Soham Gandhi

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EDUCATION

Virginia Tech *Expected May 2024*
B.S. in Computer Engineering & B.S. in Electrical Engineering **Junior Honors**
Majors in Machine Learning and Controls, Robotics, & Autonomy, Minor in Computer Science **GPA:** 4.0 / 4.0
Activities: Calhoun Honors Discovery Program, Apex Center for Entrepreneurs, Collaborative Robotics Lab, IEEE
Relevant Coursework: Data Structures, Linear Algebra, Differential Equations, Probability & Statistics, Digital Systems
Awards: Calhoun Honors Discovery Program Scholar, VT Dean's List (Fall 2021 – Present), Hack Duke 2021 (Best Financial Hack, 1st Place Education Track), Hack Violet 2022 (Ut Prosim Award)

Thomas Jefferson High School for Science and Technology Graduated June 2021
Advanced Studies Diploma, Governor's Seal **GPA:** 4.25W
Activities: Congressional Debate Team (Director of Technology), Space Program (APRS Lead), Mock Trial (Co-President)
Relevant Coursework: Multi-Variable Calculus, Artificial Intelligence, Computer Vision, Research Statistics

SKILLS

Programming: Python, Java, C++, C#, C, Linux Bash, LATEX, MATLAB, Verilog, OpenCV, TensorFlow, ROS
Platforms: Unity, LTSpice, Git, Fusion 360, AutoCAD, SolidWorks
Hardware & Interfaces: Raspberry Pi, Arduino, Teensy, i2c, SPI, RS232, UART

EXPERIENCE

Maritime Software Engineering Intern | **General Dynamics Mission Systems** | Fair Lakes, VA May 2022 – July 2022
- Installed Centos 8 Stream over a NFS mount using DHCP and TFTP to automate the install process of kiosks over a network
- Worked with several file systems to PXE boot the OS to RAM and ensured that classified info is cleaned after each use
- Hardened kickstarts to be STIG compliant and meet DOD requirements to prevent intruder attacks
- Created Bash and Python scripts to automate input device setup, user permissions, and user environment layouts

Research Intern | **InSignEx** | Gujarat, India (Virtual) May 2020 - June 2021
- Developed an automated irrigation system for banana farmers to collect/evaluate data using Python, Flask, and MySQL
- Prototyped designs and measured power draw of circuitry using shunt resistors and a NodeMCU
- Created a proof-of-concept for the user interface utilizing Adobe XD, modeling data using historical information from the region about the climate, soil, and irrigation system

RESEARCH PROJECTS

Co-Founder & CTO | **Haptic Tactics** January 2022 - Present
- Simulated drilling using virtual reality through a hand-held proxy to house haptic motors and controls
- Created closed-loop impedance control system with variable forces for drilling via a brushless motor, encoder, and Teensy
- Worked on power management through regulators to ensure stable voltage and safe operating conditions in proxy
- Integrated hand-held proxy with Unity VR to provide and HTC Vive Pro to ensure high fidelity

Research Assistant | **Collaborative Robotics Lab** | Blacksburg, VA August 2022 – Present
- Creating a motion plan for the Fetch Robotic System, a research platform for human robotic interactions, utilizing LiDAR, depth vision, and cameras
- Communicating to the actuators and motors throughout the system through Python's ROS API

Research Assistant | **DREAMs Lab** | Blacksburg, VA September 2021 – May 2022
- Wrote Python scripts which created PNG bitmaps for each layer, customizable settings, and allowed for full control of piezo inkjet heads in a legacy inkjet & FDM 3D printer (Rize One)
- Integrated plasticizers, a polymer that increases interlayer adhesion, with FDM materials to increase parts' structural strength
- Designed a custom ink polymer reservoir in SolidWorks to increase the printers' compatibility with 3rd party materials

Co-Developer | **Food Science NLP** | Blacksburg, VA September 2021 – May 2022
- Analyzed word relations from 40,000+ abstracts and created automated scripts to clean, sort, and filter data
- Worked with food science professors to detect unusual patterns between sensory and chemical descriptions through Gensim word2vec models visualized in Orange and Gephi

PUBLICATIONS

Gandhi, S., & Shah, A. (2022). Continuous Monitoring of Banana Plantations. In F. Thakkar, G. Saha, C. Shahnaz, & Y.-C. Hu, Proceedings of the International e-Conference on Intelligent Systems and Signal Processing Singapore. https://doi.org/10.1007/978-981-16-2123-9_31