

# Lenworth "TJ" Thomas

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## Education

**Bachelor of Science in Mechanical Engineering, McNair Scholar - GPA: 3.34/4.0**

May 2021

University of Florida – Gainesville, FL

## Industry Experience

**Product Development Intern – Interior Feasibility, Fiat Chrysler Automobiles**

May 2019 – August 2019

Auburn Hills, MI

- Performed cross sections on future vehicle soft trim CAD and reported 11 part intersections that saved the company around \$30,000 per issue
- Lead efforts to resolve major carpet design problems and coordinated physical and VR mockups that led to an official design change by management
- Developed a mechatronic test mechanism to create 3D map of light intensity for interior LEDs that will be a standard test for all interior lighting

**Validation Engineering Intern – Commercial Engine Validation, Caterpillar Inc.**

June 2018 – August 2018

Peoria, IL

- Validated prototype 13L engine by troubleshooting error codes and performing engine teardowns ultimately solving a manufacturing flaw
- Aided development of a single cylinder engine test cell by gathering parts, analyzing documents, and taking measurements
- Proposed self-driving solution for intra-facility travel and provided insight on cost, implementation strategies, and routes to management

**Product Founder and Hardware Design Intern, Deltamaker 3D Printers LLC**

June 2016 – June 2017

Orlando, FL

- Designed and manufactured a bracket that gives the 3D printers the capability to print with flexible materials
- Developed new auto-leveling system that reduced wear on extruder tip and increased measurement accuracy
- Assembled and laser cut 8 custom acrylic enclosures for local high schools

## Leadership Experience

**President/Mechanical Lead, InnoGators Design Team**

May 2019 – Present

Gainesville, FL

- Started an organization to make room for minorities and underrepresented students in the maker/design team space and provide them hands-on skills
- Managing hardware software teams to develop an automated filament processor that interfaces with an existing filament recycler for a professor
- Leading teams to build and program a drone to find radiation plumes using a grant from the Department of Defense

**Teaching Assistant, EGN2020C – Engineering, Design, and Society**

May 2019 – Present

Gainesville, FL

- Filmed over 10 educational tutorial videos for Tinkercad Circuits, an electronics prototyping platform, for the students to learn about Arduino
- Implementing a system for students to remotely view the status and progress of their 3D prints through a webpage using a Raspberry Pi
- Holding office hours for students to ask questions and get help on their projects

**Chapter Development Chair, National Society of Black Engineers**

May 2018 – May 2019

Gainesville, FL

- Facilitated workshops for academic excellence, entrepreneurship, and 3D printing for the development of the chapter
- Assisted with community outreach and the engagement of the next generation of engineers
- Implemented workshop series where marginalized students learned practical engineering skills through hands on projects

## Research Experience

**Undergraduate Researcher & Paper Co-Author, Florida Optics and Computational Sensors Lab**

October 2019 – Present

Gainesville, FL

Movable Scanner LiDAR for Micro-Robotic Platforms

- Proving a novel MEMS-based LiDAR scanner for micro-robotics, UAVs, and robotic insects through a small drone and custom, 3D printed hardware
- Programming an autonomous flight path in Python for a test drone that uses the LiDAR to avoid object collisions as a proof of concept
- Designing and manufacturing packaging hardware and circuitry to enable portability and scalability of the system to other robotic platforms

Low-Power MEMS LiDAR

October 2019 – April 2020

- Developed battery powered micro LIDAR (Light Detecting and Ranging) by using a mirror actuated by microelectromechanical (MEM) technology
- Programmed microcontroller to send laser pulses that when reflected by the MEM mirror, create a 3D point cloud of the environment
- Designed and manufactured packaging hardware and circuitry to enable portability and scalability of the system

## Awards & Recognition

- Horatio Alger Student Success Scholarship
- Machen Florida Opportunity Scholar
- McNair Scholar
- John's Hopkins Talented Youth Magazine
- Hamilton Scholars Inductee
- NSBE Fulfilling the Legacy Award
- Chevron Scholar
- University of Florida – Most Professional Organization