

CHANDAN SINHA

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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:// [chandansinha-1](#)

Goodreads:// [orangedurito](#)

StackExchange:// [OrangeDurito](#)

WordPress:// [thevindicatexiom](#)

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 • Shell Scripting

• HTML5 • CSS3 • JavaScript • ReactJS

• NodeJS • Docker • Git • \LaTeX • Arduino

Modeling/Simulation

SolidWorks • MATLAB • Simulink

• Ansys • Blender • ROS • Gazebo

• Fusion 360 • OpenRocket • SysML

Miscellaneous

Database - Relational (SQL) 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. [Blog Post]

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 custom hexacopter drone platform with manipulator arm as testbed to develop data-driven system identification method for robust and adaptive control systems design and collision-free path planning. [Blog Post]

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. [Blog Post]

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 regulatory 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. [Blog Post]

NOTABLE PROJECTS

Master's Course Projects

- Performed system ID in the frequency domain and designed a discrete-time output feedback control system with Kalman filter for a black-boxed LTI plant. [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

- Modeling and control of a 3-axis camera gimbal for smartphone cinematography.

IIT Hyderabad Student Satellite Project

- Core member of Attitude Determination & Control System team for a 3U CubeSat.