XANDER WELLS

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Education

Purdue University - West Lafayette, IN Class of Winter 2024

Bachelor of Science in Astronautical and Aeronautical Engineering GPA 3.84/4.0

Professional Experience

Relativity Space, *Propulsion Manufacturing Engineering Intern* May 2024 – Aug 2024

- Reduced CdA measurement uncertainty 5X for N2 gasflow test stand. Doubled hardware compatibility to include ability to test AN-orifices. Done via extra flow paths/valves,, uncertainty calculation revamps, PT sensor sourcings/installs, etc
- Eliminated critical QD hose whip safety hazard through detailed Tier 1 design, analysis, and release processes
- Designed 2x balance arbors and created procedures for component-level match balancing of life-limited turbine hardware
- Designed, analyzed, drafted, and procured 2x 5000psi dev tooling articles for main igniter proof and FOD backflush
- Performed design trades & feasibility demo/calcs for patternator to measure main injector per-element flow distribution

Zipline International, *Fixture Design Engineering Intern* Jan 2024 – May 2024

- Enabled company milestone path progress via clean-sheet design of all 17 fixtures for 1 of Zipline's 3 main products
- Eliminated $82k/year hardware risk by designing fixture to prevent winch rope tangling/unwinding during build & shipping
- Created snap-on propeller guards to prevent injuries & hardware damage, while protecting extremely fragile motor coating

SpaceX, *Starship Components Manufacturing Engineering Intern* May 2023 – Aug 2023

- Owned design-thru-test of modular seal tester valve (50-600K @ 9ksi). Cut build time 3x & enabled better measurements
- Created company-wide fixture plate DFX guide to cut lead-time by 50%. Machined 3x vibe fixture plates for Starship FTS
- Drawing checker for new 9-piecepart flight valve design. Owned GD&T, DFM, & manufacturing. All parts met form & fit reqs
- Procured $2k FDM printer + accessories for drastic 5S upgrades. Created documentation, training, & practical demo parts

Purdue Composite Manufacturing & Simulation Center, *Composite Research Intern* Jan 2023 – Present

- Supporting development of carbon fiber detector segment superstructure for the CMS Large Hadron Collider phase II upgrade, through prepreg carbon fiber layups, ply drape simulations, and machining of CF / graphite filled polymers

Pratt & Whitney, *Manufacturing / Industrial Engineering Intern* May 2022 – Aug 2022

- Identified an 80% disparity between actual vs system-reported statuses for 18 PVD machines through extensive system monitoring. Created action plan to improve operator performance by 25%. Automated all associated data entry with VBA
- Developed online time logging system, simplifying a tedious, frustrating task and saving 30-60 minutes / user / week
- Created VBA interface to assist categorization and transfer of 900+ time standards to online management database
- Calculated average lead-times of 230k+ operations across 4 parts & 100+ op. types. Cut runtime from 1 week to 1 hour

Purdue Bechtel Innovation Design Center, *Manufacturing Teaching Assistant* Oct 2021 – Nov 2022

- Established lab layout, authored $15k+ purchase list, and ideated student workshops for brand-new composites lab
- Conducted Fusion 360 CAM/CAM consults & taught students how to operate 3/5 axis CNC mills & lathes, waterjets, etc

Technical Experience

Composites Lead, *Purdue Solar Racing* Dec 2022 – Present

- Coordinated and performed 20+ composite processes within 3 months including Purdue's 2 largest undergrad layups
- Created mold design, chassis design, and managed member projects needed to complete our next car for ASC 2024

Skills

Manufacturing - ***Haas / Okuma****:* 3 & 5 Axis Mill, 9 Axis Millturn, Live Tooling Lathe; ***Misc:*** 3D Printing, Waterjet, Shop Tools

Software / Drafting - NX, Labview, Solidworks (Certified Solidworks Professional), Fusion 360, CATIA CAM, ESPRIT, GD&T

Programming - MATLAB, Python, JavaScript / React, Excel VBA **Language -** Chinese Reading, Typing, and Speech Fluency