Tanmay Chhatbar

Aspiring Automotive Engineer

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As a dedicated automotive engineering student with a passion for innovation, I'm driven by curiosity and competitive spirit. I understand the value of fluency in technology, and enjoy working in all related avenues.

EDUCATION

Master's in Science, Automotive Engineering (ongoing)
Clemson University (CU-ICAR) 2021 - 2023, Greenville, SC
Masters Student of the Year (AuE) 2023

Bachelor of Technology, Mechanical Engineering
Mukesh Patel School of Technology Mgmt. and Engg. 2016 - 2020, Mumbai

WORK EXPERIENCE

Deep Orange 14 internship
Team member for *Vehicle Dynamics* and *Controls* teams 2021 - 2023

- Developed models to *simulate vertical dynamics* of multi-wheeled vehicles
- Collaborated in developing, testing and *improving control strategies* for a 3-ton tracked, skid-steered, autonomy-capable prototype vehicle
- Instrumented vehicle with *sensors for data collection* and state estimation
- Developed MATLAB scripts for data analysis
- *Tools skills* including MIG welding, forklift operation, etc.

Hourly research assistant
VIPR-GS at Clemson University 2022-

- Developing *scalable VD models* for skid-steered, tracked vehicles
- Researching GPS systems utility for autonomous vehicles

Automation controls designer
Starch Products (Family business) 2017 - 2021
Implemented multiple automation solutions to reduce dependency on labor

- Weigh-metric, volumetric *auto-fill systems*
- Variable valve control for fluid flow
- Pulse based rate counter to estimate flow speed, appx. total flow

COMPETITION EXPERIENCE

SAE Aero Design East, 2019
7th Place in Mission Performance Technical Head (2018 - 2019)

- Led the design of fuselage, landing gear and tail-section of aircraft
- Assisted in electronics testing, validation and selection

Boeing Aeromodelling, IIT Kharagpur, 2019
3rd place overall Team Captain (2017 - 2019)

- Led the team in design and testing of aircraft
- Assisted in development planning and manufacturing

Skills

- Systems design
- Vehicle dynamics modeling
- Controls development

Computer skills

- MATLAB/Simulink
- Simscape Multibody
- Programming in Python
- Siemens NX
- SOLIDWORKS
- Additive manufacturing
- MCU development

Content creation

- blender (3D animation)
- kdenlive (video editing)
- GIMP (photo editing)

Languages

English (professional)
Hindi (fluent)
Gujarati (native)

Social accounts

linkedin/in/TanmayChhatbar
github/TanmayChhatbar
youtube/c/TanmayChhatbar

Hobbies

Motorcycles Motorsports
Badminton Sim-racing
AutoX Working on cars

e-CV

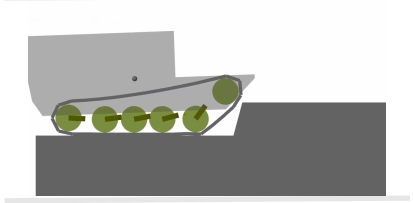
Projects by Tanmay Chhatbar

tanmaychhatbar@gmail.com

Multi-wheeled vehicle modelling

Deep Orange 14 2021 - 2023

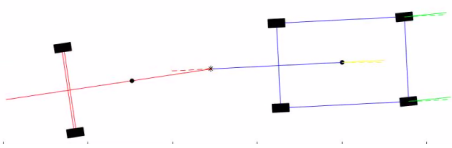
- Created various tools of varying complexity to better understand the dynamic limits of the vehicle we develop.



Tractor-trailer modelling

Clemson University - ICAR 2021

- Developed a fully configurable simplified tractor-trailer model. For small angles of vehicle slip, this model should provide realistic results. The model featured a linear tyre model with no lateral load transfer or suspension.



Vehicle datalogger

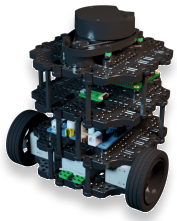
Data collection during AutoX events 2021 - 2022

- As a challenge, I engineered a datalogger for my car to collect inertial and GPS data while participating in AutoX events.

Autonomous robot

Clemson University - ICAR 2022

- Using ROS and Python, we programmed a Turtlebot3 robot to take on wall following, obstacle avoidance, line following, stop-sign detection, and following an April-tag.



Small scale ADAS

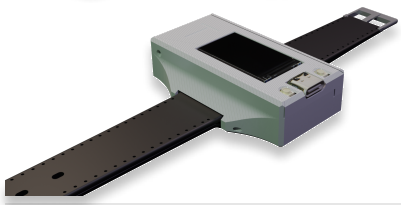
Clemson University - ICAR 2021

- An Arduino Uno board was used alongside ultrasonic sensors to implement Lane-Keep Assist and Adaptive Cruise control on a 1/8th RC car.

DIY Smartwatch 2021

Designed, manufactured and programmed by self

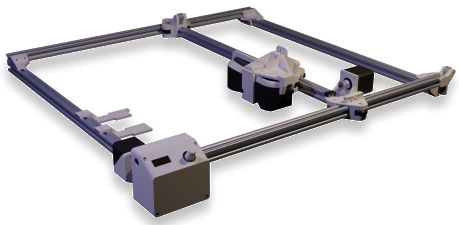
- Expenditure on education and improvement is okay, buying frivolous objects is not. I wanted a smartwatch. There's only one solution. DIY



i1Pro 3 automated plotter 2021

Designed, manufactured and programmed by self

- To automate the process of calibration of a spectrophotometer, an Arduino Nano board running fully custom-written path calculation software along with an intuitive UI was developed.



Improvements in the factory 2021

Designed and manufactured automation solutions and devices for streamlining workflow in processing of potato starch, and packaging of soaps and detergents. for industrial use. These include:

- Automatic bottle fillers for packaging soaps and detergents
- Sound-based acid flow-rate and quantity estimation for positive displacement pumps.
- Packaging heatshrink auto-cutter.

e-CV

More details on my projects