Pete Cowling

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EDUCATION

PURDUE UNIVERSITY NORTHWEST: College of Engineering, Honors College

Bachelor of Mechanical Engineering ***December 2023***

Distinctions: Dean's List, Honors College Grad, Highest Distinctions Grad, CES Ambassador, Baja President, Student of the Month

PROJECTS/COMPETITION

Purdue University Northwest Baja SAE ***September 2021 – December 2023***

Team President and Captain

- Grew a team of three members to 17 active members in 8 months and 25 active members in 12 months
- Managed and scheduled nine engineering design teams to create a competitive Baja SAE vehicle
- Integrated nine subsystems to improve overall score team placement from 71st to 26th in four months
- Raised approximately $40k/year through sponsors, donors, and relevant engineering connections
- Managed cost reports, cost reduction reports, design review briefings, and two 3rd place business presentations

Drivetrain Lead

- Designed and manufactured two custom drivetrains in SolidWorks and Fusion 360 CAM for off-roading vehicles
- Selected and tuned the v-belt CVT as the vehicle transmission for an optimal engagement rate
- Built the quickest and lightest vehicle in Purdue Northwest Baja history; also the first 4WD vehicle in school history
- Analyzed the driveline system with FEA and physical testing to find and fix several failure points

Honors College Research Student ***September 2022 – May 2023***

Multivariate Calculus | Mathematical and Visual Optimization Analysis

- Used MATLAB and Maple to code and run linear regression for a generated 3D topology and found global minimum
- The global minimum was used to find the fastest route between 3 theoretical warehouses for logistic shipping route

Experimentation | Wheel Upright Weight Reduction Modeling and Testing

- Modeled weight-reduced uprights for the Baja vehicle using FEA and loading from a 6' drop with 10" suspension travel
- Analyzed a total of 6 designs using SolidWorks analysis for load, fatigue, and topology to choose the best design

ENGINEERING WORK EXPERIENCE

Starlink Mechanical Engineer | SpaceX ***May 2024 – Present***

- Created automated flipping station for completed V4 user terminals that decreased maintenance from every 60k cycles to every 4M cycles
- Mechanically designed the entire phased-array antenna stack for V4 Performance, Starlink's most rugged product
  - Performed tolerance analysis to reduce maximum antenna misalignment by 19.75% from V4 and avoid enclosure interferences
  - Thermally analyzed for each layer to calculate misalignment from CTE mismatch and avoid buckling interferences
  - Created drawings for all parts using GD&T, and worked with vendors and in-house tooling to mass produce parts
- Designed a fully automated heat staking station for the antenna stack that is 10% cheaper and 25% less maintenance than the V4 station
- Designed a fully automated leak checking station that can detect any leaks in the product with practically no maintenance needed
- Currently designing more future products and stations that will provide cheap, fast, convenient internet to everyone!

New Product Introduction Data Intern | Tesla ***May 2023 – December 2023***

- Optimized queries for two Tableau dashboards to reduce runtime by more than half (saving 2 hours) daily using MS-SQL
- Created/Developed three separate Tableau dashboards used daily for quality and inventory control purposes
- Located and controlled over $1M in uncontrolled inventory, then helped host an internal tire sale selling 85% of items
- Collaborate across Global Best Practice, Inventory Control, Production Control, Quality, and NPI teams for special projects
- Developed two applications using Power Apps, one for quality and one for service, used by Tesla daily

Engineering Intern | Orbital Engineering ***June 2021 – April 2023***

- Developed and updated SWDs, P&IDs, and assembly drawings for BP, Praxair and Linde, Cargill, and US Steel processing
- Designed two fluid models to dynamically simulate fluid flow processes to size pumps and pipes through many scenarios
- Scanned, registered, and processed LiDAR data points for 3D engineering use to reduce installation cost and improve safety

SKILLS

Software Skills

- SolidWorks, NX, AutoCAD, Fusion, Fathom AFT
- Intermediate SQL, Basic Python, Ruby, MATLAB
- Power Apps, Automate, SharePoint, Excel, etc.

Individual Skills

- Dedication and internal motivation
- Self-learning and relentless problem solving
- Clear, concise, and direct communication

VOLUNTEER WORK

I have volunteered over 1200 hours inviting people to church in one-on-one conversations, 100 hours managing a 5th grade class, 600 hours teaching and entertaining a 3rd grade or 5th grade class, nearly 1000 hours working with children and special needs people in low-income homes, and I have volunteered as a large group entertainer for 1st to 5th grade students while in Austin, Texas.