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

*References available upon request