

# 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 prepared for each controller design.

### **Variable Length Intake Manifold for small 4S IC engine**

-active length variation design to adapt the RAM supercharging between 3000-7000 RPM range.  
-rack & pinion design for length variation.  
-Construction of self-designed rope dynamometer for testing and validation with 80% accuracy.  
-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 by 3-4 dB 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 by 56% 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, improving fuel efficiency by 16%.

### **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, stating an improvement of 12% in assembling time.

### **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](https://ravishreyas.github.io/shreyas)