Yuxiang Kang

310-882-1774 | yuk007@ucsd.edu | LinkedIn | https://yuxiang-kang.github.io/Portfolio-Yuxiang/

EDUCATION

University of California San Diego Sep. 2022 – Dec. 2023

Master of Science – Mechanical Engineering, GPA:3.93

- Coursework: Sensing & Estimation Robotics, Planning & Learning Robotics, Soft Robotics, Fluid Mechanics

Tsinghua University Aug. 2018 – Jun. 2022

Bachelor of Engineering - Mechanical Engineering, GPA:3.3

- **Awards**: 2nd Prize in the 23rd mechanical innovation design competition of Tsinghua University
  1st Prize in China Undergraduate Physics Contest
  Nancal Technology Scholarship for excellence
- Coursework: Machine Design, Finite Element Analysis, Manufacturing Process Design, Embedded System

SKILLS

- Programming: **Python**, MATLAB, C++, STM32
- Designing Software: **SOLIDWORKS**, AutoCAD, **ANSYS**

EXPERIENCE

Beijing Gas Co., Ltd Jan. 2022 – Jul. 2022

University Collaboration Project *Beijing, China*

- Designed a disc type plugging device for gas pipeline including more than 30 non-standard parts in **SOLIDWORKS**.
- **Simulated the deformation and contact pressur**e of the rubber disc in **ANSYS**, proving the design's plugging ability.
- Calculated the stress in heavy-duty parts and drew the stress-movement curve of the plugging process via **MATLAB**.
- **Manufactured a prototype** and met the pressure requirement in actual experiments.
- The prototype was accepted by the company. **Two papers were accepted** by *Pipeline technology and equipment*.

NAURA Technology Group Co., Ltd Jun. 2021 - Aug. 2021

Mechanical Engineer Intern *Beijing, China*

- Conducted **gas flow simulation** on Horizontal Furnace, a semiconductor processing equipment, using **ANSYS Fluent**.
- **Simulated the leakage** of combustible gas in the Horizontal Furnace based on SEMI S6 standard.
- **Designed and manufactured** an improved exhaust system **installed on mass production model** based on the simulation result.

PROJECTS

3D Motion Planning based on A* and RRT Apr. 2023 – May. 2023

Individual Project, Department of Electrical and Computer Engineering *UC San Diego, CA*

- Implemented **A* and RRT Algorithms** to generate optimal control policy for a **Deterministic Shortest Path** problem.
- Generated optimal action sequence for an agent to reach a known goal in complex 3D maps.
- Applied **Slab** method to detect collision.

Visual-Inertial SLAM System Feb. 2023 – Mar. 2023

Individual Project, Department of Electrical and Computer Engineering *UC San Diego, CA*

- **Localized** a vehicle and generated an **estimated trajectory** based on IMU motion model.
- Built a **map of visual features** based on **stereo camera** data via **Extended Kalman Filter**.
- Combined landmark map and camera observation to **correct vehicle's trajectory via EKF**.
- Built a complete visual-inertial SLAM algorithm to generate landmarks along vehicle's trajectory simultaneously on the map.

Bio-inspired Fish Robot Aug. 2021 – Jan. 2022

Project Leader, Department of Mechanical Engineering *Tsinghua University, China*

- Designed a bio-inspired fish robot based on the movement of manta ray driven by **soft fin**.
- Set up an **embedded control system** based on a STM32 MCU and sent instructions via Bluetooth serial part.
- Manufactured custom-made parts and assembled a prototype, which met the design goals **during underwater tests**.
- Won the **2nd Prize** in the 23rd mechanical innovation design competition of Tsinghua University.

Automatic self-tracing electric vehicle Mar. 2021 – Jun. 2021

Individual Project, Department of Mechanical Engineering *Tsinghua University, China*

- Designed a self-tracing electric vehicle and assembled a prototype.
- Set up an **embedded control system** based on a STM32 MCU and sent instructions via Bluetooth serial part.
- Collected road information with a **CCD camera** and identified spatial obstacles with four **ultrasonic sensors**.
- Achieved pace tracking and obstacle avoidance