Danny Tran

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Career Objective

New grad seeking engineering position to apply my technical skills for developing a career adept in aerodynamics, propulsion, composites, and additive manufacturing in the aerospace industry.

Education

BS in Aerospace Engineering, GPA: 3.06 *Expected Graduation: June 2020*
University of California, San Diego (UCSD)

Technical Skills

- CATIA V5
- Creo/ProE
- SolidWorks
- AutoCAD
- ANSYS
- MATLAB
- C++
- Python (WIP)
- Hypermesh (WIP)
- Nastran/Patran (WIP)
- GD&T (ASME Y14.5)
- Blue Light Scanning
- Laser Tracking
- ATOS Pro
- Verisurf

Professional Experience

General Atomics - Aeronautical Systems Inc. (GA-ASI) || Poway, CA *Jun 2019 - Aug 2019*
Composite Tooling Intern

- Fabricated a mockup carbon fiber with honeycomb core composite bulkhead for MQ-9 Reaper (Predator B) to be inspected for proper fitting inside its fuselage
- Repaired leak in landing gear joggle layup mold for Predator B fuselage using a carbon fiber wet layup patch and structural adhesive paste
- Vacuum bagged 5 composite tools (prepreg: 4 carbon fiber & 1 fiberglass) for oven and autoclave cures
- Assembled skins, ribs, conduits, and spars for a Predator B wing using adhesives and composite wet layups
- Inspected and repaired 7 wing rib trim and drill assembly fixtures to ensure dimensional and contour integrity via model-based inspection using a laser tracker with Verisurf for QA per engineering drawing
- Laid out hole and trim profiles from CAD models onto 6 wing ribs meeting specified GD&T (ASME Y14.5) via blue light scanning in ATOS Professional

Additive Rocket Corporation (ARC) || La Jolla, CA *Oct 2018 - Jun 2019*
Mechanical Engineering Intern

- Performed and troubleshot Design of Experiments (DOE) of static structural and convective heat transfer simulations in ANSYS to gather data for machine learning design optimization of rocket engines
- Designed parametric model of turbopump housing and impeller in SolidWorks for additive manufacturing in inconel 718 using Direct Metal Laser Sintering (DMLS)

DroneLab - Qualcomm Institute - Dr. Falko Kuester Lab || La Jolla, CA *Apr 2018 - Present*
Aerodynamics & Aerospace Structural Research Assistant

- Spearheading the development of 3D printable composite chevron shrouds to improve noise reduction for mitigating environmental disturbances for a 6-rotor Unmanned Arial Vehicle (UAV)
- Investigating possible manufacturing techniques to increase heat resistance of drones for fire reconnaissance
- Maintaining, repairing, and diagnosing operation issues for 5 of the lab's FDM 3D printers (3 Ultimaker & 2 3D Platform) to ensure proper functioning for colleagues' on-demand needs
- Simulated a hexacopter in 5 different adverse near-wall flight scenarios to determine imposed forces for optimizing its control system for flight stability through Computational Fluid Dynamics (CFD) simulations in ANSYS
- Resolved long-term issues of evaluating a canard prandtl box wing's fight performances in an aerodynamic CFD analysis to advance the 1st prototyping of a Vertical Take-Off and Landing (VTOL) UAV capable of lifting 6kg

Rocket Propulsion Laboratory || UCSD *Nov 2016 - Sept 2018*
Co-Founder, Lead Analysis Engineer

- Co-founded the organization dedicated to inspiring a current membership of ~70 students now developing a rocket to become the 1st university team to design, build, and launch a liquid-propellant rocket into space (330,000ft)
- Mentored colleagues on fundamentals of performing Finite Element Analysis (FEA) and CFD analysis using ANSYS
- Tested propulsive performances of a liquid oxygen/methane engine through a CFD combustion analysis to determine a maximum gas flow speed of Mach 2.8
- Initiated a design trade study on dampening acoustic/combustion instability in liquid propellant rocket engines to prevent performance declination and catastrophic engine failures
- Performed a Fluid-Structure Interaction (FSI) analysis on an engine to ensure no yielding during operation

Triton Rocket Club || UCSD *Sept 2016 - Mar 2018*

Propulsion Project Manager

- Led the development of the 3rd iterative nozzle design for a rocket to be the 1st solid-propellant rocket launched into space by a collegiate organization
- Created and managed a bill of materials (BOM) for a propulsion system consisting of 15 parts in preparation for a static fire test on a budget of $2500
- Interfaced with 8 project managers to ensure seamless knowledge transfer and to maintain current documentation for all rocket design parameters

Propulsion Engineer

- Designed an aluminum nozzle extension for an ablative-cooled solid-propellant rocket using SolidWorks
- Optimized the nozzle extension's design for propulsive efficiency upon performing hand calculations
- Applied GD&T to rocket nozzle components for manufacturability using the ASME Y14.5 standard

Fusion Hip-Hop Dance Competition Association || UCSD *Jan 2017 - May 2018*

Sponsorship Committee Chair

- Coordinated 3 fundraisers and oversaw the acquisition of 6 sponsors and 4 vendors for one of the largest dance competitions in the West Coast with a growing audience of ~2,000 people
- Mentored a team of 13 new recruits on writing letterheads and partnership proposals
- Served as the liaison between 10+ sales representatives and ~90 Fusion staff members through emailing and phone calls on a weekly basis
- Laid out a workflow to track and contact all past and current relationships with food, dance, and merchandise companies nationwide to ease future committee chairs in donation and monetary acquisition

Publications & Presentations

- **Tran, D.**, Kuester,F. *Chevron Shrouds to Mitigate Noise of Multirotor UAVs*. Expected paper presentation at 26th AIAA/CEAS Aeroacoustics Conference 2020.
- Strawson J., **Tran, D.**, Cao, P., Bewley, T., Kuester,F. *Multirotor Airframe Design with Rotor Orientations Optimized for Fully Actuated Feedback Control*. Expected paper presentation at ICRA 2020 - International Conference on Robotics and Automation.
- De Vivo, L., **Tran, D.**, Kuester,F. *Toward Design of a 3D Printable Prandtl Box-Wing Unmanned Aerial Vehicle*. Paper Presented at 2019 IEEE Aerospace Conference. DOI: 10.1109/AERO.2019.8741628

Professional Development

- ANSYS Inc. Certificate of Training: Mechanical Heat Transfer, Fluent Combustion, Fluent Aeroacoustics