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, machine learning, decision-making systems, uncertainty quantification (UQ), optimization, and model-order reduction.

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 LinkedIn profile*

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
710 Ross Street, HRBB 727B
College Station, TX 77843
email: svadali@tamu.edu
office phone: 979-845-3918

Dr. Adonios Karpetis, Associate Professor of Aerospace Engineering, Texas A&M University
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College Station, TX 77843
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Dr. Ragini Acharya, Director (*Former Senior Principal Scientist*), CFD Research Corporation
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Huntsville, AL 35806
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office phone: 256-726-4884