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

(Ongoing) Doctor of Philosophy, Automotive Engineering Aug 2023 - Current
Clemson University (CU-ICAR) Greenville, SC

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

WORK EXPERIENCE

Research Assistant Jan 2022 - Current
Virtual Prototyping - Ground Systems (CU-ICAR) CU-ICAR, Greenville, SC
- Developed *scalable VD models* for skid-steered, tracked vehicles
- Carried out vehicle characterization, digital twinning with DO14 prototype
- Instrumented vehicle with *sensors for data collection* and state estimation
- Developed MATLAB scripts for data analysis
- Benchmarked commercial software against in-house skid-steered models

Vehicle Dynamics & Controls Team Member Jan 2022 - Aug 2023
Deep Orange 14 (CU-ICAR) Greenville, SC
- 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

Automation Controls Designer Jul 2017 - Jul 2021
Starch Products Mumbai, India
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

Technical Head Mar 2019
SAE Aero Design East 2019 Fort Worth, TX
- 7th Place in Mission Performance
- Led the design of fuselage, landing gear and tail-section of aircraft
- Assisted in electronics testing, validation and selection

Team Captain Jan 2020
Boeing Aeromodelling 2019 IIT Kharagpur, India
- 3rd place overall
- 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

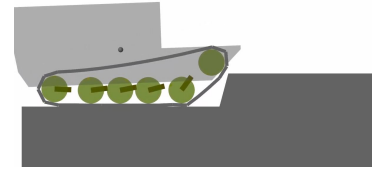| Motorcycles | Motorsports |
| Badminton | Sim-racing |
| AutoX | Working on cars |

e-CV

Projects

tanmaychhatbar@gmail.com

Multi-wheeled Vehicle Modelling — Jan 2022 - Aug 2023

Deep Orange 13-14 — Greenville, SC

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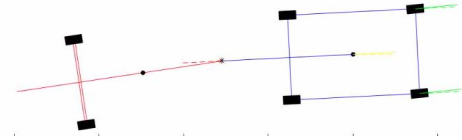

Tractor-trailer Modelling — Nov 2021

Clemson University - ICAR — Greenville, SC

- 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 — Aug 2021 - Jan 2022

Data collection during AutoX events — Greenville, SC

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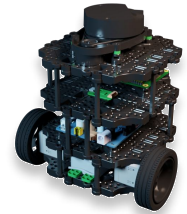

Autonomous Robot — May 2022

Clemson University - ICAR — Greenville, SC

- 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 — Nov 2021

Clemson University - ICAR — Greenville, SC

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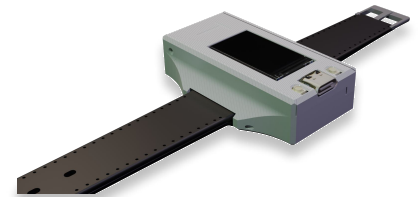

DIY Smartwatch — Mar 2021

Designed, manufactured and programmed by self — Mumbai, India

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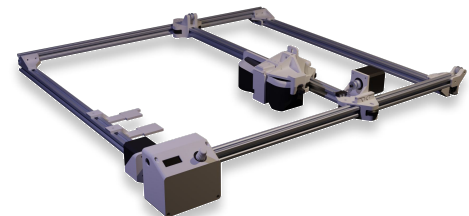

i1Pro 3 Automated Plotter — Feb 2021

Designed, manufactured and programmed by self — Mumbai, India

- 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.

Industrial Automation Solutions — Jul 2017 - Jul 2021

Starch Products — Mumbai, India

Designed and manufactured machines for streamlining workflow in potato starch processing, & packaging of soaps & detergents for industrial use.

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

More details on my projects