Dawson Pierce

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EDUCATION / ACHIEVEMENTS

The University of Alabama   Tuscaloosa, AL
Doctor of Philosophy in Aerospace Engineering and Mechanics, 3.765/4.0 GPA   *Aug. 2026*
Masters of Science in Aerospace Engineering and Mechanics, 3.846/4.0 GPA   *Dec. 2024*
Bachelor of Science in Aerospace Engineering with Honors, 3.765/4.0 GPA   *May 2024*

ACCEPT Fellowship
Alabama Collaborative for Contemporary Education in Precision Timing (ACCEPT)   *Aug. 2025 - Jul. 2026*

EXPERIENCE

Laboratory for Autonomy, GNC, and Estimation Research (LAGER)   Tuscaloosa, AL
Graduate Research Assistant   *May 2024 – Present*
- Studying and applying guidance, navigation, and control methods alongside multi-target tracking algorithms
- Contributing mostly to Random Finite Set based projects in varying programming languages

Undergraduate Research Assistant   *Jan. 2023 – May 2024*
- Designed and implemented algorithms to promote autonomous missions, manufactured UAVs

University of Alabama's Division of Student Life, University Recreation   Tuscaloosa, AL
Facility Operations Supervisor   *Sept. 2022 – Jan. 2023*
- Opened facilities, sold equipment, managed and mentored operations associates
- First responder in case of injury or emergency

Facility Operations Associate   *May 2022 – Sept. 2022*
- Cleaned machines, rented equipment, enforced policies, welcomed guests

RESEARCH AND PROJECTS

Dissertation / LAGER / ACCEPT Fellowship
Probabilistic Inference and Estimation using RFS for Coordinated Evasive Drones (PIERCED)   *In progress*
- Application of multi-extended target tracking using radar and infrared sensors for information on multiple UAVs
- Designing and testing a custom software packages for extended-model target tracking
- Fusing timing and frequency products from ACCEPT program into tracking radar solutions

LAGER Projects
Storm Tracking On-orbit using RFS with complementary MOS (STORM)   *Completed*
- Phase I SBIR project for NASA, developed and integrated RFS extended-target tracking solutions for a LEO region of interest tracker for storms based on lighting flashes
- Built multi-extended target tracking (METT) Random Finite Set (RFS) python packages using the Gamma Gaussian Inverse-Wishart (GGIW) model to track the storms in non-labeled and labeled RFS variations

Layer and Interface Trackers for Radar Echograms (LITRE)   *Completed*
- Utilized CFAR algorithms on airborne SAR data, implemented RFS for an automated ice layer tracker
- Designed a GUI to ease the burden of manually tracking the layers to validate results

Flight-time Estimator for Electric SUAS Teams (FEEST)   *Completed*
- Collected battery pulse test data for a state of charge estimator using Arduino and Raspberry Pi
- Implemented Extended Kalman Filter and Sigma Point Kalman Filter algorithms for predicting flight time

TECHNICAL SKILLS

Programming Languages: MATLAB, Simulink, C++, Python, LaTeX, Dockerfile
Hands-On: Soldering, 3D printing, Arduino Programming, Raspberry Pi Programming
Familiar Software: SolidWorks, Fusion360, Onshape, FlightStream, OpenVSP, Visual Studio Code, Photoshop, Illustrator, Inkscape
Soft Skills: Detail-oriented, Adaptable, Collaborative, Self-Driven, Communication