

# Samson Humphrey

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## EDUCATION

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<b>Master of Sciences in Horticultural Science</b>   North Carolina State University, Raleigh, NC	Jan. 2022-Present
<b>Bachelor of Sciences in Plant Science</b>   University of Florida, Gainesville, FL	Aug. 2019-Dec. 2021
<b>Associate of Arts</b>   Santa Fe College, Gainesville, FL	Aug. 2017-May 2019

## RESEARCH EXPERIENCE

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<b>NCSU Hernández Lab for Controlled Environment Horticulture</b> <b>Graduate Research Assistant</b>	Jan. 2022-Present
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- Conducting multiple experiments on strawberry mother plants and plug plants
- This research finds more efficient ways to propagate strawberries in controlled environments

<b>UF Gómez Lab for Controlled Environment Horticulture</b> <b>Undergraduate Research Assistant</b>	Oct. 2020-Dec. 2021
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- Supported cultivar trials, propagation experiments, and field trials for many species. This includes tracking plant development, measuring morphological/physiological data, designing experiments, installing grow lights, measuring environmental variables, and writing reports
- My research project tested the effects of narrow-spectrum lighting on intumescence injury in tomato, for use in vertical farms and spaceflight environments

<b>UF Rowland Lab for Crop Physiology</b> <b>Undergraduate Research Assistant</b>	Jul. 2020-Oct. 2021
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- Collected physiological data and map root distribution for sesame and peanut experiments
- This research explores how growers can improve irrigation practices by understanding root architecture and root physiology of drought resistant crops

<b>UF/IFAS Center for Aquatic and Invasive Plants, Enloe Lab</b> <b>Undergraduate Research Assistant</b>	Jun. 2018-Oct. 2020
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- Prepared invasive plant experiments, harvested plants and collected/organized data, organized workers' schedules, propagated and maintained a wide variety of plant species
- This research finds better ways to control invasive plants without harming ecosystems

## LEADERSHIP EXPERIENCE

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<b>Podcast Co-Host</b>   <b>American Society for Horticultural Sciences Podcast</b>	Apr. 2022-Present
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- Plan and develop content for the ASHS podcast, set to launch in July 2022

<b>Visiting Scholar</b>   <b>Blue Marble Space Institute of Science, SALAD Database Project</b>	Aug. 2021-Present
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- Review and analyze plant spaceflight studies, compile/organize information into a database
- Lead a team to write a review/protocols paper about regolith simulant research

<b>Team Leader</b>   <b>NASA/Fairchild Growing Beyond Earth Maker Contest</b>   <b>First place</b>	Sept. 2020-Nov 2021
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- Led a diverse team of students to design and build an autonomous plant growth chamber to efficiently grow lettuce in microgravity without any human intervention
- Managed weekly team meetings, organize discussions with experts, hold teammates accountable, analyze literature, facilitate friendly team debates, and much more
- NASA judges selected our growth chamber as the best collegiate design in America

<b>Writer</b>   <b>Astrobotany.com</b>	Jun. 2020-Present
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- Write informational articles about topics relevant to astrobotany (see titles listed below)

- Plan for website redesign and engage the public on social media

**Co-Leader | American Soc. for Gravitational and Space Research, White Paper Writing Team** Jun.-Oct 2021

- Organized materials and communications for a team of over 30 authors including academics, NASA scientists, and private sector researchers (international team)
- We wrote a White Paper for the National Academies' Decadal Survey for Biological and Physical Sciences. White Papers inform the direction of NASA funding for the next 10 years
- This paper is about the need for Artificial Intelligence and Automation research for growing plants in spaceflight environments (space transit, Moon, Mars)
- I was personally asked to co-lead the AI/Automation White Paper by Ralph Fritsche, a NASA Senior Project Manager for Space Crop Production in Support of Deep Space Exploration

**Team Leader | NASA/Fairchild Growing Beyond Earth Maker Contest | Finalist** Jan-Jul. 2020

- Led a team of aerospace/mechanical engineering students to design a space plant growth chamber to maximize lettuce yield in microgravity
- Planned and organized team activities, led team discussions, helped build three prototypes, ran the GAT-01 and GAT-02 trials, collected data, analyzed results, and wrote the final paper
- NASA judges selected our growth chamber as one of the top 5 collegiate designs in America

## **SCHOLARSHIPS & AWARDS**

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**UF University Scholars Program | Award Recipient** Apr. 2020-2021

- This funding (\$2250) supported my intumescence light quality experiment in the Gómez Lab

**ASHS Undergraduate Oral Competition | Second place virtual presentation** Aug. 2020

- Title: Ground Validation Testing of a Novel Plant Growth Chamber Designed for Spaceflight

**Florida Peanut Federation Scholarship | Merit-based contest winner (\$5000)** Oct. 2019

- Title: Peanut Hull Lignin as Replacement for Phenol in Phenol-Formaldehyde Based Adhesives

**Florida Collegiate Honors Council | First place research paper, conference presenter** Feb. 2018

- Title: How Positive Soil Health Influences Agricultural Sustainability
- This paper analyzed and compared agricultural management strategies that improve soil quality

**National FFA Organization | American Degree award recipient** Feb. 2018

- Awarded for leadership abilities, community involvement, and agricultural entrepreneurship
- The American Degree is the highest degree achievable in the National FFA Organization

**National FFA Environmental Science and Natural Resources Competition | Second place team** Oct. 2017

- Won 2<sup>nd</sup> place team (4 people) at the national level competition, against >40 other teams
- Practicums included water testing, soil analysis, agricultural waste management planning, GPS proficiency, plant and animal identification, a general knowledge exam, and a presentation

## **ASTROBOTANY.COM ARTICLES PUBLISHED (not all-inclusive)** July 2020-Present

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Plant Stress: Hypobarica	Legumes in Space	Plant Growth Facility
Why Not Use Sunlight?	Arthur-Clarke Mars Greenhouse	Plant Experimental Unit
Dr. Kent Kobayashi: Explosive Curiosity for Science	European Modular Cultivation System	ED61/62 Growth Chamber
Root Challenges in Space	Oasis Series Growth Chambers	Prototype Lunar Greenhouse
Air Composition Challenges in Spaceflight	Phyton/Fiton Growth Chamber	Svetoblok Growth Chamber
Research Tools: Regolith Simulant	Vazon Growth Chamber	Malachite Growth Chamber
Research Tools: Parabolic Flights	Biomass Production System (BPS)	Plant Generic Bioprocessing Apparatus (PGBA)
	Biomass Production Chamber (BPC)	
	Plant Growth Unit	