Sameerjeet Singh Chhabra

602.884.2426 | sameerjeetsinghchhabra@gmail.com | Linkedin | GitHub | GrabCAD | Portfolio

Education

Arizona State University — Tempe, USA
Master of Science in Mechatronics, Robotics, and Automation Engineering; GPA: 3.94/4.0 — *Graduating May 2026*

Chhattisgarh Swami Vivekanand Technical University — Bhilai, IN
Bachelor of Technology in Mechanical Engineering; GPA: 3.49/4.0 — *Graduated July 2022*

Publications

Design and Inverse Kinematics Analysis of Cable-Suspended Parallel Robot 'FarmPet' for Agriculture,
International Journal for Research in Applied Science & Engineering Technology (IJRASET), Feb 2023

Technical Skills

Programming: Python, C++, Data Structures & Algorithms, Pandas, NumPy, TensorFlow, PyTorch, Scikit-learn, OpenCV, Excel, Power BI
Tools: SolidWorks, Creo Parametric, AutoCAD, Ansys, FEA Analysis, MATLAB, Simulink, ROS/ROS2, Gazebo, MuJoCo, Isaac Lab
Prototyping & Hardware: Additive Manufacturing 3D Printing (FDM, SLA, SLS, DMLS), Rapid Prototyping, DfAM, Arduino, Raspberry Pi, Jetson Nano, Robot manipulators, IMU, LiDAR, cameras, servos, motors, laser cutter
Industrial Automation: PLC, SCADA, IIoT architectures, IT/OT integration, MQTT, OPC UA, Modbus, Profinet, TCP/IP networking, SQL (PostgreSQL), Time-series databases, Data pipelines, Cloud IoT platforms (AWS, Azure), Digital twins
Control Algorithms: PID, Root Locus, LQR, Model Predictive Control, Kalman Filter, Pole Placement, Fuzzy Logic Control
Certifications: IBM Machine Learning Specialization, IBM Data Science Specialization, Deep Learning Specialization

Professional Experience

Physics Teaching Aide | *Arizona State University* — *Tempe, AZ, January 2025 – Present*
- Guided and supported 72 students in a physics and engineering lab, ensuring understanding of core principles through hands-on application.

Data Scientist | *ANYTHINGAI Cyber Pvt. Ltd.* — *Hyderabad, India, July 2023 – March 2024*
- Automated Data Extraction: Cut down web data extraction time by 98% leveraging Selenium, BeautifulSoup, and APIs.
- Data Analysis and Insights: Analyzed data from 10+ decentralized exchanges. Improved predictive accuracy using autogens.
- Launched ML trading bot on AWS, optimizing strategies with real-time processing and increasing trades 30x.

CAD Design Intern | *Design Center Pvt. Ltd.* — *Bhilai, India, June 2021 – July 2021*
- Converted machine drawings into precise 3D models, designed complex mechanical components.
- Performed surface modeling and kinematic analysis to ensure accuracy and performance.

Projects

Robot Dog — *May 2025 - Present*
- Training a cutting edge robotic quadruped inspired by natural locomotion on MuJoCo with Reinforcement Learning.
- Planning real world deployment with cameras, LiDAR, IMU, and other onboard sensors for perception and navigation.

Voice Operated Mobile Manipulator — *January 2025 - May 2025*
- Built a voice operated mobile manipulator integrating ROS2, computer vision and motion planning.
- Integrated TurtleBot4 with myCobot 280 for autonomous pick and place using YOLO object detection for shelf tasks.
- Developed ROS2 Python GUI for real time data visualization and robot control, enhancing system interaction.

UAV Autonomous Line Tracking and Dynamic Landing — *January 2025 - May 2025*
- Developed a vision-based line tracking system by processing 13 submatrices from the camera view to control speed and direction using MATLAB Simulink.
- Engineered an algorithm for automated landing on a moving target, achieving 98% accuracy within a 5-inch tolerance.

Maze Solving 6DOF Robotic Arm — *August 2024 - December 2024*
- Solved a printed maze with a laser mounted end effector of a myCobot 600 Pro arm using a camera mounted above.
- Programmed a vision based solution using OpenCV in Python to process camera feed and map it to robot space.
- Scripted a URDF file for the robotic arm and programmed a custom geometric inverse kinematics solver.

Cable Suspended Parallel Robot for Agricultural Applications — *August 2021 - July 2022*
- Led a team of three in designing and developing a cable driven Cartesian robotic system prototype for 80% farming autonomy.
- Prototyped 1 cubic meter system accomplishing 0.5mm accuracy with custom IK equations, deploying stepper motors, CNC shield, and Arduino Uno.

Achievements

- PU Automations Hackathon 2025 (by Los Alamos National Laboratory): Awarded 2nd place ($5,000) for developing an automated system to unpack MinION Flow Cells and integrate them into the Nanopore sequencing device.
- GATE Exam 2022 by Indian Institute of Technology India: Qualified in Mechanical Engineering (92.22 percentile) and Engineering Sciences (85.6 percentile).
- GHOST Lab ASU Volunteering: Operate Fetch, YuMi, Husky, UR5 and TurtleBots for human robot interaction research, and deliver technical presentations to visitors and ASU students.