SWAPNIL DUBEY

swapnildub@gmail.com ✦ (814) 954-2835 ✦ linkedin.com/in/swapnil-dubey/ ✦ github.com/swapdub

---

EDUCATION

The Pennsylvania State University — University Park, PA
Bachelor of Science in Electrical Engineering — *May 2021*
Bachelor of Science in Astronomy and Astrophysics — *May 2021*

SKILLS

Relevant Courses: Digital Design, Communication Networks, Technical Writing, Computational Astrophysics
Programming: Python, Embedded C/C++, NI LabVIEW, MATLAB, HTML5, Javascript, CSS, Bootstrap
CAD Software: LTSpice, Proteus, NI Multisim, SolidWorks   *Protocols*: I2C, SPI, UART

WORK EXPERIENCE

Oracle Robotics — **Peoria, IL**
Software Engineer Consultant at Caterpillar Inc. — ***Nov 2021 - Present***

- Designed user interface features for desktop software combining modern coding practices and technology for a seamless and user-friendly experience
- Implemented GUI capabilities using Qt Framework in C++ allowing for smoother user experience

Trusine Solutions PVT. LTD. — **Delhi, India**
Embedded Software Intern — ***May 2019 - Aug 2019***

- Built a graphical LCD supported by STM32 series microcontroller using C++
- Implemented and tested different communication protocols such as UART and I2C to operate the GLCD

Electrical Engineering Intern — ***May 2017 - Aug 2017***

- Designed and developed microcontroller circuits to run remote monitoring systems used in Tele-Comm towers
- Programmed the process of retrieving signals from a Li-Ion Battery Management System to a Micro-Processor
- Implemented these tools to manage multiple power sources for uninterrupted supply in remote areas

PROJECTS

Discord Music Bot — **May 2021 - July 2021**

- Developed a bot capable of playing Music and Moderate servers using the Discord.py library in Python
- Performed Web Scraping and Automation to search, retrieve and play songs from Youtube and Spotify to Discord
- Deployed in multiple discord servers with an average song request rate of a minimum of 50 per day

Downhole Electro-Hydraulic Control System — **Jan 2020 - May 2020**

- Led an inter-departmental team of 7 towards planning, managing, and scheduling the project in its entirety
- Designed a portable touch interface for the control system for Schlumberger Limited.
- Developed a program in C++ for Arduino and Python for Raspberry Pi to operate a Brushless DC Motor
- Delivered a 60% reduction in cost while exceeding Schlumberger's desired specifications

Computer Vision — **Jan 2020 - May 2020**

- Developed a program to extract objects and artifacts in an image and analyze their spatial properties
- Implemented Hough Transformations algorithm for Image Processing and Edge Detection using Python
- Performed augmented reality (AR) analysis of a video to extract spatial data and map 2D images onto a 3D world allowing user movement tracking using MATLAB and Python

Acoustic Levitation — **Aug 2019 - Dec 2019**

- Built a portable levitation device using transducers capable of levitating small pieces of Styrofoam
- Utilized Oscilloscope to troubleshoot and Function Generator to test the prototype
- Designed a custom power supply with a square wave generator using a NE555 timer microchip for the device
- Achieved robust stable levitation using only 2 transducers reducing costs and increasing efficiency by 33%

Light Sensitive Theremin using Photo-Diodes — **Aug 2019 - Dec 2019**

- Designed Theremin user interface with NI MyDAQ and NI LabVIEW for use as a computer application
- Developed light sensitivity, tone, equalizer controls, and other options enabling granular control from the user
- Resulted in reduced costs by more than 50% compared to traditional Theremins

Vending Machine Control Pad — **Jan 2019 - May 2019**

- Designed the circuit that acts as the controller of a Vending machine using dsPIC33EP64MC502 and Logic Gates
- Developed a C++ program to read, compute and execute instructions as per the buttons pressed