

TEAMBATH™

Racing

electric

NEWSLETTER
ISSUE 1
OCTOBER





MEET A TEAM MEMBER

Why TBRe?

The team combines the thrill of racing with the best part of studying engineering; designing and making stuff! I wanted to challenge myself with electrical concepts and gain a deeper understanding of the electrical powertrain. This is why I got involved with designing and manufacturing the battery and fell in love with EV's on the way.

As an avid racing fan who has defended motorsport from sceptics for years (no they do not just drive around in circles), I saw TBRe as the best opportunity to showcase to the world the potential of racing, in providing a fast track for real technical solutions. Also, nothing can match the adrenaline rush caused when you see your work race around a track.

Future plans

My passion for engineering is now stronger than ever and I aspire to carry this momentum into a career in the automotive/motorsport industry. The ideal recipe would be cars with a spoonful of racing action, sprinkled with travelling the world.

Recent event attendance

This month I was invited to headline in a panel at the South Gloucestershire Business Show where, along with industry experts, I discussed the effects of electric motorsport and engineering innovation on the EV market.

Natalie Kyprianou

Degree

Masters in Mechanical Engineering with Industrial placement

Role

Accumulator Lead. In charge of the design and manufacture of the TBRe19 vehicle's battery.

Industrial experience

3P Innovation Project Engineer. Designed, manufactured and assembled the first aseptic vial crimping machine for application in the medical industry.

Fun Fact

She can recite any Friends quote on demand.





CAR SECTION IN HIGHLIGHT

Vehicle Dynamics

Vehicle Dynamics is the study of a vehicle in motion. For us this encompasses the tyres, wheels, suspension, steering and braking systems. This year we are placing a large focus on this area to maximise the potential of our powertrain.

Aim 1: Forward thinking

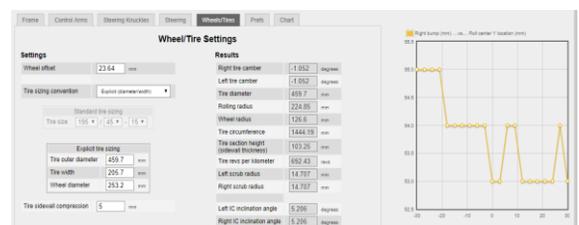
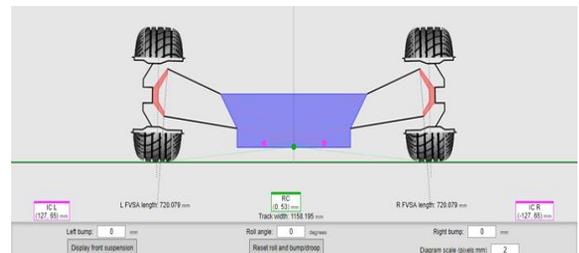
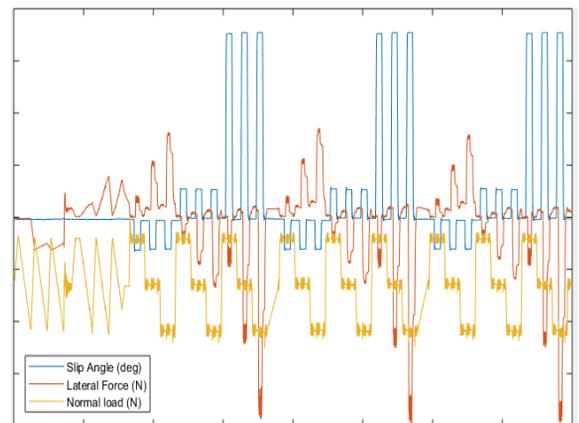
By starting the design of our vehicle dynamics (VD) systems as far upstream as possible, we allow our VD to influence the design of other vehicle systems, rather than vice versa. This means we keep our design focus fully on maximising mechanical grip between the tyres and the road, maximising the car's acceleration capability, and therefore its overall performance pedigree.

Aim 2: Fundamentals

With a focus on getting the fundamentals right rather than pushing boundaries, we are confident we will achieve a dynamically sound vehicle with a high capability to utilise the potential of our electric Powertrain. Coupled with careful packaging of high-mass components to lower the centre of gravity as far as possible and our design philosophy of light-weighting, our VD design will help us climb the Formula Student leader board and begin challenging for the outright UK #1 spot, on top of our #1 UK EV title.

Work done so far

- Carefully considered target setting;
- Used tyre test data to inform geometric and spring rate targets;
- Defined wireframe geometry;
- Obtained feedback on initial designs from industry sponsors;
- Kicked off dynamic modelling.



Moving forward

- Vehicle modelling and simulation;
- Detailed component design of VD systems;
- Track testing to determine optimal geometries;
- Redesign components with fixed geometries to strip mass.

SPONSOR OF THE MONTH

MAHLE
Powertrain

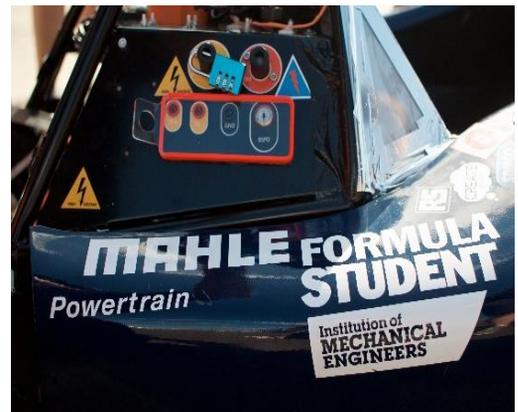
MAHLE Powertrain

MAHLE Powertrain Ltd is a global Engineering Consultancy that specialises in the design, development and integration of advanced internal combustion engines and electrified powertrain systems. MAHLE Powertrain is the wholly owned engineering services division of MAHLE GmbH – a German automotive parts manufacturer with headquarters based in Stuttgart. It is the third largest supplier of engine systems, filtration, electrics, mechatronics, and thermal management.

Besides the industry success, MAHLE's more notable achievement is undoubtedly their "Dual Strategy". Dual Strategy is MAHLE's way to continuously improve transportation efficiency, while making transport more environmentally friendly. For more information visit www.mahle-powertrain.com

MAHLE Powertrain with TBRe

MAHLE Powertrain provides an instrumental amount of support to TBRe. For the 2019 season they will help by purchasing a new EMRAX 228 Motor and providing access to their world class engineers and a wide range of their facilities. Over the course of this year MAHLE will help us fully understand the newly purchased motor by supporting motor characterisation which will enable more advanced control techniques.



Job opportunities at MAHLE

If you are interested in working with MAHLE Powertrain, Click Below:

- [Graduate Engineer - Mechanical / Electrical / Software \(Sept 2019\)](#)
- [Placement / Undergraduate Engineer \(12 months\)](#)

**TAKE YOUR PATH
WITH MAHLE.**

