BRANDON REDDISH

Graduate Student Researcher

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EXPERIENCE

University of California, Davis

Graduate Researcher

September 2018 – Present Davis, CA

- Conducted hypersonic CFD simulations to characterize the effectiveness of control surfaces on blunt bodies during reentry
- Developed geometry and meshes from published literature and used published results of wind tunnel tests to verify CFD simulations
- Processed large data sets of CFD results using csh and python scripting

Undergraduate Researcher

October 2016 – June 2017 Davis, CA

- Characterized flow under a small propeller for use on an agricultural drone
- Designed and built apparatus to measure the flow field beneath a rotor with an Arduino and pitot tube

NASA Ames Research Center

Graduate Student Researcher

October 2018 – Present Moffett Field, CA

- Generated full aerodynamic databases for a deployable reentry vehicle using CART3D and CBAERO
- Navigated and leveraged high performance parallel computing resources from the NASA Advanced Supercomputing Division to run large CFD cases
- Created CAD models and meshes for multiple vehicle configurations
- Studied the aerodynamic and thermal environment of super and hypersonic flow with shock interactions

Northrop Grumman

Aeronautical Engineer

July 2017 – September 2018 Sunnyvale, CA

- Ran CFD simulations and generated meshes for cases with multiphase flow, reactions and overset grids
- Worked with a team to develop in-house codes for processing test data from over a hundred channels
- Developed an aerothermal code in Python from an existing FORTRAN code
- Authored a variety of technical reports and prepared basis of estimate documents for project proposals
- Performed analysis for system qualification and advanced development

Air Spray USA

Student Engineering Intern

June 2016 – August 2016 Chico, CA

- Designed and prototyped a weight sensing system for landing gear
- Rewired portions of BAE 146 electrical system using schematics and manuals
- Designed and installed insert for structural member of BAE 146 airframe

EDUCATION

M.Sc. in Mechanical & Aerospace Engineering

University of California, Davis

September 2018 – August 2020 (Expected)

- **Publication:** Nikaido, Ben, Zane B. Hays, and **Brandon J. Reddish**. Pterodactyl: Aerodynamic and Aeroheating Database Development for Integrated Control Design of a Mechanically Deployed Entry Vehicle." AIAA Scitech 2020 Forum. 2020.
- GPA: 3.88

B.Sc. in Mechanical Engineering

University of California, Davis

September 2013 – June 2017

B.Sc. in Aerospace Engineering

University of California, Davis

September 2013 – June 2017

SKILLS

Programming: Python, MATLAB, R

CFD Codes: CART3D, CBAERO, FUN3D, CFD++

CFD Tools: Pointwise, Tecplot, ParaView, Gmsh

Additional: Linux, SolidWorks, PBS, Git, LaTeX

ADDITIONAL

- FAA Private Pilots License
- Toastmasters Sergeant at Arms
- UC Davis Traithlon treasurer and VP of membership
- Wrote 2D hypersonic CFD finite difference code in Python