Sanjot 'Sunny' Singh

Dallas, TX | (214) 714-4242 | sanjot@stanford.edu | linkedin.com/in/sanjot13 | U.S. Citizen

Education

Stanford University | Palo Alto, CA **GPA** *4.0/4.0*
- M.S. in **Aeronautics & Astronautics Engineering** *Sep. 2022 – Mar. 2024*

Georgia Institute of Technology (Georgia Tech) | Atlanta, GA **GPA** *3.82/4.0*
- B.S. in **Mechanical Engineering** concentrating in **Automation** and **Robotic Systems** *Aug. 2018 – May 2022*
- Minor in **Computer Science** specializing in **Intelligence**

Skills

Design**:** SolidWorks, GD&T, Agile Product Development, DOE, Dynamics, OSHA Certified, Quality Improvement, DFM, User Centric, Rapid Prototyping, Six Sigma, Gage R&R, GUI, Customer Satisfaction, Resource Efficiency, Failure Analysis
Hardware: Arduino, Mechatronics, Soldering, 3D Printing, Laser Cutting, Thermal Press, Linear Circuits, Cmp. Architecture
Software: MATLAB, Java, VBA, NI LabVIEW, Python, C, Minitab, Tableau, Excel Macros, Supervised Machine Learning
Spoken Languages: Punjabi (fluent), English (fluent), Spanish (intermediate), Hindi (intermediate)

Industry Experience

SPACEX, *Aerospace Company;* Starbase, TX *May 2022 – Present*
***Starship Associate Engineer* | Automation & Controls Team**
- Responsible engineer for the automation of a critical new hydraulic station to vertically raise (up to 15') and weld sections of the Starship spacecraft
- Designed the hardware and wiring schematics for the control panels in EPLAN and procured compatible components
- Built panels and initiated new quality control testing to standardize the panels for Power Distribution, PLC, and Remote I/O
- Learned Siemen's TIA Portal on the job and programmed my code to run in a simulated environment with a Synchronous Serial Interface (SSI) protocol so we could run through functional tests of the motion control before the actual startup

AMAZON ROBOTICS, *Automation Company;* Boston, MA *Jan. 2021 – May 2021*
***Functional Safety Engineering Co-op* | Control Systems and Safety**
- Analyzed the safety impact of 300+ FW & HW changes to improve short range human detection using Radio-Frequency (RF) Vests, based on IEC 61508 and ISO 13849 **Functional Safety** standards
- Designed an experiment to test object detection using 22 Motion Capture and Intel RealSense camera sensors in order to complete a Hazard Analysis and Risk Assessment (**HARA**) for autonomous mobile robots
- Identified different failure modes between **magnetic** and **optical encoders** to be used for an Automotive Safety Integrity Level (**ASIL**) Certified motor control loop
- Developed a team-wide coding standard for the **Ladder Logic** language used to develop programmable logic controllers (PLCs) for a fleet of industrial robotic induction arms

BOEING, *Aerospace Company;* Charleston, SC *May 2020 – Sept. 2020*
***787 Equipment Reliability Engineering Intern* | Facilities & Asset Management**
- Identified root causes of 3 major downtime errors on the 787-assembly robot to reduce production cost by $67,400
- Automated 20-hour weekly data collection and chart generation process by programming **Excel Macros** in Visual Basic
- Selected as one of the 3 out of 850+ interns nationally to host Executive Speaker Sessions with Boeing senior leaders
- Developed 9 Human Readiness Levels for American Society for Testing and Materials (ASTM) Exoskeleton Standards

AVANOS, *Medical Technology Company;* Atlanta, GA *May 2019 – Aug. 2019*
***Research and Development (R&D) Intern* | Radiofrequency Chronic Pain Solutions**
- Designed and built a magnetic indexing fixture using CAD and **additive manufacturing** to control angle, position, and force, increasing testing efficiency by 13% and consistency by 17%
- Authored a testing protocol applying **Six Sigma** statistical analysis principles to reduce Gage R&R variability by 29%

