



Motorsport Engineering Services Brochure

OUR STORY.

Jahee Campbell-Brennan, Founder

After graduating with a Masters degree in Automotive Engineering in 2013 followed by a 5 year stint working for an Automotive OEM, in 2018 Jahee founded Wavey Dynamics as a vehicle to explore his ambitions as a motorsport engineer; specialising in vehicle dynamics, aerodynamics and engineering design.

Wavey Dynamics' mission is to collaborate and partner with organisations to help them achieve the absolute maximum of performance from any engineering application. Whether that be for a high performance road car or a motorsport team on a mission to win a hard fought championship, our forte is delivering results at the cutting edge of engineering technology and innovation.

Wavey Dynamics is on a journey to become an industry leading, specialist consultancy within global motorsport & high performance engineering. Thanks to the knowledge and experience we've gained to date and the manner in which we work, we're fast becoming synonymous with creativity, efficiency and integrity.

As we continue to build our vibrant brand, we're set to help redefine the landscape of specialist engineering.

WHAT WE DO.



Wavey Dynamics is a specialist vehicle dynamics and aerodynamics consultancy focused on primarily on automotive and motorsport performance development. Our clients are under continuous pressure to innovate and require specialist knowledge to operate at the intensity demanded by their competition.

You may be in a highly competitive championship battle or preparing for one; our unique depth of skill in both aerodynamics and vehicle dynamics allows us to create innovative solutions unavailable to your competitors to give you a clear advantage.

We're favourably placed to offer the following services:

- Vehicle dynamics development
- Aerodynamics development
- Performance & race engineering
- Engineering design

Exceptional Insight

We offer an in-depth understanding of the fundamental physics behind racing, enabling us to implement pragmatic solutions to keep you at the front of the grid. Utilising modern instrumentation, data analysis and simulation tools, **We help to drive a blend between a deep understanding of technology and clear performance outcomes.**

VEHICLE DYNAMICS.

Vehicle dynamics is at the core of our work. A clear vision to work with the best, along with constant research and development in this discipline enables us to deliver in a range of applications; whether it's working on drivability or finding lap time to close down the competition at the track.

When you're in contention for a championship, a knowledgeable hand is what you need to find the extra few tenths from your chassis and clinch deciding points for your team and drivers.

We can help you with the following:

- Trackside support
- Laptimes simulation.
- Development of vehicle dynamics models.
- Vertical dynamics optimisation (rig testing and simulation).
- Kinematics & compliance analysis.

With a data driven, tyre focused approach, a strong root in the physics and an understanding on the importance of subjective considerations to complement analytical engineering, we'll give you the competitive edge.

AERODYNAMICS.



A racecar's performance can't be fully considered without a fundamental understanding of the interaction of its aerodynamics on the chassis platform.

Having competence in vehicle dynamics is a great advantage in any team, but what can often be missing is a similar depth of understanding into aerodynamics and how the interactions between the two disciplines can manifest.

A mis-matched chassis and aero platform can cost seconds of performance, not least for your drivers confidence.

Combining our knowledge with analytical techniques, we want to help you find every hundredth through:

- Trackside aerodynamic performance optimisation.
- Computational Fluid Dynamics (CFD) development.
- Windtunnel support.
- Optimising aeromap & chassis relationships.
- Component development.

TRACKSIDE ENGINEERING.



Utilising the advantage that our combined aerodynamics and vehicle dynamics experience brings to racing, we consider race car development with a 'tyre centric' recognition to the interactions of vehicle systems and how they must complement each other to produce championship winners.

Achievements are measured as either success or failure. There's no better platform to polish and demonstrate high level, applied engineering.

We support you with:

- Race engineering and trackside assistance.
 - Performance engineering.
 - Data analysis.
- Lap time simulation.
- Development of vehicle dynamics models.
- Test session planning and supervision.
 - Including lab based assessments.
- Chassis & Aerodynamic Development.
- Component design.

HELPING OUR CLIENTS ACHIEVE SUCCESS.

