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

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

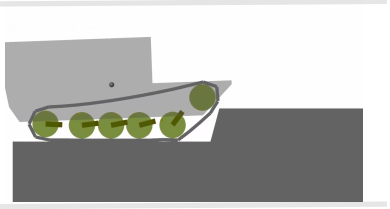
Projects by Tanmay Chhatbar

tanmaychhatbar@gmail.com

Multi-wheeled vehicle modelling

Deep Orange 14 2021 - 2023

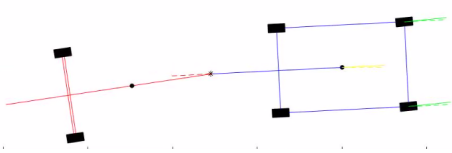
- Created various tools of varying complexity to better understand the dynamic limits of the vehicle we develop.



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

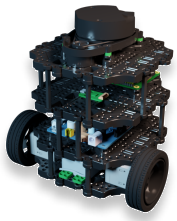
Data collection during AutoX events 2021 - 2022

- 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

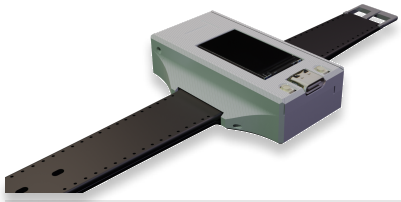
Clemson University - ICAR 2021

- 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

Designed, manufactured and programmed by self

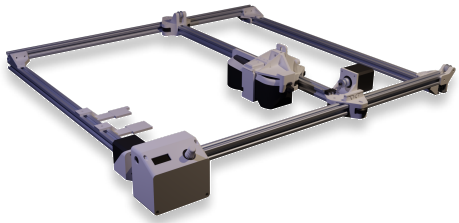
- Expenditure on education and improvement is okay, buying frivolous objects is not. I wanted a smartwatch. There's only one solution. DIY



i1Pro 3 automated plotter

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

Stagnation isn't good for mind or business

- 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