SWAPNIL DUBEY

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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, Computer Vision, 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

Trusine Solutions PVT. LTD. — **Delhi, India**

Embedded Software Intern — ***May 2019 - Aug 2019***

- Built a graphical LCD display 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 60% reduction in cost while exceeding Schlumberger's desired specifications

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
- Successfully did troubleshooting and defended my design choices during the final presentation

Penn State Student Space Programs Lab (SSPL) — **Jan 2018 - May 2018**

- Designed the wiring diagrams and circuits for the control system logic board of the Rocket Payload
- Procured sensor data metrics using C++ and Arduino Teensy using SPI and UART protocols
- Successfully Transmitted the data back to the base station by communicating over radio signals from the rocket

Nittany Data Labs — **Aug 2017 - Dec 2017**

- Modeled a Twitter sentiment analysis on a dataset of tweets using stemming & feature selection in Python.
- Extended the functionalities of the program to fit other datasets like Reddit
- Designed a Python script to determine a population's emotional reaction in under 5 seconds
- Analyzed ECG data to attain over 80% classification accuracy on a noisy sample using Sci-kit Learn and Python