



PENGCHENG "FRANK" CAO

Engineer, Researcher, Instructor, and Content Creator

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TECH STACK

- Python proficient
- MatLab proficient
- C&C++ proficient
- Mechanical Design
- GD&T Drawing proficient
- Finite Element Analysis
- injection molding
- metal part casting
- sheet metal processing
- firmware development
- Failure analysis Abaqus
- ANSYS CATIA
- Problems Solving
- SolidWorks 3D proficient
- AutoCAD proficient
- Dynamics modeling
- Research
- Technical Writing
- Communication Skills
- Teaching

LANGUAGES

Chinese (Native)
English (Fluent)
German (B2-Professional)

REFERENCES

Prof. Falko Kuester

in falko-kuester-89322051
fkuester@eng.ucsd.edu

Mr. Bensen Xie

in bensenxie
bensenx@valuwds.com

ABOUT ME

Mechanical, mechatronics, and robotics engineer with a demonstrated history of working in multiple engineering disciplines. PhD in Mechanical Engineering at UC San Diego. Engineer-in-Training (EIT) certified.

EXPERIENCE

Mechanical Design Internship | GrayMatter Robotics

Jun 2022 – Aug 2022 Los Angeles, CA

- Electro-mechanical design and integration of Robotic Scan & Sand end effector. Sensor integration and feedback motion control.
- Design and assemble customer-facing parts, conduct Design for Manufacturing (DFM) reviews with suppliers and support tooling bring up.

Mechanical Engineer | Value Wholesaler

Mar 2018 – Sep 2019 Los Angeles, CA

- Led cross-functional collaboration with CAE, manufacturing, and test teams to mature products from concept to production.
- Designed a piece of bar code generating software in Python, increasing production workers' efficiency by 14% .

EDUCATION

PhD, MSc in Mechanical Engineering | University of California, San Diego

Sep 2019 – Dec 2023 San Diego, CA

- Specialize in software design, dynamic systems and control, and mechanical and mechatronic systems design.

PROJECTS

Project 1: BeagleMAV: 3D-printable 6-DoF UAV Design and Control | ID | G

Jan 2019 – Jan 2020

- Mechanical and electronic design of a class of multi-rotors with in-plane maneuverability and direct decoupled 6-DoF control.
- Firmware and software programming with hands-on hardware bring-up and qualification.

Project 2: Dambot-Mini: UGV Navigation & SLAM with Dynamic Object Filtering | F | G

Apr 2023 – Sep 2023

- Integrated a sensor stack equipped with an impressive array of modalities, including 3D LiDAR, RGBD cameras, FPGA sensor SoC, and multi-cam systems.
- SLAM functionality with active research and explorations of dynamic object and noise filtering.
- Navigate inside a tunnel using pure pursuit algorithm tracked by PID.