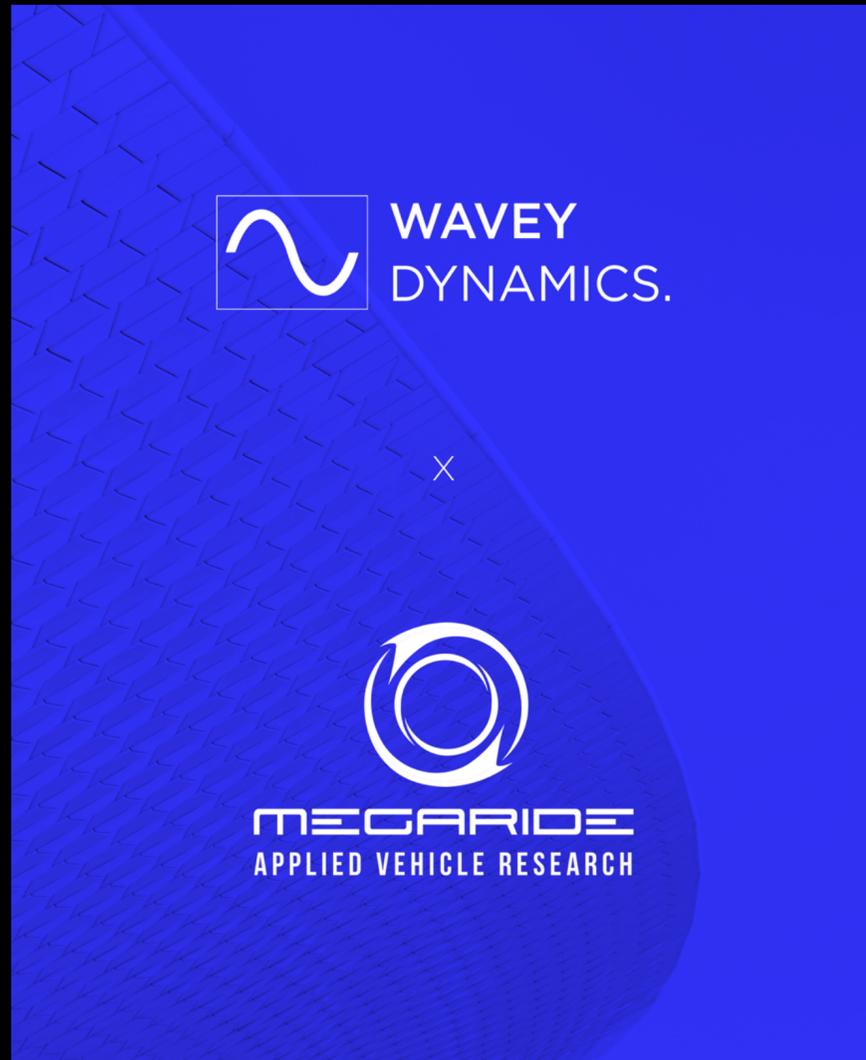


Wavey Dynamics has recent projects including:

- CFD Optimisation of a rear wing profile resulting in +20% C_L whilst maintaining C_D .
- Design and development of underbody aerodynamics for GT application with focus on rear diffuser performance.
- Creation of MATLAB based vehicle dynamics models.
- Vehicle dynamics development of Cup level race car resulting in ~4s lap time improvement at the Nurburgring Nordschleife.
- Design of an aerodynamic splitter with integrated brake cooling ducts. With conjugate heat transfer analysis indicating a circa 30% reduction in peak brake temperatures.
- Experience in the influence of wheel geometry and transient load transfer effects in tyre management for qualifying and race events in GT3 endurance races.
- Wind tunnel scale model testing.
- Considerations into tyre hysteresis relating to 7-post rig testing.

With vehicle performance and the competition constantly evolving, maximising a platform's potential has never been more critical. Are you confident that your understanding is progressing at the same rate?

“BREAKING BARRIERS TO F1 TECHNOLOGY”



Wavey Dynamics has recently announced a partnership with MegaRide - Applied Vehicle Research, the technology company specialised in developing advanced tyre models for motorsport and automotive applications.

