

Pavan Kushal Velagaleti

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EDUCATION

- **Mahindra University** Hyderabad, India
Bachelor of Technology - Mechanical Engineer; GPA: 7.8/10 *July 2019 - June 2023*
- **relevant courses:** Fluid dynamics, design of machine elements, Flight dynamics and performance, rocket propulsion, Numerical methods, Time series and forecasting, computational fluid dynamics...

RELEVANT CERTIFICATES

- **University of michigan(MOOC):** :Python for everybody-coursera :October-2022
- **Udacity Nanodegree:** Robotic software engineer :january 2023
- **SAE BAJA-2022:** student team participation certificate.

SKILLS SUMMARY

- **Languages:** Python, C++, JavaScript, SQL, C, urdf, xml,
- **Frameworks:** Scikit, IPynb, Cuda, Catkin, SpaCy, TensorFlow, Keras, ROS
- **Tools:** GRABCAD-WORKBENCH Ansys-fluent, GIT, VSCODE, GAZEBO, SQLite
- **Platforms:** Linux, Web, Windows, Arduino, Raspberrypi, HSMworks, Solidworks, Lotus suspension, IPG-carmaker
- **hardware:** workshop tools: angle grinders, CNC Lathe/Mill, Cura-AM manufacturing

EXPERIENCE

- **GAS MONKEYS RACING**
Student (Full-time) *May 2019 - April 2023*
 - **Captain:** Took care of the finances and managed a team of 16+ members managing most of its design reports such as the DFMEA/BOM sheets approach of system.
 - **Suspension and Steering head:** Designed and manufactured a suspension system based on H-arm +camber link in the rear and double A-arm in the front.
 - **Vehicle Dynamics head:** Used Ipg carmaker to make efficient vehicle dynamics system for the four wheel drive.
 - **impact:** Built one 2-WD, one 4-WD and one Go-Kart successfully.
- **Orion Club of MEC**
Student (full time) *September 2019 - April 2022*
 - **RC PLANES:** designed and assembled RC micro planes using foam board and NEMA-34 Stepper motor, servos and batteries(+ a bunch of electronics).
 - **Lidar drones:** Designed and Manufactured an FPV as well as a lidar UAV Drone capable of lifting a payload of 4 kgs.

PROJECTS

- **High speed missiles using transverse sonic injections:** (Work in progress) Research oriented, Mechanical engineering , To figure out the maneuverability of generic missile with respect to the injection holes present on it using high end numerical methods. Tech: Ansys meshing and analysis, Nvidia-cuda gpu, MS excel, Solidworks (April '23)
- **Home service robot(ROS NOETIC, GAZEBO):** built a home service mobile robot that is able to pick and drop objects autonomously navigating itself around the surroundings using localization, mapping and navigation. Tech: c++, catkin-make, RTABMAP ,RGBD -SLAM, SQL, AMCL, Teleop packages, shell scripting (jan'23)
- **Reinforcement Learning on Open AI - 2D autonomous driving (Reinforcement Learning, Computer Vision):** AI model to solve the Open AI based 2d driving model using multi layer perceptron policy. Tech: Python, Nvidia-Cuda, VSCODE, swig, stable baselines ,ipynb, Tensorflow, Conda environment. (November '22)
- **Reinforcement Learning on ATARI GAME - Time pilot (Reinforcement Learning, Computer Vision):** AI model to solve the arcade game Time pilot using proximal policy optimization. Tech: Python, Nvidia-Cuda, VSCODE, Raspberry Pi, ipynb, Tensorflow, Conda environment. (August '22)
- **Rayleigh taylor instabilities in space - (ANSYS, MS OFFICE:** Study of rayleigh taylor instabilities of two immiscible liquids with different densities was conducted and validated using cfd. (May'21)

PUBLICATIONS

- **Research on missiles:** Work in Progress to be published on High speed missiles using transverse sonic injections.

HONORS AND AWARDS

- Handled 13 lakh indian rupees for the SAE BAJA competition 2022 for the gas monkeys racing as its captain.
- Awarded people's choice for mastershot 2019
- Second Runner's Up for capture the flag organized by the cyber security club-2020
- Played as a right winger/midfielder for football team of mahindra university-2019-22

VOLUNTEER EXPERIENCE

- **Host for the art fest Kalakriti-2019** Hyderabad, India
presented the event and performances for kalakriti during the freshman semester *November -2019*
- **Event Organizer for the Baja Food fest-2021** Hyderabad, India
Organized fund raising event for the gas monkeys racing adn raised 2 lakh invr. *Jan 2018 - Present*