

LUYAO ZHAO

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EDUCATION

University of California, Irvine

Irvine, CA

Bachelor of Science in Mechanical Engineering

Sep. 2014 – Jun. 2018

- **Cumulative GPA:** 3.667/4.0
- **Major GPA** in Mechanical and Aerospace Engineering Department: 3.804/4.0
- **Honor:** Dean's Honor List (From Fall Quarter 2014 to Winter Quarter 2018 for Consecutive 8 Quarters)
Latin Honors (Award for the Top 16% Students in the School of Engineering)
- **ME Core Courses:** Engineering Analysis II, Cargo Plane III, 1st Respondair I, Introduction to Control Systems, Composite Materials and Structures, Mechanical Engineering Design, Mechanics of Structures Laboratory, Vibrations, Theory of Machines and Mechanisms, Compressible Flow, Computational Fluid Dynamics, Viscous and Compressible Flows, Fluid Mechanics, Heat and Mass Transfer, Applied Engineering Thermodynamics, Propulsion, Fluid Thermal Science Laboratory, Mechanical Systems Laboratory, Thermodynamics, Dynamics, Statics, Individual Research, etc.
- **Other Core Courses:** Linear Algebra, Differential Equations, Multivariable Calculus, Calculus, Fundamentals of Experimental Physics, Classical Physics Lab, Classical Physics, Economics, Global Economics, Argument & Research, Critical Reading and Rhetoric, Academic Writing, etc.

The University of Hong Kong

Hong Kong, CN

Undergraduate Level Exchange Program

Sep. 2015 – Dec. 2015

Certificate of Software Development Essentials

Jun. 2018 – Oct. 2018

This certificate-based course covers data structure, algorithm, object oriented design, and Java programming language to improve the coding skill.

SPECIALTY & TECHNICAL SKILLS

- Proficient in Programming Languages:
Python, C, C#, C++, MATLAB, Java, Java Script, XML (for Android UI), Swift & Xcode, HTTP, Node.js, PHP, R, SQL
- Knowledgeable in:
CFD ANSYS (Meshing, TurboGrid, FLUENT, CFX), Tecplot
CAD Modeling/FEA
SolidWorks
LaTeX
DFM/DFA
Design for Injection Molding
Design for Sheet Metal
OpenGL/OpenCV
Soldering & Laser Cutting
3D Printing
Adobe Design Package
Debugging
Game Engine: Unity
Linux System
ROS
Raspberry Pi
Odroid
Arduino
MySQL
SDN
CSS
Bootstrap
jQuery
- Expertise in quantitative and qualitative analysis with strong ability to identify trends and correlation within data
- Native in English and Mandarin Chinese, and intermediate in Japanese
- Excellent oral and written intercultural communication, presentation, and interpersonal skills
- Experienced in managing multiple priorities and projects simultaneously in a fast-paced and team environment

PROJECT EXPERIENCE

ENGRMAE 112 Propulsion, Class Project

Nov. 2017 – Dec. 2017

This project is to apply thermodynamics and fluid mechanics to basic flow processes and cycle performance in propulsion systems: gas turbines, ramjets, scramjets, and rockets.

- Used MATLAB to calculate the turbofan performance (including thrust specific fuel consumption, specific thrust and efficiency) under different design parameters (including compressor pressure ratio)
- Completed the preliminary design for a turbofan engine by using MATLAB

- Programmed and made a plot to visualize how the performance was affected by some important design parameters
- Compared and determined the design parameters based on the analysis of the calculation results and plots
- Made a good balance between fuel efficiency and engine size

ENGRMAE 106 Mechanical System Laboratory, Class Project

Mar. 2017 – Jun. 2017

This project includes designing and manufacturing an autonomous robot using ODROID that automatically detects stop signs, turning, and avoiding any obstacles & barriers.

- Achieved visual-inertial SLAM in ROS through integrated sensor system of camera, IMU, and IR Distance Sensors
- Analyzed range sensor data to differentiate obstacles to speed up wall following algorithm via OpenCV and Python
- Increased the turning rate through smart speed control and turn detection algorithm
- Designed and fabricated mechanical platform for the robot including fixtures and mounting systems for electronic components
- Programed Arduino (a microcontroller installed in robot) to locate the robot and control the turning
- Debugged the programming problems and errors; tested and adjusted code based on the robot performance

ENGRMAE 189 Cargo Plane, Senior Design Project

Oct. 2015 – Jun. 2016

This senior design project is to bridge academic fundamentals with real world challenges through engaging and innovative engineering projects. A cargo plane was designed and successfully took off with a payload of 55 pounds.

- Applied knowledge of design for assembly and manufacturing (DFA & DFM) to design the cargo plane, which includes mounting plates, radomes, internal structures and enclosures
- Design, fabricate, and verify fixtures and mountings with SolidWorks and 3D Printing
- Calculated the design parameters of the wing and chose wing profile
- Manufactured the model cargo plane including laser cutting and assembling
- Tested the model cargo plane in wind tunnel lab, and kept optimizing the exterior, mechanics, and materials so as to maximize the payload capacity

PROFESSIONAL WORK EXPERIENCE

University of California, Irvine

Irvine, CA

Research Assistant at Computational Fluid Dynamics and Propulsion Lab

Oct. 2017 – Jun. 2018

- Conducted graduate level works related to computational fluid dynamic, improving research skill significantly
- Provided simulation test on flow properties for turbomachinery
- Pre-processed geometries including creating geometries, generate mesh for various geometries to make them ready for computation
- Conducted computational fluid dynamics simulation for a compressor, analyzed flow phenomena inside the compressor, and completed a full report
- Used Python to post-process calculation results

Yiyuan Huayang Energy Equipment Co., Ltd.

Zibo, CN

Aerodynamics Intern

Jul. 2017 – Sep. 2017

- Conducted the preliminary design of a 3MW steam turbine and increased the steam turbine efficiency by using tapered and twisted blades
- Calculated and made decisions on each detailed design parameter such as the number of stages, enthalpy distribution on each stage, and flow inlet and outlet angles
- Researched on tapered and twisted blades and assisted with the calculation of blades parameters to optimize the turbine

University of California, Irvine Extension

Irvine, CA

Tutor of ENGRMAE 10 Introduction to Engineering Computations

Sep. 2016 – Dec. 2016

- Answered the programming questions in FORTRAN and MATLAB for students in need

- Helped students review the theoretical knowledge learned in their class first, and then guided the students to solve the problem step by step by themselves, winning a high rating score in teaching feedback
- Provided personalized tutoring to students in final projects, graded exams and weekly homework to ensure no one left behind, and successfully helped them to increase their average grade from B to A-
- Collected and analyzed students' major problems, and then provided findings with insightful recommendations to the department for its further curriculum development

ENTREPRENEURSHIP

Zero1 Tech Studio

Irvine, CA

Co-founder & Chief Web Designing and Development & Chief Data Analyst

Jun. 2016 – Present

- Develop mobile game core engine and other components
- Create desktop and mobile user interfaces utilizing HTML, CSS and JavaScript
- Design and optimize interface design, content management and backend system integration on multiple content management systems (IOS, Android, SharePoint, iApps, Drupal)
- Drive product feature definition and integration; analyzed user data, customer testimonials, and other competing mobile apps so as to keep optimizing different functions in the mobile app
- Build the new business database by using online database system Caspio to substitute their old version, and insert the database into websites by using the HTML and JavaScript code
- Oversee and coordinate student market, marketing-acquisition, scheduling, partner operations, and media ops