

# Jake Alford

jealford@uga.edu • 706.224.0759 • jakealford.com

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## EDUCATION

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**Bachelor of Science in Computer Systems Engineering  
with Minor in Computer Science**

University of Georgia  
Athens, Georgia  
May 2021  
GPA 3.71

**Bachelor of Business Administration in Finance**

## RELEVANT EXPERIENCE

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### Small Satellite Research Lab

*Electronics Team*

University of Georgia  
March 2020 - Present

- Develop embedded software to command a USB peripheral controller with SPI interface to communicate between the OBC and satellite's image capture subsystems
- Assist in component selection and design of custom PCBs to support integration of satellite subsystems

### BioSensing and Instrumentation Lab

*Researcher*

University of Georgia  
May 2019 - Present

- Lead a team of 5 engineering students to design, develop, and assemble an autonomous drone and sensor system for capturing multispectral images to perform high throughput phenotyping
- Write custom sensor software responsible for data acquisition from microcontrollers and camera modules along with associated data processing pipeline
- Run simulation software to test custom scripts and algorithms before field trials with drone hardware

## PROJECT EXPERIENCE

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### Student Aerospace Initiative

*Advanced Quadcopter Build Team*

August 2018- Present

- Implement custom software on embedded systems of quadcopter to add autonomous functionality and GPS navigation
- Extend drone's GNC systems for off board control and object tracking and following

### NASA's H.E.R.A. Project Red: Ground Control Team

*Volunteer*

February 2019 – March 2019

- Work with a team of 8 engineers to run Martian drilling simulations with 4 NASA astronaut candidates housed remotely in the H.E.R.A module

### American Society of Agricultural and Biological Engineers: Robotics Competition

*Computer Vision Team Lead*

August 2019 - Present

- Program software to coordinate image capture on 4 camera networks based on a physical plant detection system
- Train convolutional neural network for image classification of healthy or stressed plants and plot resultant data to field maps

## TECHNICAL SKILLS

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**Programming Languages:** C/C++, Java, Python, assembly language, PHP, HTML, CSS

**Operating Systems:** Windows, Linux/Unix

**Software:** ROS, Gazebo, Open CV, Tensor Flow, LabView, EAGLE, MS Office, MySQL

## AWARDS

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**2020 UGAHacks 5 – Hackathon** –*First Place Overall* – Awarded first place overall against 70 teams and over 300 participants for our virtual reality, tele-operated robotic arm

## VOLUNTEER WORK

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**Free I.T. Athens - Volunteer** - Collected discarded computer equipment to refurbish machines using open source software that was then donated to nonprofits or sold at a discount back to the community