



# NANDAN SESHADRI

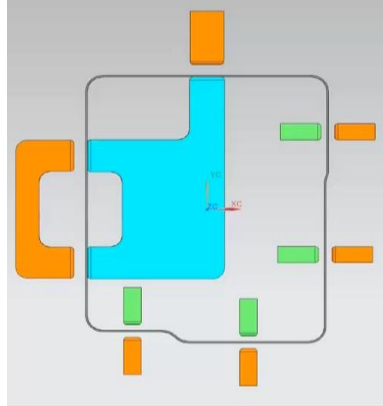
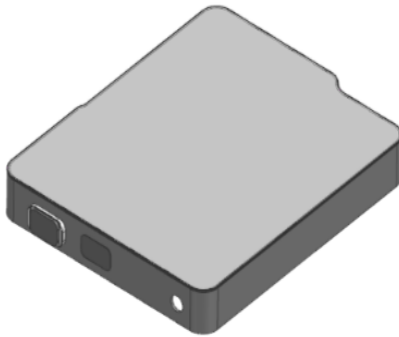
Mechanical Engineer - University of California San Diego

 nandansesh2011@gmail.com

 [linkedin.com/in/nandan20](https://www.linkedin.com/in/nandan20)

 (858) 250-9047

## DESIGN AN FIXTURE APPLE WATCH BATTERY @Apple - September 2024



### What?

- Develop an inspection fixture to inspect **flexible frames of thickness 150 microns**.

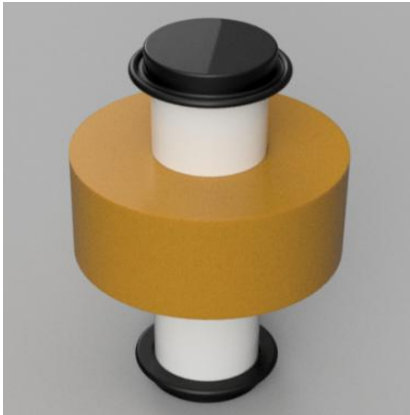
### How?

- Developed a **displacement-controlled inspection fixture** to inspect frames before battery assembly.
- Conducted tolerance analysis to ensure fixture tolerances are greater than **4 sigma**.

### Results

- Inspection fixture is used to inspect & qualify flexible frames for **Apple Watch batteries**.

## DESIGN AND FABRICATION OF A WAVE DRIFTER @UCSD - March'24



### What?

- Design and fabricate a **wave drifter** to measure ocean currents in a team of 5.

### How?

- Used **Fusion 360** to design electronics enclosure and used **FDM printer** to 3D print parts.
- The design is made of PVC pipe and drain plugs with a Surlyn foam used to keep it afloat.
- Used **Arduino Mega**, **IMU** and **GPS** to track the position of the drifter when deployed in the ocean.

### Results

- The design was proved **water resistant** when a teammate swam the drifter past the surf zone and returned an hour later with the device fully intact.

## HAPTIC BOXING GLOVE @UCSD - March'23



### What?

- Design and fabricate a **boxing glove simulator** that provides haptic feedback when interacting with the virtual environment in a team of 3.

### How?


- Used **SolidWorks** to design the components of device and 3D printed parts on a **FDM printer**.
- Used **Arduino Mega** and **motors with encoder** to control the position of device in real-time.
- Processing** was used to render and display a boxing glove and punching bag.

### Results


- The final product worked successfully when tested on **12** different users with various fist sizes.

# NANDAN SESHADRI

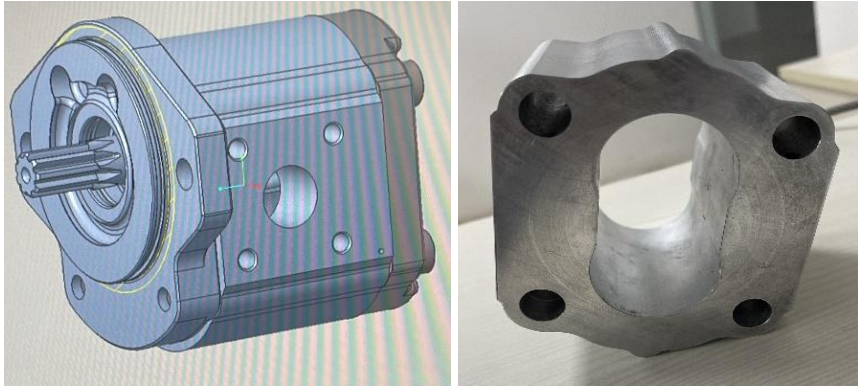
Mechanical Engineer - University of California San Diego

 nandansesh2011@gmail.com

 [linkedin.com/in/nandan20](https://www.linkedin.com/in/nandan20)

