Shreyas Ravi

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Education

Oxford Brookes University, Oxford, UK
M.Sc. Motorsport Engineering — Merit
September 2018 - September 2019
-Conducted research on Driverless vehicle analysis and compared control theories for Formula Student Autonomous Vehicle as master's dissertation.

SRM University, Chennai, India
B. Tech, Automobile Engineering — 8.3 GPA
July 2014 - May 2018
-Designed, analyzed, and fabricated Variable Length Intake Manifold as B. tech project.

Skills

CAD: Catia V5, Solidworks
CFD: Ansys fluent, star ccm+
Other: LS-dyna, Matlab/Simulink, Adams, EcoCal, EM-tune (*engine calibration software*), Avl vsm; MoTec i2, Ni multisim

Projects

Driverless Formula Student Vehicle, Control strategies and event analysis
-Conducted research and analysis of autonomous electric vehicle
-Studied various control theories and control strategies used in the Formula student and DARPA challenge for autonomous vehicle
-Developed MPC and Lateral-Stanley controller for OBR electric Vehicle
-State space models developed for each controller design

Variable Length Intake Manifold for small 4S IC engine
-active length variation design to adapt the RAM supercharging at different RPMs
-rack & pinion design for length variation
-Construction of self-designed rope dynamometer for testing and validation
-Conversion of carburetted engine to Electronic fuel injected one for testing and validation

Adaptive quarter wavelength tube (AQWT)
-Conceptualised and designed an AQWT based on the inverse of RAM air Intake for OBR formula student team to reduce noise and improve performance at 25mps piston speed.
-Reduction of 3-4 dB in noise level was noticed upon testing.

Conversion of Otto cycle to Atkinson cycle
-Developed new Cam shaft design for the conversion of traditional Otto cycle to a more efficient Atkinson working cycle in a 110cc CVT operated engine.

IED Blast simulation on V-hull tank
-Developed V-Hull tank from the old v-hull military design material properties
-CATIA v5 for meshing and LS-DYNA for Blast simulation

Experience

Team Member (AI, EV & CV)
Oxford Brookes Racing, Oxford, UK — 09/2018 – 09/2019
-Being a stand-in powertrain EV lead, managed a team of five to design, fabricate and document reports for competition.
-Conceptualized and carried out the calculations for the exhaust manifold to reduce noise and improve performance using AQWT.
-Developed a lateral controller for autonomous car using simulink and fulfil hardware requirements for testing of software.

Team Leader
Infieon Supermileage, Chennai, India — 02/2017 – 04/2018
-Managed a team of 26 People, the team won Its first award overseas for technical innovation at shell eco-marathon Asia '18.
-Introduced a variety of new sub teams to restructure the team, improving productivity with the limited resources available, resulting in the team attaining best Indian team status.

Team Driver and Powertrain Lead
Infieon Supermileage, Chennai, India — 04/2015 – 02/2017
-As the combustion powertrain leader, developed a unique rear wheel hub specific for the vehicle and proposed an innovative clutch design to improve coasting distance and reduce rolling resistance.
-Collaborated with the electrical team to convert carbureted engine to fuel injected engine, while also developing ram intake and ceramic coating.

Assembly Line Trainee
Ford, Chennai, India — June 2016
-Devised test methods for LHD & RHD vehicles while improving the efficiency of international shipping bay.
-Submitted detailed reports with the problem statement and provided possible solutions.

SUMMER INTERN
TAFE, Chennai, India — June 2017
-Studied different gear production methodologies and understanding the gear architecture of TAFE gear cum steering casing.
-Suggesting international standards be implemented and ways to implement them with the help of report.

UNIVERSITY INTERN
Visteon Electronics, Chennai, India — 12/2017- 04/2018
-Analyzed stress development in instrument clusters using ANSYS software for analysis and Investigated NDT methods for testing of the instrument clusters.
-Investigated NDT methods for testing of the instrument's clusters.
-Proposed improvements in manufacturing technique by *collaborating with universities and other industry.*

Publication

"MPC Controller for Autonomous Formula Student Vehicle", SAE Technical Paper 2020-01-0089, 2020, https://doi.org/10.4271/2020-01-0089

Additional Certifications

Model-based Automotive systems Engineering — Chalmers-edX
-Modelling and simulation of system dynamics in automotive engineering

For more information on projects and reports, kindly visit ravishreyas.github.io/shreyas