School of Environment and Natural Resources

Uncrewed Aerial Systems Student Research Assistant

Alexander Bransteter – Environment, Economy, Development, and Sustainability

**THIS POSITION WAS LOCATED IN COLUMBUS, OHIO**

**Mission Statement:** To incorporate engineering, business, and behavioral philosophies into a multi-disciplinary approach to the many components of the aviation industry, supporting world-class flight education programs, academic degree programs, research initiatives, and outreach activities on local, regional, national, and international levels.

The Unmanned Aircraft Systems program, recently introduced, is an ever-expanding program being utilized across many majors and independent researchers for research/specialized purposes.

Obtained the position through my supervisor, Chris Strasbaugh, at Engineering Technology Services.

**DRONE MODELS**

- The Alta X
- WingtraOne Gen II (Main Drone Used)
- Dji Phantom 4 Pro V2
- Skydio 2

**FIELD EXPERIENCE**

Navigating the Command Console of the WingtraOne Gen II

Calibrating the WingtraOne Gen II before the flight mission

**DRONE UTILIZATION AND PURPOSE**

Every drone was similar in the capabilities they had, with differences of flight time, weight, load capacity, and camera sensors.

- Lidar Sensor (Alta X)
- Multispectral (Alta X, WingtraOne Gen II)
- RGB (Alta X, WingtraOne Gen II, Skydio 2, Dji Phantom 4 Pro V2)
- Hyperspectral (WingtraOne Gen II)

These sensors were used for researchers wanting to obtain data for farm sites to measure soil and plant health, light reflectance, crop yield, and more.

**FREQUENT DUTIES**

Managed and processed data received from different sensors through Pix4D Mapper and Pix4D Fields; learned a new skill.

Assigned to create informational PowerPoints and budget charts for different majors and independent researchers.

Switching sensors, loading equipment, preparing for takeoff.

**FUTURE ASPIRATIONS/PLANS**

Obtain my Part 107 Certificate to become a certified drone pilot before 2022 ends.

Going into the field of Sustainable Community Development, I can utilize drones for 3D mapping, disaster response, analysis of agriculture, delivery of blood/aid, and more.

- At the beginning of this internship, I was hesitant, and a bit confused on how this applied to my major.
- However, this experience has opened my eyes to the myriad of opportunities and fields drones can encompass; I will certainly be looking for a job in the future that utilizes drones.

Ex: Agriculture, Real Estate, Architecture, Urban Planning, Disaster Relief, Photography/Videography, Mapping, etc.

To anyone interested in a similar field, I have learned a lot of valuable lessons and skills to apply to my future career, and it has helped shape my decision for my career through the experience.

**ACCOMPLISHMENTS**

- Learned to Process Different Data Sets to Produce RGB, Multispectral, and Hyperspectral Maps/Images
- Strengthened Knowledge of the Different Types of Drones and Capabilities
- Enhanced Communication Skills Leading the Informational Booth at the “Drone Rodeo Showcase”

**ACKNOWLEDGEMENTS**

I would like to thank my supervisor, Chris Strasbaugh, and my boss and mentor, Mark Bolin. They gave me the opportunity and tools to become an integral part of the UAS crew and taught me everything about drones. Also, they allowed me to become a better worker, person, and student!