Danny Tran

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Education

Bachelor of Science (B.S.) in Aerospace Engineering, GPA: 3.1 *June 2020*
University of California, San Diego (UCSD)

Technical Skills

- CATIA V5
- Creo/ProE
- SolidWorks
- AutoCAD
- ANSYS
- MATLAB
- C++
- Python
- Hypermesh
- Nastran/Patran
- GD&T (ASME Y14.5)
- Blue Light Scanning
- Laser Tracking
- ATOS Pro
- Verisurf
- Additive Manufacturing
- Metal Lathe
- Vertical Mill
- Wind Tunnel
- OpenMDAO

Professional Experience

Large-Scale Design Optimization (LSDO) Laboratory - Dr. John T. Hwang Lab || La Jolla, CA *Oct 2019 - June 2020*
Multidisciplinary Design Optimization (MDO) Research Assistant

- Developed wing internal structure models in Python for an Electric Vertical Take-Off and Landing (eVTOL) Urban Air Mobility (UAM) vehicle facilitated by using NASA's OpenMDAO framework for design optimization
- Implemented Finite Element Method (FEM) into structures models to analyze aeroelasticity of beams

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

- Fabricated a mockup carbon fiber with nomex honeycomb core bulkhead for MQ-9 Reaper (Predator B) for a fit check inspection 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
- Laminated and vacuum bagged 5 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 with ATOS Professional

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
- Wrote grant proposal to secure $1000 for funding independent research in noise mitigation of the 6-rotor UAV
- Maintained, repaired, and diagnosed operation issues for 5 of the lab's Fused Deposition Modeling (FDM) 3D printers (3 Ultimakers & 2 3D Platforms) 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 using Computational Fluid Dynamics (CFD) simulations in ANSYS
- Resolved long-term issues of evaluating flight performances of a canard box wing by conducting a Design of Experiments (DOE) through CFD analyses to advance the 1st prototyping of an eVTOL UAV capable of lifting 6kg

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 all past, current, and future relationships with food, dance, and merchandising businesses nationwide to ease future committee chairs in donation and monetary acquisition

Rocket Propulsion Laboratory || UCSD *Nov 2016 - Sept 2018*

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 minimize 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

Publications & Presentations

- Strawson, J., Cao, P., **Tran, D.**, et al., "Multirotor Airframe Design with Rotor Orientations Optimized for Fully Actuated Feedback Control", Expected publication by *2021 AIAA AVIATION Forum*.
- De Vivo, L., **Tran, D.**, and Kuester, F., "Toward Design of a 3D Printable Prandtl Box-Wing Unmanned Aerial Vehicle", *2019 IEEE Aerospace Conference*, DOI: 10.1109/AERO.2019.8741628.

Professional Development

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