

Darius J. Carter

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[LinkedIn](#)

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Research Interests

Fluid Mechanics, Aerodynamics, Green Energy, Drone Flight Stability, & Fluid-Structure Interaction

Education

2017 – Present PhD Candidate, Mechanical and Aerospace Engineering, University of Virginia
2013 – 2017 BS, Mechanical Engineering, Minor: Material Science, University of Virginia

Teaching Experience

2020 Teaching Assistant – MAE 3210 Fluid Mechanics
2020 Engineering Program Director Workshop Series for BRIDGE 2020
- Taught over 50 incoming undergraduate engineering students
- Designed and executed three weeks of programming

Research Experience

2017 – Present Graduate Researcher on Near-Boundary Flow Phenomena in Unmanned Aerial/Underwater Vehicles, [Smart Fluid Systems](#) & [Link Lab](#), University of Virginia
2016 – 2017 Research Assistant, [Fluid Research and Innovation Laboratory](#), University of Virginia
2016 Research Assistant, [Bio-Inspired Engineering Research Laboratory](#), University of Virginia

Fellowships & Awards

2019 Professional Development Award sponsored by the Office of Graduate and Postdoctoral Affairs Diversity Programs at University of Virginia

- 2019 [Raven Honor Society](#) at the University of Virginia
- 2018 University of Virginia School of Engineering & Applied Sciences [Dean Scholar Fellowship](#)
- 2018 [National GEM Consortium](#) – University Fellow
- 2017 The Society of P.R.I. at the University of Virginia for academic achievement, community service, and exceptional pursuit of individuality
- 2017 [UVA Today](#): Graduating Class of 2017 Spotlight
- 2016 3rd place in Technical Poster Presentation at the Virginia-North Carolina Louis Stokes Alliance for Minority Participation Research Symposium

Publications

- 2020 **Carter, D**, Bouchard, L, & Quinn, D. Influence of the Ground, Ceiling, and Sidewall on Micro Quadrotors, AIAA Journal, December 2020.
- 2019 Gao, S, **Carter, D**. Exploiting Ground and Ceiling Effects on Autonomous UAV Motion Planning, 2019 International Conference on Unmanned Aircraft Systems
- 2018 **Carter, D**. Insect Residue Height for Different Conditions and Coatings. AIAA 2018 SciTech Forum.
- 2017 **Carter, D**. Investigating the Effect of Insect Fouling on a Hot Airfoil (Undergraduate Thesis), Mechanical and Aerospace Engineering, University of Virginia.

Publications In Preparation

- 2021 **Carter, D**, Quinn, D. Rotor property dependencies in air/water ground effect, AIAA Journal, *In Preparation*.
- 2021 **Carter, D**, Quinn, D. Coaxial rotor wake and performance study in air/water transition region, Journal TBD, *In Preparation*.
- 2021 **Carter, D**, Quinn, D. Flow structures of a rotor breaching the water surface}. Journal Fluid Mechanics, *In Preparation*.

Presentations

- 2019 **Carter, D.**, Mazzatenta, M, Gao, S, Di Franco, C, Bezzo, N, & Quinn, D. Scaling effects on aerodynamic interactions of rotorcraft around boundaries (Presentation), Meeting of the American Physical Society Division of Fluid Dynamics, November 23rd, 2019.
- 2019 Gao, S, **Carter, D**. Exploiting Ground and Ceiling Effects on Autonomous UAV Motion Planning. (Presentation), 2019 International Conference on Unmanned Aircraft Systems, June 13th, 2019.

- 2018 **Carter, D.** How quadcopters could retain high precision near obstacles. (Presentation), Meeting of the American Physical Society Division of Fluid Dynamics, November 18th, 2018.
- 2018 **Carter, D.** Insect Residue Height for Different Conditions and Coatings. (Presentation), AIAA 2018 SciTech Forum, January 8th, 2018.
- 2017 **Carter, D.** Insect Residue Height for Different Conditions and Coatings. (Presentation), GEM Consortium Annual Board Meeting Technical Presentation Competition, September 8th, 2017.
- 2016 **Carter, D. & Bart-Smith, H.** Study of Cetacean Fluke Structures effect on Hydrodynamic Performance. (Poster), Virginia-North Carolina Alliance of Louis Stokes Alliance for Minority Participation Research Symposium, April 4th, 2016.
- 2016 **Carter, D. & Bart-Smith, H.** Study of Cetacean Fluke Structures effect on Hydrodynamic Performance. (Poster), [National Conference of Louis Stokes Alliance for Minority Participation](#), February 23rd, 2016.

Service

- 2020 – Present Search Committee for the Dean of UVA Engineering
- 2020 – Present MAE DEI Task Force on Diverse & Excellent Faculty – Committee Chair
- 2020 – Present Tomorrow Professors Today – Member
- 2019 – Present University of Virginia Graduate Recruitment Initiative Team (GRIT), SEAS Co-Chair
- 2018 – Present University of Virginia Mechanical & Aerospace Engineering Graduate Student Board, Recruitment Chair
- 2018 – Present Black Graduate and Professional Student Organization at UVA, Co-President
- 2016 – Present University of Virginia Class of 2017 Trustee, C’Ville Committee
- 2018 – 2020 Link Lab Student Committee on Culture & Livability, Social Chair
- 2013 – 2020 National Society of Black Engineers, General Member
[National Membership Chair](#), 2018-2019
 Region II Ozone Coordinator & Membership Chair, 2017-2018
 Region II Ozone Coordinator, 2016-2017
 UVA Chapter President, 2015-2016

Outreach

- 2018 – Present Content Tutoring & Mentoring for University of Virginia Athletics
- 2013 – 2018 Weekly Tutor for K-12 students, Zion Union Baptist Church
- 2015 – 2017 Tutor for Physics I, Calculus II, Statics, and Introduction to Mechanical Engineering, School of Engineering and Applied Sciences, University of Virginia

Advising

2019 – 2020	Undergraduate Student Research Assistant Megan Mazzatenta
2018 – 2019	Undergraduate Student Research Team (Caroline Pavlak, Ali Shanoon, Rachel Good, William Clark)
2018 – 2019	Undergraduate Student Research Assistant Justin Robinson
2017 – 2018	Undergraduate Student Research Assistant Peyton Hooker

Professional Memberships

National Society of Black Engineers (NSBE)

American Institute of Aeronautics and Astronautics (AIAA)

American Physical Society (APS)

Black in Robotics

Skills

MATLAB, Solidworks, Autodesk (CAD, Inventor, 3Ds Max), Python, Java, MATHCAD, Photoshop, Illustrator, Premiere, PIV Analysis, Propeller, ROS, Excel

Professional References

Daniel Quinn Ph.D. – Ph.D. Advisor

Assistant Professor, Mechanical & Aerospace Engineering, Electrical & Computer Engineering
University of Virginia, Charlottesville, VA 22902

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Eric Loth Ph.D. – Ph.D. Committee & Undergraduate Research Advisor

Mechanical & Aerospace Engineering Department Chair, Rolls-Royce Commonwealth Professor
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Pamela Norris Ph.D. – Advisor

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