SWAPNIL DUBEY

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EDUCATION

The Pennsylvania State University   University Park, PA
Bachelor of Science in Electrical Engineering   Aug 2015 - May 2021
Bachelor of Science in Astronomy and Astrophysics   Aug 2015 - May 2021

SKILLS

Relevant Courses: Digital Design, Communication Networks, Technical Writing, Computational Astrophysics
Programming: Python, C++, Qt Framework, HTML5, CSS, JavaScript, Flask
CAD Software: LTSpice, Proteus, NI Multisim

WORK EXPERIENCE

Oracle Robotics Corp.   Peoria, IL
Software Engineer Consultant at Caterpillar Inc.   Nov 2021 - Dec 2022
- Build components for a desktop-class software capable of simulating and testing electro-mechanical models
- Implemented GUI features allowing for a smoother user experience using Qt Framework in C++

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 - Present
- 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

Wordlist Website using Flask   Mar 2022 - Apr 2022
- A website to crowdsource and categorize words from non-English languages in roman script
- Built a responsive website using Bootstrap 5, HTML5, and CSS
- Deployed on Heroku with a Flask backend with data storing capabilities using Heroku's PostgresSQL database

Downhole Electro-Hydraulic Control System   Jan 2020 - May 2020
- Led an inter-departmental team of 7 toward 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