidWorks (proficient), CATIA (proficient), NX Unigraphics

Courses

M.Sc 3D Vision (5.8/6) (Git) | Image Analysis and Computer Vision | Deep Learning | Autonomous Mobile Robots | Probabilistic Artificial Intelligence | Recursive Estimation (6/6) | Model Predictive Control (Git) | Dynamic Programming and Optimal Control (Git)| Robot Dynamics (6/6) (Git) | Control Systems II

B.Sc Probability and Statistics (4.3/4.3) | Mathematical Analysis I, II | Linear Algebra | C++ Programming (4.3/4.3) | Mathematical Methods in Physics | Modeling Analysis and System Control (4.0/4.3) | Application of MATLAB in Engineering | CAD-UG I | Electrical and Electronic Technology | Design and Manufacture | Engineering Material

Extracurricular

2018 Volunteer, Shanghai International Marathon
2016 - 2017 Vice Minister, Student Union of Zhiyuan College, SJTU
2017 Leading actor, A self-made mini-film