

# Jacob Gloudemans

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GitHub: <https://github.com/partlygloudy>

## Education

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### Vanderbilt University, Nashville, TN

Bachelor of Engineering, expected May 2020  
GPA: 3.632/4.000

Major: Computer Engineering

Minor: Mathematics

## Experience

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### Vanderbilt University

#### *Vanderbilt Aerospace Design Team*

**August 2019 - Present**

- Working with a small team to design a UAV to be deployed from a rocket as part of the NASA Student Launch Competition
- UAV will deploy, collect a sample from the ground, and navigate and land at a remote docking station, all autonomously

#### *Vanderbilt Robotics - Programming Team Lead*

**August 2018 – May 2019**

- Heavily involved in the design, manufacture, and programming of an autonomous mining robot to compete in the NASA Robotic Mining Competition
- Responsible for educating team members on key topics (ranging from programming Arduinos to working with ROS to machine learning and computer vision) and delegating, overseeing, and assisting with all programming work
- Coordinated with mechanical and electrical leads to ensure all aspects of the project progressed appropriately

#### *Undergraduate Research Assistant in AIVAS Lab for AI and Cognitive Science*

**May 2019 - Present**

- Used reinforcement learning methods to model and study human behaviors
- Participated in regular lab meetings, discussing research methods, human cognition, and the limits of AI

#### *Undergraduate Research Assistant in the MED Lab for robotic surgical tools*

**May – September 2018**

- Used C++ and Python, along with tools such as ROS and RViz to simulate movement of a complex robotic system, ultimately using this software to control physical robots
- Implemented code for precise control of a surgical tool using this two-arm system

### Electrical Motor Products, Inc.

**May 2014 - Aug 2017**

#### *Special Projects Lead (2015-2017)*

- Designed and built numerous items to improve workspace utilization
  - Custom pallets for storage of motors, tools, and various metal scrap
  - Workbenches and shelves to maximize usable space in confined areas
- Built an office from the ground up, including framing, insulation, electrical work, and interior finishing
- Created fan system for conveyor belt to reduce paint drying times, increasing production efficiency

### Personal Technical Projects

**2013 - present**

- Constructed, and programmed a 6-axis robotic arm capable of picking up a variety of small objects and moving them to precise locations. Created a GUI for creating, saving, and retrieving complex motion sequences
- Designed and built a small robotic vehicle capable of localizing itself in my house using a particle filter
- Learned the basics of machine learning and artificial intelligence through independent online coursework

## Skills

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### Computer Engineering

- Programming: Python, C++, Robot Operating System (ROS), Java
- Hardware: Arduino, Raspberry Pi, and related microcontrollers, NVIDIA Jetson, Pixhawk flight controller
- Completed Coursework: Algorithms, Data Structures, Intro to Deep Learning, Intro to Reinforcement Learning, Pattern Recognition, Image Processing, Microcontrollers, Circuits
- Current Coursework: Control Systems, Senior Design, Undergraduate Research

**Software:** Git, GitHub, Linux OS, Autodesk Fusion 360 CAD/CAM, Microsoft Office

**Fabrication:** Woodworking (router, jointer, planer, drill press, table saw), machining (lathe, manual mill, CNC mill, bandsaw), soldering, 3D printing