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# Markus Gokan

***Mechanical Engineer, Eagle Scout***

My Portfolio

## Education and Skills

**University of California San Diego,** *La Jolla, CA* Sept. 2021 - June 2025
**Mechanical Engineering,** Bachelors of Science GPA: 3.24
**Skills:** Fusion 360 (Autodesk Certified), AutoCAD (Autodesk Certified), Solidworks, Inventor, Matlab, Manual Mill and Lathe, CNC, Laser Cutting, Microsoldering, Additive Manufacturing, Rapid Prototyping, Designing for Manufacturability, ROS2

## Professional Experience

**Kautex- Textron,** *Avilla, IN* June 2023 - Sept. 2023
**Intern, Manufacturing Engineering**

- Designed and tested 'Poka-Yoke' mechanism to validate force output of quality control devices, preventing a previous failure that had previously resulted in tens of thousands of defective products
- Reconfigured robotic vision software with a global zero, eliminating a tolerance stacking issue responsible for consistent false negative results from the new automated quality control
- Using PowerApps, integrated a communication hub into the existing Office 360 environment facilitating automatic tech-to-tech and tech-to-supervisor shift reports across all manufacturing lines
- Created an application to generate an automatic PARETO analysis of downtime caused by out-of-stock spare parts. Implementation of this program would ensure that 80% of parts-related downtime from the past 24 months would be avoided with just a 1% increase in spare parts inventory value.

**Flow-Turn Inc,** *Union, NJ* June 2022 - Sept. 2022
**Intern, R&D and Engineering**

- Built and tested sprocket driven conveyor-merge prototypes, seeking to replace traditional friction-driven designs with known reliability and controllability issues
- Reduced project lead time from days to hours scale by integrating previously outsourced laser cutting to the in-house production workflow by coordinating the installation of an AMADA fiber-optic laser cutting machine
- Assembled one-off orders for customers who required specialty sensing capabilities or other features outside of the standard manufacturing processes

## Extracurriculars

**Suspension Subteam:** *Triton Baja SAE*

- Designing double wishbone suspension for the first buggy that Triton Baja has produced. Combined Solidworks and Hexagon's Adams Car to validate suspension/steering geometry and to simulate overall dynamics of the system prior to manufacturing to ensure optimal responses are achieved in uncertain conditions

**Mechanical Design Team:** *Triton AI*

- Designed sorbothane damping mounts for electronics subframe, isolating sensitive electronics from vibrations and impacts while the kart competes in the Autonomous Karting Series

**President:** *Interfraternity Council at UCSD*

- Presided over the largest student organization on campus, interfacing with campus officials and presidents from each fraternity to organize the community into a safer, more inclusive space

## Technical Projects

**Wave-Enabled Energy Generation Device (Patent Pending):**

- Presented at ASEE, Cal-Poly Pomona, April 12th 2025 and ASME, San Diego, April 25th 2025
- Iteratively tested materials and sealing features to meet performance and ocean compatibility goals
- Optimized fluid distribution and medium pressure seal of a modular 3D printed manifold.
- Developed a test fixture with real-time data acquisition for evaluating multi-channel configurations and changing flow rates to optimize microchannel geometry and performance.
- Achieved nano-watts of power generation per unit, two to three orders of magnitude greater than existing literature had proved possible, at a fraction of the cost and manufacturing time

**MAE 148 Autonomous Vehicles: El Cochito:**

- Designed and programmed a self-driving RC car powered by a VESC, NVidia Jetson Nano, OAk-D RGBD camera, LD06 lidar, and GNSS board. Using a combination of deep learning, PID tuning, and a ROS2 AI model, achieved autonomous lane tracking, obstacle recognition, and point to path navigation
- Concluded with the implementation of a pose estimation model capable of responding to various student postures such as raising their hand, standing, and laying their head down