Praneet Kapoor

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Education

- **Dr. Akhilesh Das Gupta Institute of Technology and Management** New Delhi, India
  Bachelor of Technology - Electrical and Electronics Engineering; CGPA: 9.121 *August 2018 - August 2022*
  Courses: *Fundamental Circuit Theory, Analog and Digital Circuits, VLSI, Microprocessors and Microcontrollers*

Skills Summary

- **Languages**: x86 Assembly Language, AVR 8-bit Assembly Language, C, C++, Bash, Lua, Python 3, SQL
- **Frameworks**: NumPy, Matplotlib, SciPy
- **Tools**: GCC, Make, NASM, SQLite 3, Git, QEMU, VMware, Docker, LTSpice XVII, Arduino IDE
- **Platforms**: Linux, Windows, AVR 8-bit microcontrollers, 6502, 8085, x86, x86-64, Raspberry Pi 3 Model B+
- **Soft Skills**: Technical Writing, Public Speaking, Project Management

Experience

- **Kyron Healthcare Pvt. Ltd.** On-site
  Firmware Design Intern (Full-time) *Aug 2021 - Nov 2021*
  - **Medical Humidifier**: Collaborated in the development of a reliable medical humidifier.
  - **Automated Flow Sensor Testing**: Implemented a Python script to automate the testing of medical venturi.
  - **Testing and Analysis of Nasal Cannula**: Tested the efficacy of PID controllers to control flow and oxygen levels with different nasal cannulas. Data was analysed and used in selection of flow sensors and in designing of robust PID controllers.
  - **Embedded PID Controller**: Developed algorithms for improving the reliability of embedded PID using fuzzy logic.

Projects

- **CrazyOS**: Single-user, single-tasking, real mode operating system with a shell, line editor, and library consisting of various subroutines including custom implementations of `getchar`, `printf`, `putchar`, `strlen`, `strcmp`, `strcpy`, and `atoi` in 8086 assembly language. Bootloader for the operating system has also been developed from scratch. Tech: x86 Assembly, NASM, Git, QEMU (Feb 2022 - Present)
- **SHA-256 Hash Generator**: Implemented SHA-256 hash in C. Uses a Python script to read text files and feed them into the C program which then emits the hash code. Tech: C, Python (Nov 2021 - Dec 2021)
- **Remote Controlled Rover**: Built custom designed rover using PVC pipes and hardboard. Uses RPi for processing commands passed through remote connection using SSH. Arduino Uno is used for locomotion and steering using Ackermann's steering equation. Tech: C, AVR-C, Python 3, Arduino Uno, Raspberry Pi 3 Model B+, SSH (Aug 2021 - Jan 2022)
- **Poor Engineering Student's Modular Oscilloscope (PESMO)**: A low frequency oscilloscope made using analog front-end, Arduino Uno as signal sampler, and a laptop running a Python script for serial communication as a visualizer. Won Intra-IEEE Project Making Competition, 2020. Tech: LTSpice XVII, Arduino Uno, Python 3 (Sep 2020 - Oct 2020)
- **Voyager Program CRS Data Extractor and Visualizer**: Scrapped Goddard Space Flight Center's Space Physics Data Facility to extract cosmic ray data collected by Voyager probes, stored them into an SQL database, and visualized using Matplotlib. Tech: Python 3, SQL(Jul 2020 - Aug 2020)
- **LM358D Analog Computer**: Low frequency analog computer using 6 op-amps, Arduino Uno as sampler, and Arduino IDE as signal visualizer. Tech: LTSpice XVII, Arduino Uno, Arduino IDE (Feb 2020 - Mar 2020)
- **Account Management System for Travel Agency**: Implemented an account management system for a travel agency from scratch. Features include ability to enter, retrieve, and edit customer information, and a total charge calculator. Tech: C++ (Dec 2016 - Mar 2017)

Honors and Awards

- IEEE ADGITM Volunteer of the Month - March 2021
- First Position at Intra-IEEE Project Making Competition - October 2020

Volunteer Experience

- **Chaiperson of PES and Technical Activities Lead, IEEE-ADGITM** New Delhi, India
  Organized webinars on embedded systems and IoT and project making competition for over 70 students. *Jan 2021 - Jan 2022*
- **Ambassador for the IEEE PES Day 2021** New Delhi, India
  Organized two webinars on power systems, renewable energy, and sustainable development with registrations and attendance reaching over 100 students and professors. *May 2021 - April 2021*