 (858) 250-9047

## DESIGN OPTIMIZATION OF GEAR PUMP @REXROTH BOSCH - January'22



### What?

- Optimize the design of a **gear pump** to reduce the material to make the pump cost effective and lightweight to reduce annual production cost.

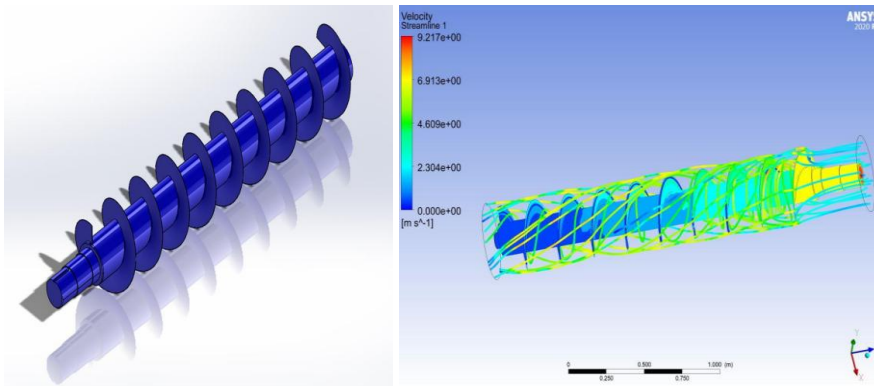
### How?

- Used **PTC Creo** to design 3 different prototypes of the gear pump and used **GD&T** on the drawings.
- Used **FEA** to understand various fracture points of the pump.
- Tested the prototypes on a test bench for 100 hours to obtain the optimal design.

### Results

- Implemented **DFM** principles to reduce production cost by **\$1.2M**.

## VANE DESIGN OF A SPIRAL WATER TURBINE @VTU – June'21



### What?

- Design the **vanes** for a low-cost spiral water turbine to generate power for household applications in a team of 4.
- Simulated various flow velocities to understand the behavior of the vanes.

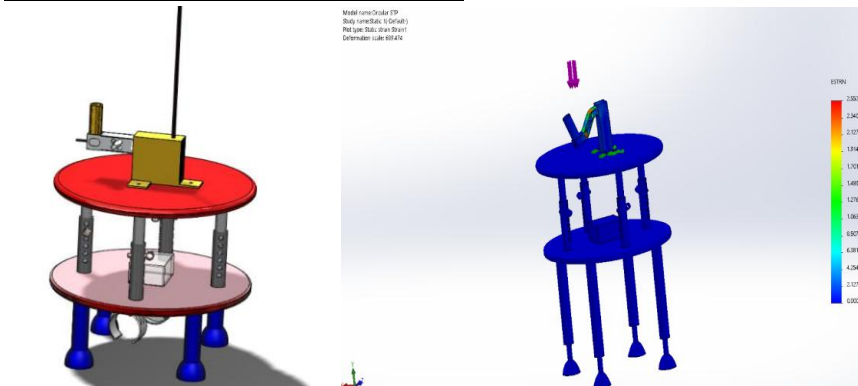
### How?

- Designed the vanes on **Solidworks**.
- ANSYS Fluent** was used to simulate the blades at various flow velocities.

### Results

- The final design blade design was simulated at 15m/s, 20m/s, and 25m/s to visualize flow.

## STATIC TEST PAD FOR ROCKET MOTOR @STAR - December'20



### What?

- Designed a **Rocket Motor Static Test Pad** for testing and collecting data to analyze the performance of the high-powered rocket motors.

### How?

- Designed the components of the test pad on **Solidworks**.
- Used **FEA** in **SolidWorks** to calculate the maximum load the test pad can handle.

### Results

- The test pad can handle up to **150N** which displays a good strength to weight ratio when simulated at various loads.
- The design is ergonomical to transport and reuse at ease.