Siva Appana

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Education

Georgia Institute of Technology **Aug. 2021 - Dec. 2024**
BS in Mechanical Engineering, Minor in Computer Science (Intelligence) *Atlanta, GA*
GPA: 4.000/4.000 (Junior)

Relevant Coursework

- Deformable Bodies
- System Dynamics
- Thermodynamics
- Fluid Mechanics
- Numerical Methods
- MATLAB
- Data Structures
- Engineering Materials

Academic Experience

Georgia Tech Mechanical Engineering - ME 2110 **Aug. 2022 - Present**
Undergraduate Teaching Assistant *Atlanta, GA*

- Trained over 100 students to use wood-tooling/machinery with demonstrations and hardware-chart analysis.
- Developed optimized design, electrical, and fabrication solutions as teams constructed autonomous robots.
- Programmed and debugged Arduinos and code for effective power draw and efficient mechatronics sensor usage.

RoboJackets **May 2022 - Nov. 2022**
Mechanical Curriculum Designer and Mechanical Trainer *Atlanta, GA*

- Collaborated with other mechanical engineering students to develop a presentation and demonstration-based curriculum for choosing materials, design considerations, finite element analysis, and dynamic simulations.
- Proved mechanical formulas, taught Autodesk Inventor, and presented slides to 50 robotics students over 8 weeks.

Research

A Novel Approach to Resin-based Additive Manufacturing, Georgia Tech **Aug 2022 - Present**
Reduced warpage of cured resin for unsupported overhangs in a support-fluid based system.

- Experimented on UV-cure resins after fabricating a well-researched apparatus. Used computational physics with calculations involving optics, fluid mechanics, and thermodynamics throughout the experimentation.
- Developed and made a working digital light processing SLA printer. Automated system with a positive feedback loop.

Automating the Pruning Process for Peach Trees, Georgia Tech Research Institute **Jan 2022 - May 2022**
Integrated an end-effector, modeled on Solidworks, to a UR5 robot arm to locate prune points and prune peach trees.

- Integrated pruning shears on a 3-D printed end-effector with sensors for identifying prune point for field testing.
- Created an algorithm using LIDAR point cloud that sends coordinates to the UR5 robot arm and Arduino wirelessly.

Projects

Featherweight (30-lb) BattleBot | *Autodesk Inventor, FEA, Bearings, Machining, MATLAB* **May 2022 - Present**

- Collaborated with 5 mechanical engineers to research and apply engineering design process, knowledge of materials, and finite element analysis in designing and fabricating a powerful weapon, durable body, and electrical schema.
- Compiled design decisions with calculations and simulations to present to RoboJackets Alumni during 3 design reviews.

ME 2110 Robot | *SolidWorks, Carpentry, Arduino* **May 2022 - July 2022**

- Designed and fabricated a cost-effective, reliable, and autonomous robot that won first place in design and competition.
- Programmed robot's Arduino efficiently in C++ to maximize output and allocated sensors/actuators to mitigate risks.

Low-Cost Multifunctional Heating Device | *SolidWorks, 3D Rendering/Animation* **Aug. 2021 - Dec. 2021**

- Designed a low-cost solar reflector that integrates a stove, sterling engine, and dryer function to solve problems encountered by underprivileged populations in equatorial regions. Gained approval from a sustainability community.
- Developed a functional SolidWorks CAD Assembly and animations after researching materials and catenary curves.

Technical Skills

Languages: MATLAB, Python, Java, C, C++, SQL, ReactJS
Modeling: SolidWorks, Autodesk Inventor, AutoCAD, Simulink, Rendering/Animation

Leadership

Science Olympiad (Service Organization) **Aug. 2021 - Present**
Build Director, Event Supervisor *Georgia Tech*

- Led web-development and sponsorship efforts to increase membership by x3 and increase the organization's awareness.
- Supervised engineering events when hosting the high-school state Science Olympiad competition and communicated with suppliers and volunteers to ensure competition readiness.