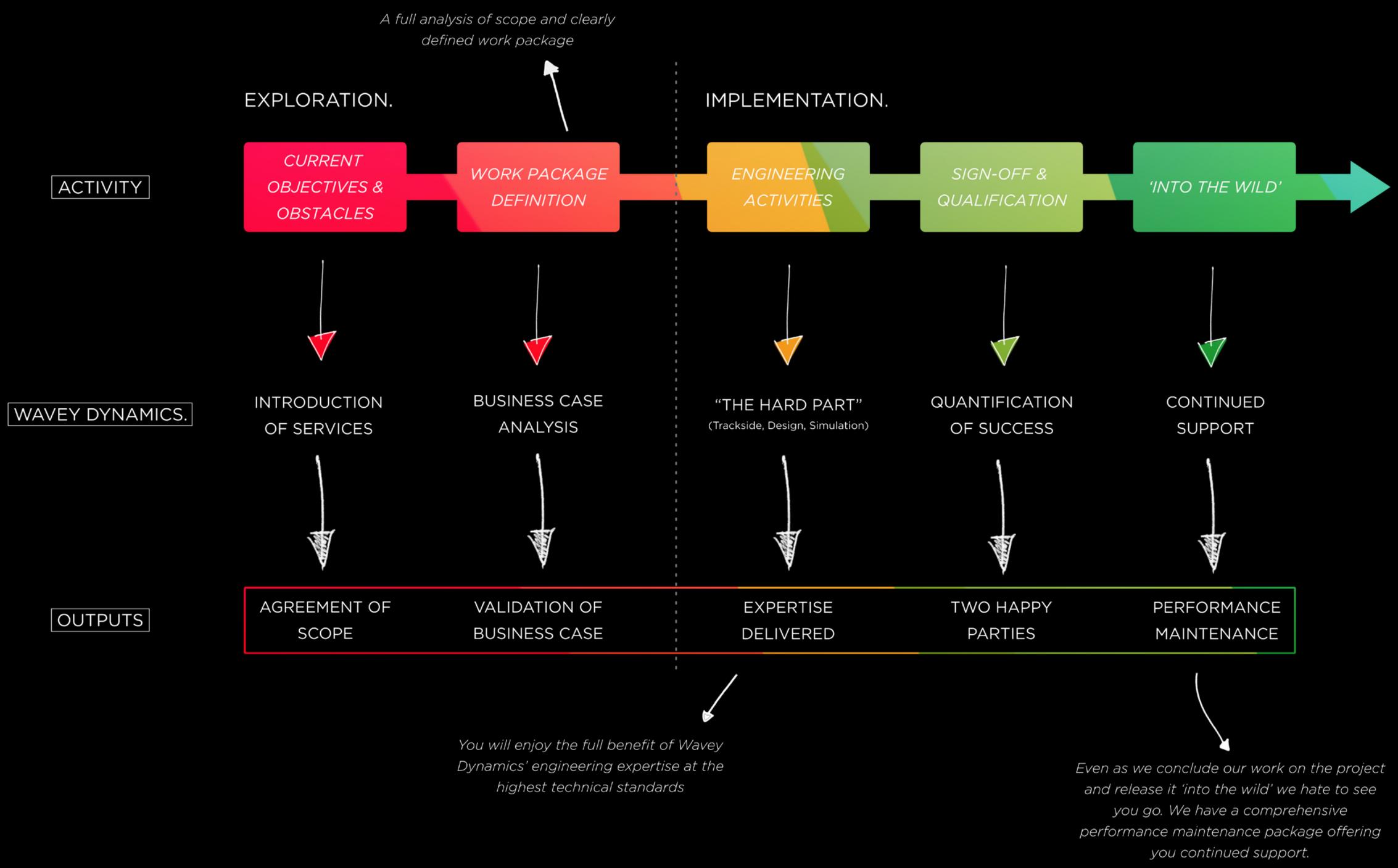
Bringing advancements in the fidelity of tyre models to include real-time prediction of thermal effects, wear effects and chemical degradation for their effect on grip levels over a tyre's life, this adds another dimension of understanding into design options and setup strategies over a race event.

With the addition of this technology into our consulting services, we expand our range of technological competence and further closes the gap between the simulated world and the measured world.

CUSTOMER JOURNEY.

Our customer journey is designed to keep our partners front and centre of achieving their desired outcomes.

We explore your challenges and introduce solution focused services within an agreed scope.



THE WAVEY DYNAMICS ACADEMY

- Targeting young Black people at three distinct phases in their professional journey:
 - **Young students:** Age 12-17:
 - Inspiration for STEM via motorsport.
 - **Undergraduate:** Age 18-21:
 - Bachelors & Masters thesis projects → Skills & experience
 - **Post Graduate:** Age 22-26:
 - Proof of talent (w/ certification) → Employability.
- Key Objectives:
 - Inspiration
 - Inclusion

To launch this program, we need to get racing.

