Soham Gandhi

Ashburn, VA | 973-216-6660 | sohamgandhi@live.com | /in/soham-gandhi/ | sgandhi10.github.io | **Secret Clearance**

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, Circuits and Devices, 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), VT CHCI Student Symposium 2022 (3rd Place)

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: Multivariable Calculus, Artificial Intelligence, Computer Vision, Research Statistics

SKILLS

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

EXPERIENCE

General Dynamics Mission Systems | *Maritime Software Engineering Intern* | Fair Lakes, VA May 2022 – July 2022
- Installed Centos 8 Stream over NFS mount using DHCP and TFTP to automate the install of kiosks over a secure 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

InSignEx | *Research Intern* | 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 a NodeMCU with a shunt resistor to reduce power consumption to 30mA
- 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

Haptic Tactics | *Co-Founder & CTO* | Blacksburg, VA January 2022 - Present
- Simulated drilling using virtual reality through a patent-pending hand-held proxy designed in Solidworks
- Created closed-loop impedance control system with variable forces for drilling using a BLDC motor, encoder, and Teensy
- Worked on power management using regulators to ensure stable voltage and safe operating conditions in proxy
- Integrated hand-held proxy with Unity VR and HTC Vive Pro to ensure high fidelity for visual and auditory feedback
- Presented proxy system to Boeing and Caterpillar executives with a patent and a pre-seed startup incubation in progress

Collaborative Robotics Lab | *Research Assistant* | 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 to navigate an environment and pick up objects placed randomly utilizing OpenCV and ROS
- Communicating to the actuators and motors throughout the system through rospy

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

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