Pavan Kushal Velagaleti

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Education

- **Mahindra University** Hyderabad, India
  Bachelor of Technology - Mechanical Engineer; GPA: 7.8/10 GRE: 332/340 IELTS:8/9 *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, control systems.**:

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.
- **NANOFUSION**
  intern *March 2022-May 2022*
  - : Designed an exhaust manifold using solidworks(splines) to be manufactured using additivve manufacturing.
- **GreenBox-Rockwell Industries ltd**
  Intern(part time-research and development.) *February 2023-present*
  - : automated dust and dirt cleaning for Air conditioning condensors by using solidworks, motors,gears and fans.

Projects

- **High speed missiles using transverse sonic injections**: (Work in progress) Research oriented, Mechanical engineering , To figure out the maneuvarability 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)
- **Sign language detection (DeepLearning, Computer Vision)**: deep learning model to recognise sign languages using LSTM and opencv on ipynb. tech:python,jupyter, opencv,tensorflow,matlplot, mediapipe (Feb-23')
- **Home service robot**: 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 preceptron 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 instabilies 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,Awards and Extra curriculars

- 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 inr. *Jan 2018 - Present*