**Anthony (Allen) Aborizk**

***Interim Security Clearance***

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**EDUCATION**

**Ph.D. in Aerospace Engineering, University of Florida |** *Gainesville, FL* **Aug. 2020 – Present**

* Research Assistant in the Space Systems Group (SSG) **Expected Graduation: May 2025**
* Graduate Fellow with the National Science Foundation (NSF)
* Graduate School Preeminence Award (GSPA)

**M.S. in Aerospace Engineering, University of Florida|** *Gainesville, FL* **Expected Graduation: Apr. 2022**

* Focus: Dynamic Systems and Controls GPA: 3.68/4.00
* Affiliations: SSG, NSF, GSPA

**B.S. in Mechanical Engineering, University of Florida|** *Gainesville, FL* **Jan. 2017 –** **Aug. 2020**

* Undergraduate Research Assistant in the DebriSat Lab GPA: 3.27/4.00

**PUBLICATIONS**

* J. B. Bacon, **A. R. Allen**, J. M. Ferrer, J. N. Opiela, M. A. Ward “*X-ray Imagery as the Record of All Data of Interest in Hypervelocity Impact Fragment Studies”* 8th European Conference on Space Debris, Apr. 2021
* **A. R. Allen,** and J. B. Bacon “*Macro-Scale Findings of the DebriSat Debris Field Obtained from X-Rays of the Catch Panels*” International Orbital Debris Conference, Dec. 2019

**RESEARCH EXPERIENCE**

**Space Systems Group (SSG), University of Florida Aug. 2021 – Present**

*Graduate Fellow Gainesville, FL*

* Explored reinforcement learning (RL)-based strategies to estimate trajectories for data-driven space docking control simulation
* Explored quantification of uncertainty in controller designs and hierarchical task managing to simplify complex spacecraft maneuvers

**ADvanced Autonomous MUltiple Spacecraft (ADAMUS) Lab, University of Florida Aug. 2020 – May 2021**

*Graduate Research Assistant Gainesville, FL*

* Explored multivariate mixture models and neural networks in time series to predict energy distributions of warhead detonations
* Tutored 88 undergraduate students in fundamental astrodynamics, wrote exams and provided graded feedback (Teaching Assistant)

**DebriSat Lab, University of Florida**  **Jan. 2018 – Jun. 2020**

*Lead Undergraduate Research Assistant Gainesville, FL*

* Located and digitally replicated 3D satellite fragments embedded in foam panels using stereoscopic, filtering, and color alteration methods on 2D X-ray images generated from a TSA luggage scanner
* Coordinated activity of 40+ DebriSat employees, define and prioritize workload

**PROFESSIONAL EXPERIENCE**

**Air Force Research Laboratory (AFRL) Jun. 2021 – Aug. 2021**

*Control and Reinforcement Learning Intern Eglin Air Force Base, FL*

* Explored (RL)-based strategies to estimate control policies
* Performed research related to autonomous systems, model-based RL control, model predictive control and epistemic uncertainty
* Developed an online, data-driven space docking control simulation using model based RL in tandem with model predictive control

**Power Systems Manufacturing Jun. 2020 – Aug. 2020**

*Monitoring and Diagnostics Intern Jupiter, FL*

* Developed a dual-stage attention-based recurrent neural network (DARNN) for anomaly detection in gas turbine engines
* The above technology will save the company $45k/month compared to vendor services when implemented
* Implemented the DARNN to predict normal behavior and detect anomalies in gas turbine sensors

*Manufacturing Engineer Intern* **May 2019 – Aug. 2019**

* Improved manufacturing processes of 9FA turbine blades using GOM results, statistical analysis and least squared regression fits
* Monitored custom ordered parts throughout manufacturing process and presented finished components to customers
* Created instructional documentation and standard operating procedures for ubiquitous SAP software

**NASA Johnson Space Center**  **Jan. 2019 – May 2019**

*Orbital Debris Program Office Intern Houston, TX*

* Developed an X-ray image processing algorithm in MATLAB to measure satellite debris generated from a hypervelocity impact test
* Modeled size, shape, radar and optical properties of debris items using regression analysis
* Constructed a 3D database in MATLAB to analyze the anisotropy of the breakup and track fragment location

**SKILLS**

* Proficient in Python
* Proficient in MATLAB
* Advanced knowledge in Microsoft Office
* Certified Solidworks Associate (CSWA)
* Trained in LabVIEW
* Trained in Arduino