

Florida Tech-AIAA: Going Bigger

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I. Summary

The Florida Tech American Institute of Aeronautics and Astronautics' branch motto is, "The sky is anything but the limit". It's embedded in everything AIAA at Florida Tech does, including founding Florida Tech's Panther Rocket Lab (PRL) which has set lofty new goals for 2025 and beyond, hosting the largest Region II Student Conference in its 75-year history with over four hundred attendees from twenty-two universities across the region, and working with other organizations like Florida Tech's Women in Aerospace (WAE) club and the *Reinvented* Magazine to encourage community engagement and inclusion in the aerospace industry.

Following the temporary adversity of Rook I and the success of Rook II in the spring of 2024, the AIAA at Florida Tech Panther Rocket Lab's (PRL) new project is to become the second undergraduate university to cross the 100-kilometer Kármán Line with a single-stage solid propellant amateur rocket. This cross-disciplinary project is split into seven subsystems including teams such as ground systems that support PRL's testing and launch capabilities, avionics to provide telemetry data and prove mission success, and payload which will be integrating a chip sat into the rocket. All seven different subteams encourage cross-disciplinary work with students from electrical engineering, computer science, civil engineering, and many more to gain project-level experience with aerospace engineering students before their senior capstone project. The Panther Rocket Lab is also an excellent opportunity for students to connect theoretical knowledge from their classes to its application in the real world. This is accomplished using tools such as Finite Element Analysis (FEA) and Computational Fluid Dynamics (CFD) that aren't necessarily taught in the classroom, building on students' C++ or Python coding knowledge through the avionics team, and/or introducing testing procedures and techniques (e.g. leak and hydrostatic testing) to students through ground systems. AIAA at Florida Tech is about building on the work that came before our class and providing additional opportunities for those who come after to continue growing and growing.

AIAA at Florida Tech believes in growing the aerospace community by encouraging and inviting students from diverse backgrounds into STEM fields by working with the Cape Canaveral section branch to host events with the local K-12 schools. In 2024, AIAA FIT volunteered with the local Brevard County schools supporting the science fairs with judges ranking students' science projects and general event assistance. Events like these show kids that they belong in STEM fields as much as anyone else no matter their background or ability because the AIAA at Florida Tech students all came from unique backgrounds, so why can't they? This is so deeply ingrained in AIAA at Florida Tech that our members and alumni work with other student organizations at Florida Tech such as the Women in Aerospace Engineering and events like the Space Gala hosted by *Reinvented* magazine to continue building the STEM community. The *Reinvented* magazine hosts Princesses and Power Tools events that help young women get hands-on experience with drills and other hand tools for the first time. With these organizations, our members support educators across the United States with classroom supplies and opportunities for future STEM students who may not have otherwise received them.

This is how AIAA at Florida Tech has continuously given back to the community and the Cape Canaveral AIAA Section Branch, which has graciously given more than we could have ever asked for. From industry mentors from companies like Blue Origin and Northrop Grumman to tours at NASA and everything in between, AIAA at Florida Tech believes in multiplying the opportunities we've been given. The Florida Tech branch understands that for 50+ years, AIAA at Florida Tech has been "standing on the shoulders of giants" in the greater Melbourne Palm Bay area who have supported AIAA at Florida Tech for so long. We intend to continue to grow the opportunities available to our members, help with job and internship searches, and teach students what the community has shown us for many years: that the sky is anything but the limit.