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- Implemented MATLAB Computer Vision using Morphological **Image Processing** to remove operator bias in measuring product specs and reduce testing time by 34%
- Received **Collaboration & Result-Driven** Award for deciphering electrical schematics to reverse engineer a prototype printed circuit board (**PCB**) that incorporated a thermocouple and responsive temperature feedback loop

BEST DALLAS CELL PHONE REPAIR, *Electronics Repair Store;* Dallas, TX
***Regional Manager & Technical Specialist* | DFW Metropolitan Operations** *May 2013 – May 2019*

- Managed employees and helped build website to increase customer outreach by 10%
- Generated $1,300 daily revenue by selling smart phones, accessories, and prepaid phone plans
- Replaced over 500 electronic modules including cracked LCD screens, broken charger ports, and damaged batteries

Projects & Research

ADAPTIVE ROBOTIC MANIPULATION (ARM) LAB | Dr. Frank L. Hammond III *Aug. 2021 – Present*
Undergrad Researcher | *Independent research project for human awareness augmentation* | Atlanta, GA

- Conducted a literature review of similar autonomous systems to increase human awareness
- Applied mechatronics to design a robotic camera that tracks the direction that a human points using wearable sensors
- Implemented an Inter-Integrated Circuit (**I2C**) protocol to communicate hand-orientation data from an inertial measurement unit (IMU) sensor composed of a 3-axis gyroscope and accelerometer, to an Arduino microcontroller

LABORATORY FOR INTELLIGENT DECISION AND AUTONOMOUS ROBOTS (LIDAR) | Dr. Ye Zhao *Dec. 2019 – May 2020*
Undergrad Researcher | *Vertically Integrated Program to fabricate an agile-autonomous robotic head* | Atlanta, GA

- Conducted bio-mechanical research study to define target speeds for saccadic and smooth eye movement
- Collaborated using GrabCAD to build an 18-part assembly which achieved 89% of human visibility range
- Developed an Arduino program to manipulate RGB values on a pair of 12-LED rings to mimic human emotions

CREATIVE DECISIONS AND DESIGN ROBOT: ME 2110 COMPETITION | Dr. Christopher Saldana *Aug. 2019 – Dec. 2019*
Project Lead | *Team project to design, prototype, and fabricate a competition-ready robot in 6 weeks* | Atlanta, GA

- Earned 2nd seed over 50 teams by implementing an iterative design process that emphasized **ease of manufacturing**, adaptability, and creativity with laser-cut and 3D printed components while satisfying cost and safety constraints
- Programmed autonomous **mechatronics** system with solenoids, motors, actuators, sensors, and myRIO in LabVIEW

NASA AEROSPACE SCHOLARS PROJECT *Nov. 2016 – Jul. 2017*
Systems Manager | *Team project researching and designing a potential mission to Mars* | Houston, TX

- Represented 12-member team as the Systems Manager during all meetings with NASA advisors
- Ensured complete research of all subtopics including: space suits, mars onsite resources, labs and tools
- Led **Preliminary Design Review** presentation in front of panel of NASA Judge

Leadership

COURSE CHAIR & TEACHING ASSISTANT - MATLAB | GT COLLEGE OF COMPUTING *May. 2021 – Present*

- Developed, edited, proofed, and graded technical projects and midterm exams for over 850 students
- Hosted weekly lectures to teach course material such as Image Processing, Recursion, Big O, and Numerical Methods

PRESIDENT & FOUNDER | SIKH STUDENTS OF ATLANTA *Sept. 2019 – Present*

- Established the first student organization in the Metro-Atlanta area to represent Sikh history and Punjabi culture
- Organized volunteer opportunities for 30 members to prepare and serve meals to +200 people at local Sikh kitchens

CAPTAIN & VARSITY ATHLETE | GT CHEERLEADING *Aug. 2018 – May 2021*

- Led 1000s of fans at 37+ football and basketball games each season
- Nominated by 60+ teammates as a captain and lead the team to win the first-ever **ACC Championship**