optimAero

Who we are

An aerobotics design, build, and test house founded in 2018. We work out of a 4,800 sq ft hangar in Tehachapi, CA. The team is led by two Aerospace PhDs from Georgia Tech and is supported by a team of engineers with PhDs, MSs, and years of on-the-job and hobby experience. We combine our passion for flight with our skills in engineering to give our projects the best chance of success.

What we do

Core Competencies

- Guidance, Navigation, & Control (GNC), System Identification
- Autopilot and Ground Control Station (GCS) development
- Modeling and Simulation (flight dynamics, HITL/SITL, avionics)
- Data- and Model-Drive Solutions: SciML, Model Predictive Control, and Reinforcement Learning
- UAS sizing and design from the ground up, prototyping, and flight testing primarily VTOL aircraft
- Automation, beyond-waypoint guidance, GPS-denied flight
- Multidisciplinary Optimization (MDO)
- Hardware and Software Architecture
- Systems Engineering (requirements management, integration, verification, and validation)

Capabilities

- Dev environments: Windows, Linux. MacOS, Visual Studio, Visual Studio Code, QT, Keil, Eclipse, AWS
- Software: CIFER, CONDUIT, MATLAB, Simulink, Cadence, Altium, Eagle, Mastercam, CVI LabWindows, MPLABX, AVR Studio, Xilinx ISE, Vivado, STM32CubeIDE and TouchGFX, CATIA, Solidworks, CFD, Ardupilot, PX4, DJI SDK, GIT, SVN, CMake, digital and analog video processing (thermal/EO)
- Languages: C, C++, C#, Python, SQL, HTML, PHP, JSP, Java, XML, XSLT, YAML, VHDL
- Protocols: CAN, ARINC 429, serial, TCP/UDP, PWM, S.BUS, digital/analog IO, MIL-STD-1553
- Targets: ARM, Atmel, Intel, Gumstix, Beaglebone, Raspberry Pi, PowerPC
- System Test (HITL/SITL), real time operating system (RTOS), unit test
- PCB design, in-house/exported fabrication, test, and population
- Harness design and fabrication (prototype level)
- Rapid prototyping: plasma/laser cutting, water jetting, 3D printing, 4-axis CNC milling/routing, plasma cutting
- Machining: milling, lathing, metal, wood, plastics, composites, Al/steel welding (TIG/MIG/MMA)
- Teaming for proposals (BAA, SBIR, STTR, other grants)
- Flight test support for manned and unmanned aircraft

Trusted by

CAGE: 83L16, UEI: XJ2SJ1MAGAH8, FAA Part 107, SBA Certified Small Business: SBC_001480977

NAICS: 488190, 488999, 511210, 541715, 541511

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