

Bryan Matel

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EDUCATION

University of California, Irvine
B.S. Mechanical Engineering

Irvine, CA
Graduating June 2024

SKILLS

Engineering Software: AutoCAD, Thermal Desktop, MATLAB, Solidworks, COMSOL, Arduino, Creality Slicer

EXPERIENCE

Spacecraft Thermal Management Systems

Irvine, CA

Thermal Engineer for Cube Satellites - Thermal Desktop, AutoCAD, MATLAB, COMSOL

September 2022 - Present

- Developed and simulated the 2U CubeSat structure under both steady state and transient conditions using Thermal Desktop, comparing the results against steady-state calculations in MATLAB in order to create a reliable thermal model
- Contributed to STMS' research and development of a Variable Emissivity Device (VED) for thermal regulation of a 2U Cube Satellite in sun-synchronous orbit by performing extensive simulations and analyses of the satellite
- Conducted comprehensive extremity tests, systematically varying orbital and thermal parameters by up to 100% to generate a robust and diverse data set

Team EVA

Irvine, CA

Control Engineer - Arduino, Solidworks

December 2022 - April 2023

- Led the construction of a solenoid-propelled robot designed within specific dimensions
- Enhanced the robot's maneuverability through experimentation by improving the hinge design, increasing the degrees of freedom from 15 to 70, allowing the robot to be propelled 60% further
- Programmed the robot's software using Arduino IDE, with a focus on optimizing the bell crank steering mechanism and the hopper propulsion system for maximum efficiency and effectiveness
- Leveraged cost-effective materials like scrap metal, L brackets, and gate hinges from local suppliers, bypassing the need for 3D printing and keeping the project within budget constraints

UCI CubeSat

Irvine, CA

Hardware Engineer - MATLAB

January 2022 - September 2022

- Assisted in the creation of a modular 2U CubeSat, by utilizing both commercially available and team-fabricated products
- Conducted comparative analysis of various rotators to determine the one offering the best frequency range, and identified the optimal material for the antenna construction
- Supported the Ground Station Communication lead by investigating the maximum stress, strain, and frequency range of a Yagi Antenna for use with our SatNOGS Rotator

PROJECTS

Fender Electric Guitar Design

Solidworks

Utilized Solidworks for the design and creation of an electric guitar model based off the iconic Fender Telecaster design

- Modeled and simulated a solid-body electric guitar, and conducted rigorous stress and strain tests on the guitar strings to evaluate their performance and durability under various conditions

THC Breathalyzer Design and Business Plan

Solidworks, Creality Slicer

Created a hypothetical 3D model of a THC Breathalyzer using Solidworks

- Utilized Solidworks and Creality Slicer to design, render, model, and 3D print a prototype for a THC breathalyzer
- Pitched a 40-page business plan for the THC breathalyzer with analysis of marketing strategies, sales forecasting, ROI analysis, product prototypes, and renders to 30+ mock venture capitalists

OTHER INVOLVEMENTS

AMP Media

Korean Pop Producer/ Topliner

January 2022 - Present

- Wrote engaging and memorable melodies and meaningful lyrics for songs that resonate with listeners

Alpha Kappa Psi

Social and External Affairs Chairman

October 2021 - Present

- Devised professional networking events between various chapters and other professional fraternities across California

ADDITIONAL

Languages: Fluent: English || Elementary: Mandarin, Japanese

Interests/Hobbies: Music Production/ Song Writing, Working-Out, Anime, Cooking, Keyboards, Technology