

Logan Halstrom

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EDUCATION

- **University of California, Davis**

Davis, CA

Ph.D. Mechanical and Aerospace Engineering (GPA: 3.86)

Sep 2013 – Sep 2020

- Thesis: Computational Fluid Dynamics Simulation and Validation of Parachute Pendulum Motion
- Advisor: Dr. Stephen K. Robinson
- 6 full academic years of graduate education

B.S. Aerospace Engineering and B.S. Mechanical Engineering (GPA: 3.72)

Sep 2008 – Jun 2013

- Graduated with College Honors
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EXPERIENCE

- **Johnson Space Center, National Aeronautics and Space Administration**

Houston, TX

Total Experience: 7 tours, 90 weeks

NASA Pathways Intern, Applied Aeroscience and CFD Branch (EG3)

Jun 2014 – Present

- **Responsibilities:**

- Designed and analyzed crewed spacecraft using Computational Fluid Dynamics and hydrodynamics simulations
- Performed risk analysis and verification and validation oversight of aerospace vehicle design
- Created computational grids for modeling complex geometries and performed sensitivity studies
- Generated informative visual representations and animations of aerodynamic flow solutions

- **CFD Simulation and Analysis Projects:**

- Oscillatory motion and unsteady aerodynamics of crew reentry vehicle parachutes
- Dynamic loading and failure of wind tunnel wall panels due to blockage from moving parachute
- Crew capsule separation during launch abort and analysis of unsteady proximity aerodynamics
- Transonic aerodynamic stability analysis for atmospheric reentry data probe spacecraft

- **Aerodynamics Design Products:**

- Parallelized genetic algorithm for design optimization of the Orion Flush Air Data System (FADS) sensor array, calibrated and validated by comparison to Monte Carlo simulation
- General-use FADS trajectory reconstruction algorithm to facilitate team collaboration
- Novel design optimization metric for FADS robustness based on uncertainty quantification

- **Supervisors:** Ben Kirk, Steve Labbe

USRA Intern, Aircraft Operations Division (CC3)

Jul 2013 – Sep 2013

- **Responsibilities:**

- Developed and executed flight experiments
- Managed aircraft operations logistics and applied knowledge of aeronautical flight systems

- **Projects:**

- Designed and directed a pitot-static calibration flight test for the WB-57 aircraft
- Performed experimental validation of GPS ground speed based pitot-static calibration technique
- Drafted a Flight Test Plan and presented in a Test Readiness Review and safety assessment
- Created Engineering Work Orders for test-related aircraft modifications
- Assisted with Reduced Gravity Operations safety inspections

- **Supervisors:** Son Nguyen, Gregory Johnson

Graduate Student Researcher, Center for Human/Robotics/Vehicle Integration and Performance

Sep 2013 – Present

■ **Responsibilities:**

- Planned and conducted research involving applied Computational Fluid Dynamics
- Supervised experiments in airport hangar laboratory and managed facility repairs
- Maintained software and engineering programs for research lab

■ **Research:**

- Performed multi-disciplinary CFD simulations of rigid-geometry parachute motion
- Validated and calibrated simulations by comparison to wind tunnel test
- Analyzed results for insight into root cause of dynamic instability of fully-deployed parachutes

■ **Principal Investigator:** Dr. Stephen K. Robinson

Teaching Assistant, Department of Mechanical and Aerospace Engineering

Sep 2013 – Present

■ **Responsibilities:**

- Created senior-level course materials to teach modern industry concepts and techniques
- Held weekly lectures and office hours and fielded student questions about subject matter
- Graded exams and project reports and managed special circumstances for students

■ **Courses Taught:**

- *Applied Aerodynamics*: Compressible/Transonic flow, viscous effects and boundary layer theory, finite wings, aircraft equilibrium, panel methods
- *Computational Aerodynamics*: 2D finite difference Euler methods, transonic small-disturbance theory
- *Stability and Control of Aerospace Vehicles*: State-space representation, longitudinal and lateral stability
- *Rocket Propulsion*: Fluid and thermodynamics of liquid and solid rocket engines

■ **Supervisors:** Dr. Stephen K. Robinson, Dr. Mohamed Hafez, Dr. Ron Hess, and Dr. Jean-Pierre Delplanque

PROFESSIONAL AFFILIATIONS & ACTIVITIES

- **American Institute of Aeronautics and Astronautics**, UC Davis Chapter
Member

Davis, CA
2011 – Present

- **Educational Outreach**, UC Davis
HRVIP Coordinator, UC Davis Picnic Day

Davis, CA
2014 – 2019

- Organized and coordinated Center for Human/Robotics/Vehicle Integration and Performance outreach event
- Provided children and young adults with the opportunity to learn about piloting on flight simulators

Volunteer, University Airport Open House

2014 – 2017

- Volunteered to demonstrate flight simulators and aerospace displays to the public

- **MAE Aerosciences Journal Club**, UC Davis
Co-Founder and Chair

Davis, CA
2016 – 2018

- **Advanced Modeling Aeronautics Team**, UC Davis
Team Captain

Davis, CA
2012 – 2013

- Designed and manufactured an Uncrewed Aerial Vehicle (UAV) optimized for specific mission requirements
- Managed 20 team members throughout all stages of the design process
- Allocated the design process into separate aircraft components delegated to leaders of smaller sub-teams

Team Member

2011 – 2012

SKILLS

Documentation/Presentation: L^AT_EX, Beamer, Microsoft Word, Power Point, Excel, G Suite

Programming: Python, MATLAB, FORTRAN, C++, MPI/OpenMP, Linux, macOS, Windows

Computational Fluid Dynamics: OVERFLOW, OpenFOAM, Chimera Grid Tools, Pointwise, Tecplot 360, ParaView

AWARDS

- **Mechanical and Aerospace Engineering Departmental Fellowship**, UC Davis 2019
In recognition of meritorious accomplishments
 - **Joseph L. Steger Fellowship**, Joseph L. Steger Foundation 2016 – 2018
Fellowship awarded in recognition of outstanding academic record and excellent work in the area of Computational Fluid Dynamics
 - **Group Achievement Award**, National Aeronautics and Space Administration 2017
For development of an advanced heatshield flight experiment as part of the Xby2016 effort helping extend the knowledge of aerothermal and TPS modeling through flight
 - **Outstanding Achievement**, NASA Johnson Space Center Office of Education 2015
For outstanding contributions as an intern for the Johnson Space Center
 - **Service Award**, UC Davis Department of Mechanical Engineering 2013
For service as the captain of the Advanced Modeling Aeronautics Team
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LANGUAGES

English: Native language
Spanish: Basic (speaking, reading, writing)
Russian: Basic (speaking, reading, writing)

INTERESTS

- Backpacking, long-distance running, cooking, gardening, digital photography, acoustic guitar, world travel

[CV created on 04-16-2020]