Kenneth Gampol

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Portfolio:https://kgampol.github.io/

EDUCATION

University of California Merced **Merced, CA**
Mechanical Engineering/Bachelor's Degree **GPA:3.85**
High Honors/Magna Cum laude

University of Pennsylvania **Philadelphia, PA**
Computer Information Technology (Computer Science) /Master's Degree **GPA: 4.0**
Expected Graduation: December 2025

PROFESSIONAL EXPERIENCE

The Boeing Company **Long Beach, CA**
Interior Structures Stress & Structural Stress Intern *May 2024-Present*

- Supported 2 teams across, Boeing Global Services (BGS) and Boeing Commercial Aircrafts (BCA), working on commercial modifications for the 757 and 787 aircrafts, and on the development of the new 777-X Freighters.
- Primarily supported the 777-8 Freighter, focusing on Section 41 and Section 43 of the floor beams and stanchions, scheduled for manufacturing in early 2026.
- Utilized Boeing software such as X.S.A & I.AS which are programs that are designed to take computer aided design (CAD) geometries and perform analysis options that include compression, tension, elastic and plastic bending, as well as finite element methods. I used these programs to calculate and analyze 3,000 cross sections of the 777-8F floor beam to determine the margins of safety for all stress and strains on holes in the beams
- Utilized Patran & Nastran to perform finite element analysis on 777-8F floor beams, analyzing load stresses, eigenvalues, and buckling to ensure structural integrity.
- Leveraged Integration Visualization Tool (IVT) and Enovia to access and validate CAD parts through CAD software called Catia, ensuring they fit accurately on the aircraft and matched geometries.
- Supported BGS Interior Stress by analyzing Stress Substantiation Reports to ensure compliance with Federal Aviation Administration (FAA) and Boeing safety requirements.
- Utilized Boeing tools to determine stress loads for Galleys, Seats, etc., and created Excel templates for hand calculations of the center of gravity for Galleys.
- Supported the creation of a Macro that was capable of finishing a full analysis of Galleys,Seats, and Lavatories in less than 20 seconds.

Sun Maid Growers **Kingsburg, CA**
Automation/Systems Engineer *December 2023-December 2024*

- Created an automated system that could straighten, detect, and eliminate low-quality packages on a conveyor line without slowing line speed removing the need for a worker watching the line. I have designed an adjustable belt guide that straightens 2 different bags on the line.
- Using computer vision software/cameras and training them to detect defects . It's connected to an air rejection system via g-pio. Resulting in reduced labor cost and savings of $400,000 over a 6 year span and improved quality control
- Worked on implementing on all current conveyors lines to automate their whole plate and replace salaried workers with a more productive role in the plant
- Created a poster board, with a full presentation with faculty and industry professionals about the full engineering process where I received an award for Top Capstone Finisher in my graduating class.

RESEARCH EXPERIENCE

University of Southern California **Los Angeles, CA**
Safety Intelligence & Autonomy Lab Research Assistant *May 2024-August 2024*

- Collaborated with Professor Somil Bansal and PhD student Javier Borquez to enhance RC car navigation using ROS 2 and Hamilton-Jacobi Reachability Analysis.
- Developed accurate car position and dynamics models with LIDAR and Computer Vision as well as hand calculations of RPMs of the wheel speed and angles the control arms move.
- Helped program the calculation of backward reachable tubes (BRT) using Python for real-time trajectory decisions.
- Integrated the Hamilton-Jacobi framework within ROS 2 to improve the car's autonomous navigation and safety.
- Utilized Linux, Docker, Python, S.L.A.M tools to operate the RC car built via Nvidia Jetson

University of California Merced **Merced, CA**
TEAMUP Consortium *December 2023- May 2024*
- I contribute to project development across software, electrical, and mechanical domains, including designing structures for solar cell placement using CAD (SolidWorks) and FEA (COMSOL).
- I manage the data collection process for solar cells using a remote meter (MT5) to extract data and use Python scripts to convert it into CSV files as well as graph them to find values such as maximum power outputs.
- Working on implementing machine learning algorithms which could flag and notify our team via email if one of our solar cells isn't working properly. I also helped with creating a script to automate this process.

