# Ross B. Alexander


CONTACT INFORMATION

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## EDUCATION

**M.S. Aeronautics & Astronautics**, Stanford University, Palo Alto, CA **05/2021**
*Supported by 3-year Stanford Graduate Fellowship (SGF)*

**B.S. Aerospace Engineering** (Honors), Texas A&M University, College Station, TX **05/2019**

## RESEARCH INTERESTS

Future graduate research is focused on estimation and control of stochastic systems, nonlinear dynamics, optimization, machine learning, decision-making systems, autonomy, and reinforcement learning (RL).

## TEACHING EXPERIENCE

**AERO 430: Advanced Numerical Simulation**, Teaching Assistant
*Texas A&M University, Spring 2018 – Spring 2019*
Numerical and analytical simulation of physical problems in sciences and engineering using applied methods; developing and using numerical techniques for physical problems described by nonlinear algebraic equations, ordinary and partial differential equations.

**MATH 152: Engineering Mathematics II**, Teaching Assistant
*Texas A&M University, Spring 2017*
Differentiation and integration techniques and their applications (area, volumes, work), improper integrals, approximate integration, analytic geometry, vectors, infinite series, power series, Taylor series, computer algebra.

**ENGR 289: Engineering Mathematics**, Teaching Assistant
*Texas A&M University, Fall 2016*
Study of functions, graphs of polynomial and rational functions, radical functions, exponential and logarithmic functions, inequalities, trigonometric functions, fundamental identities, right triangles, trigonometric equations.

## ACADEMIC EXPERIENCE

**Texas A&M University Sounding Rocketry Team (SRT)** **08/2015 – 05/2019**
Texas A&M University, College Station, TX
*Propulsion Lead (06/2018-05/2019), Propulsion Specialist (06/2017-05/2018), Dynamics Specialist (06/2016-05/2017), Business Coordinator (08/2015-05/2016)*

**Undergraduate Researcher** **08/2018 – 12/2018**
Texas A&M University, College Station, TX

**Undergraduate Research Assistant** **01/2017 – 05/2017**
Texas A&M University, National Aerothermochemistry Lab, College Station, TX

## PROFESSIONAL EXPERIENCE

**Machine Learning & Simulation Intern** **05/2019 – Present**
CFD Research Corporation, Huntsville, AL

**Hypersonics Intern** **05/2018 – 08/2018**
CFD Research Corporation, Huntsville, AL

**Computational Analyst Intern** **05/2017 – 08/2017**
Corvid Technologies, Mooresville, NC

## Publications (Unrefereed)

3. Alexander, R. B., Caesar, J. M., Doddanavar, R. C., Doll, J. Q. (2018), *Integrated flight modeling: trajectory analysis and hybrid engine performance*, Extended abstract submitted and accepted for 2018 Spaceport America Cup Conference
2. Alexander, R. B. (2017), *Correlation study of CFD turbulence modeling approaches for an axisymmetric missile concept*, Report produced for Corvid Technologies during Summer 2017 internship
1. Alexander, R. B. (2017), *CFD analysis and optimization of flow deflector geometry for a supersonic free jet*, Extended abstract submitted and accepted for 2017 Spaceport America Cup Conference

**Publications available on personal website*

## Presentations

4. *Integrated Flight Modeling: Trajectory Analysis and Hybrid Engine Performance*, 2019 Texas A&M University Student Research Symposium (SRW), College Station, TX, March 2019
3. *Design, Development, and Testing of a Hybrid Sounding Rocket*, Southwest Aerospace Symposium (AIAA North Texas Chapter), Arlington, TX, September 2018
2. *Integrated Flight Modeling: Trajectory Analysis and Hybrid Engine Performance*, 2018 Spaceport America Cup Conference, Las Cruces, NM, June 2018
1. *CFD Analysis and Optimization of Flow Deflector Geometry for a Supersonic Free Jet*, 2017 Spaceport America Cup Conference, Las Cruces, NM, June 2017

## Honors & Awards

**General James H. Doolittle Scholar** (05/2019), Communities Foundation of Texas (CFT)

*Stanford University*

**Stanford Graduate Fellowship in Science & Engineering (SGF)** (2019-2022)

*Texas A&M University*

**Dean's Honor Roll** (Spring 2016, Fall 2016, Spring 2017, Spring 2018, Fall 2018)
**Larry J. McQuien '76 "Take Flight" Award** (2018-2019)
**Donna and Dub Jett '68 Aerospace Engineering Scholar** (2017-2018)
**Hugh G. Robinson Endowed Opportunity Award** (2015-2019)
**Mildred & Willy F. Bohlmann, Jr. '50 President's Endowed Scholar** (2015-2019)

**Charles Hoult Award for Modeling & Simulation** (06/2017), Experimental Sounding Rocketry Association
**Eagle Scout** (08/2014), Boy Scouts of America

## Professional Memberships

**American Institute of Aeronautics and Astronautics (AIAA)**
**Institute of Electrical and Electronics Engineers (IEEE)**
**Tripoli Rocketry Association**

## Outreach

**Invited reviewer**, public high school rocketry class design review — **02/2019**
Brazoswood High School, Houston, TX

**Invited video Q&A session**, public high school rocketry class — **08/2018**
Brazoswood High School, Houston, TX

**Activity booth**, STEMFest event for Girl Scouts interested in STEM fields — **02/2018**
Texas A&M University, College Station, TX

**Invited video Q&A session**, public high school rocketry class — **10/2017**
Brazoswood High School, Houston, TX

**Event supporter**, Arrowmoon Rocket Day event for Boy Scouts — **09/2017**
Texas A&M University, College Station, TX

**Event supporter**, Arrowmoon Rocket Day event for Boy Scouts — **09/2016**
Texas A&M University, College Station, TX

## References

**Dr. Srinivas R. Vadali,** Professor of Aerospace Engineering, Texas A&M University
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office phone: 979-845-3918

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Huntsville, AL 35806
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