

Kenneth Gampol

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EDUCATION

University of California Merced

Mechanical Engineering/Bachelor's Degree

Merced, CA

High Honors GPA: 3.85

University of Pennsylvania

Computer Information Technology (Computer Science) /Master's Degree

Philadelphia, PA

Incoming

PROFESSIONAL EXPERIENCE

The Boeing Company

Interior Structures Stress & Structural Stress Intern

Long Beach, CA

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.A.S 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.

RESEARCH EXPERIENCE

University of Southern California

Safety Intelligence & Autonomy Lab Research Assistant

Los Angeles, CA

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.

University of California Merced

TEAMUP Consortium

Merced, CA

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 am currently working on 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.

- 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-Present

- 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 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-Present

- 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 open source to develop training data on the car.
- Potentially adding a lidar on the car to have SLAM and 3d renders of the track to increase performance of the car.

SKILLS

Computer: Proficient in *Matlab & Python* (4,000 lines of data), *CAD* (Solid Works, Fusion 360, NX , Catia) , *Circuit Building* (Using circuit boards & electrical wiring/soldering), 3D Printing *Microsoft Office* (Excel, Powerpoint, Word), *Finite Element Analysis* (COMSOL, NX, solidworks)

Interpersonal: Team Leadership, Time Management, Ability to communicate effectively via writing and verbally, Adaptability, Creative, Emotional intelligence, Problem Solving & Critical Thinking

REFERENCES

Somil Bansal

Assistant Professor of Electrical and Computer Engineering and of Computer Science
University of Southern California
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Javier Borquez

PHD Student & Safety Intelligence and Autonomy Lab Principal Investigator
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