Sarah Kurtz Group Research Assistant December *2023-May 2024*
- Working alongside a professor and grad student to calculate and analyze IV (current-voltage) curves of photovoltaic devices. Using Python to process the data to extract information such as power, current, and voltage used by Caelux (semiconductor company) in their research on perovskite cells. Currently automating the data retrieval process.

Danzi Group Undergraduate Researcher *October 2023- December 2024*
- Created a 10in x 15in 3d printed prototype wing (Clark Y-14) featuring Kirigami cut material to enable flexible bending without airflow disruption. Implementing a servo motor mechanism linked to an Arduino, aimed to explore optimal wing movement.
- Tested the wing's efficiency in a wind tunnel, while redefining designs choices

TEACHING EXPERIENCE
University of California Merced **Merced, CA**
Learning Assistant *August 2023-December 2024*
- Worked with Professors to Co-teach Calculus 1 & 2 Courses managing large classes of 200 students
- Held weekly office hours to help students with course material, homework, and quiz prep
- Held review sessions a week prior to exams to help explain forgotten topics and prep for exams.

Stem Tutor *August 2023-May 2024*
- Tutored UC Merced students in various STEM courses, primarily focusing on physics, calculus, and core engineering classes such as statics and dynamics.

Summer Edge Teaching Assistant *June 2023-August 2023*
- Conducted six discussion sections for Chemistry 1 each with 30 students, assisting with grading as well as creating discussion worksheets for freshmen to comprehend course material.

Student Athlete Learning Assistant *August 2022-May 2023*
- Held weekly meetings with student athletes to prepare for exams, quizzes, and tutored them on topics such as calculus 1-3, Pre-calc, Partial Differential Equations & Linear Algebra.
- Made regular communication with academic advisors, coaches, and professors to ensure student athletes meet academic requirements

HONORS & AWARDS
2024 Top Capstone Finisher	*2024*
2024 Top 100 National Intern	*2024*
Presented by Wayup & Yello.co	
CA Middle Class Scholarship	*2024 & 2022*
Calvin E Bright Engineering Scholarship	*2024*
Frances M. Benton Scholarship	*2023 & 2022*
Jack Kent Cooke Found Endow Scholarship	*2023*
Chancellor's List	*2021-2024*

PROFESSIONAL ASSOCIATIONS
AIAA-American Institute of Aeronautics and Astronautics
Rockets Team Member- *2023-2025*
- Successfully designed, built, and launched a rocket with a H135 motor in compliance with safety regulations. Using software (Openrocket) in order to find Cg & Cp. It achieved 4000 ft apogee & Mach 1.1

PERSONAL PROJECTS

Facial Recognition
- I used a Raspberry Pi connected to a camera to detect and name people using OpenCV along with TensorFlow Lite. The system is designed to recognize faces and draw a bounding box around them. To enable this functionality, I trained the model with images of different individuals.

E-Skateboard Conversion
- Converted a regular skateboard to an electric skateboard using a brushless motor and soldering it to a custom pcb board using lithium ion batteries for enhanced performance and speed for a Stem Competition at Chapman University.
- Led a team in designing and developing a custom battery attachment using CAD software (Fusion 360) for optimal placement and stability on the skateboard and used 3D printing to create & attach it

Self-Driving RC Car
- Built a self driving car powered by a raspberry pi from an rc car chassis. This car is fully autonomous through reinforcement learning, and able to navigate stop signs and stop lights.
- Utilized solidworks to design the car and exploring electronic components for custom PCB boards.
- Utilizing simulations from donkey car (ML libraries) open source to develop training data on the car.
- Added a lidar on the car to have SLAM and 3d renders of the track to increase performance of the car.

SKILLS

Programming: MATLAB, Python, Java, HTML, JavaScript, CSS, C, Assembly , Linux, Docker, VBA, Pytorch, Tensorflow, GIT, Bash

CAD & Design Software: SolidWorks, Fusion 360, NX, CATIA

Finite Element Analysis (FEA): COMSOL, Patran & Nastran, SolidWorks

Electrical & Hardware: Circuit design ,Nvidia Jetson, Raspberry Pi, Arduino

Additive Manufacturing: 3D Printing

Productivity Tools: Microsoft Office (Excel, PowerPoint, Word)

REFERENCES

Somil Bansal
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University of Southern California
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