CHANDAN SINHA

chandansinha@vt.edu | chandansinha.me | +1 (540) 998 1527 | 2000 Foxhunt Ln, Blacksburg, VA

EDUCATION

Virginia Tech
MS, Mechanical Engineering
August 2021 - May 2023 (expected)
Robotics, Autonomous, and Dynamical Systems (RADS) Thrust Area
GPA: 3.92/4.0

IIT Hyderabad, India
B.Tech, Mechanical Engineering
August 2013 - May 2017
Product Design & Mechatronics (Honors)
CGPA: 7.98/10

LINKS

Github:// **MechanicalCoder**
LinkedIn:// **in/chandansinha1**
GrabCAD:// **chandan.sinha-1**
Goodreads:// **orangedurito**
StackExchange: // **OrangeDurito**
WordPress:// **thevindicatedaxiom**
YouTube:// **ChandanSinha1**

RELEVANT COURSEWORK

Nonlinear Systems Theory*
Estimation and Filtering*
Applied Linear Systems and Control
Industrial Robotics
Optimization Techniques in Engg.
Digital Signal Processing
Digital Fabrication (Teaching Assistant)

TECHNICAL SKILLS

Programming
C • C++ • Python • Java
• HTML5 • CSS3 • Vanilla JavaScript
• ReactJS • NodeJS • Git • LaTeX• Arduino

Modeling/Simulation
SolidWorks • MATLAB • Simulink
• Ansys • Blender • ROS • Gazebo
• Fusion 360 • OpenRocket • SysML

Miscellaneous
Database - Relational and NoSQL

Creativity - Adobe Photoshop, Illustrator, Premiere Pro, After Effects [CC Suite]

EXTRA-CURRICULAR

Web Developer - Techno-management fest, IITH | TEDxIITH | Counseling Cell, IITH

Graphic Designer - Dept. of Geosciences, Virginia Tech | Extra Mural Lectures, IITH

Video Editor - Humour Me Pvt. Ltd. | OrangeDurito Productions

Volunteer - Appalachian Trail Conservancy | National Service Scheme (India)

Student Design Team - @DiggeridoosVT

WORK EXPERIENCE

Model-Based Systems Engineering (MBSE) Intern | Cummins Inc.
May 2022 – August 2022 | Columbus, Indiana
- Worked under Corporate Research & Technology division to accelerate agile product development. Learned the fundamentals of systems thinking, MBSE, and SysML. Built descriptive system models for new product architectures in PTC Windchill Modeler.
- Deployed OSLC code for tool integration to automate multi-disciplinary optimization workflow and graph visualization for complex diagrams.

Graduate Research Assistant | SpaceDrones Lab, Virginia Tech
August 2021 – Present | Blacksburg, Virginia
- Conceptualizing the future of autonomous robotic On-orbit Servicing, Assembly, and Manufacturing (OSAM). Using customizable hexacopter drone platform with manipulator arm attached underneath as testbed to develop data-driven system identification method for robust and adaptive control systems design.

Research Assistant | Turbulent Combustion Lab, IISc. Bangalore
May 2019 – December 2020 | Bangalore, India
- Computationally analyzed the blow-off dynamics in interacting swirl premixed flames using sPIV-PLIF imaging and pressure measurements. Did post-processing in MATLAB and analytically proved the accuracy of our algorithm. Manually cleaned 4000+ images to improve the reliability of parameter calculations.

Executive Manager, Plant Operations | Bharat Petroleum Corp. Ltd.
June 2017 - August 2018 | Balasore, India
- Handled 'Terminal Automation System', HSSE, gantry operations, and preventive maintenance related to storage and distribution of Class A inflammable products.
- Saved millions (Rs.) in operating costs as Control Room Officer through prompt troubleshooting, achieving >98% NANO (No Automation, No Output) rating.

Technical Assistant | Center for Healthcare Entrepreneurship
May 2016 – April 2017 | IIT Hyderabad, India
- Worked in a team of 4 to establish a fully-functional incubation space for startups.
- Understood the nuances of building med-tech products and complying with standards (e.g. ISO 13485). Learned 'Human Centered Design' approach following the Stanford-India BioDesign process. Part of nemo.care founding team.

Product Development Intern | DreamsInfinity
June 2015 – July 2015 | New Delhi, India
- Designed & developed a commercial stereolithography-based 3D printer. Minimized prototyping cost by local manufacturing and in-house resin preparation for Ultraviolet Direct Light Processing. Offered in 2 configurations: top-down and bottom-up.
- Wrote the Arduino code base for printing control in conjunction with customized open-source 3D slicing software, Creation Workshop.

NOTABLE PROJECTS

Master's Course Projects
- Performed system ID in the frequency domain and designed a discrete-time output feedback controller with Kalman filter for a black-boxed LTI system. [Spring'22]
- Gear-pair optimization using Sequential Quadratic Programming. [Spring'22]
- Devised a continuous-time full-state feedback controller for attitude control of a satellite with flexible solar panels using state-space LTI system model. [Fall'21]
- Analyzed forward & inverse kinematics, formulated equations of motion, and examined backstepping & adaptive controllers for 6-axis collaborative robot. [Fall'21]

Bachelor's Honors Project
- Dynamic modeling of 3-axis camera gimbal for smartphone cinematography.

IIT Hyderabad Student Satellite Project
- Core member of Attitude Determination & Control System team for a 3U CubeSat.