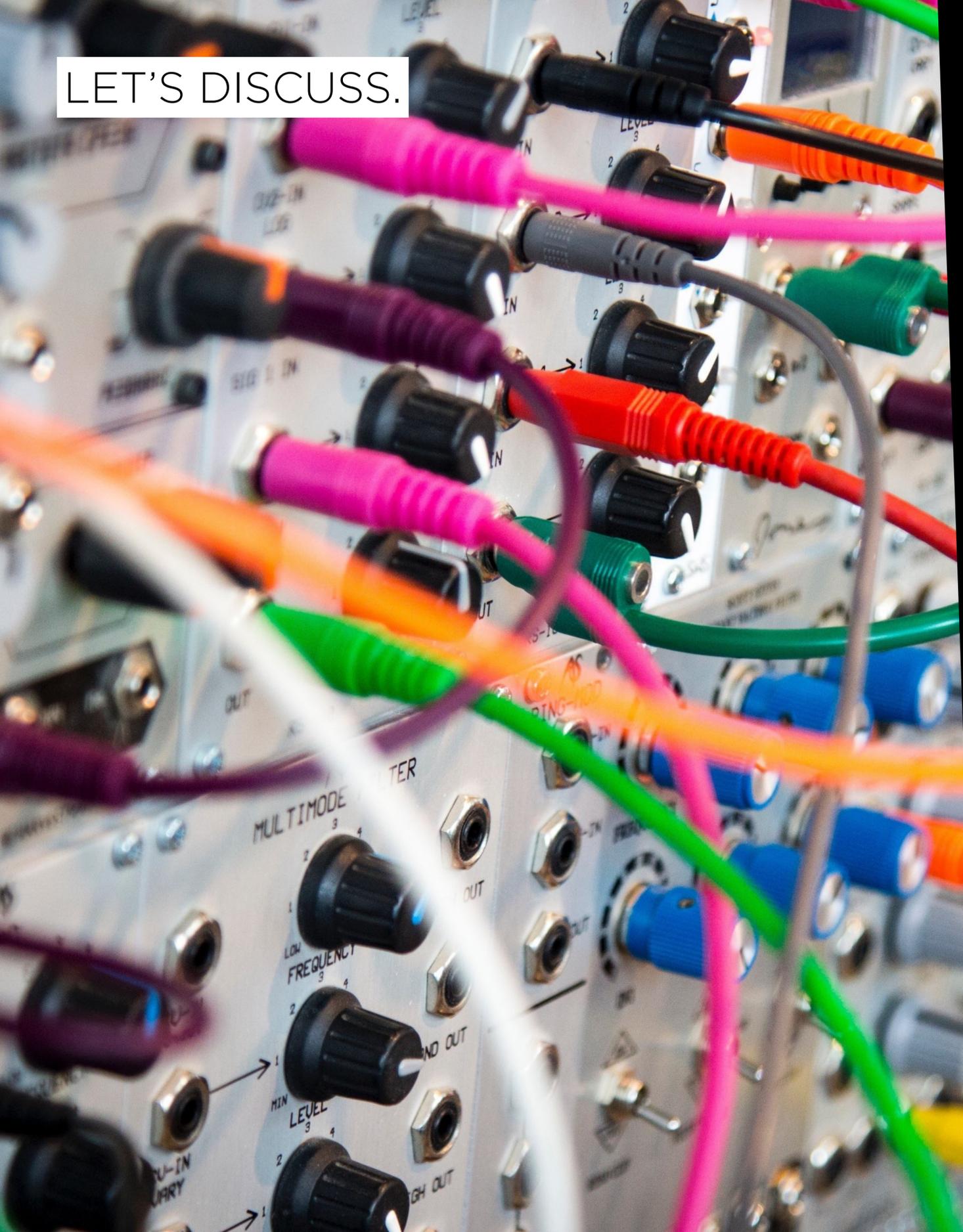
OPPORTUNITIES.



Wavey Dynamics' founder, Jahee, is currently technical director of MFT Racing, a European racing team with objectives to compete at the prestigious Le Mans 24h and the forthcoming E1 electric powerboat racing series as the first professional racing team of majority Black heritage.

We want to do things differently along the way and have many exciting initiatives focused on improving racial and gender diversity in STEM subjects through the passion and competitive engineering of motorsport.

If you want to partner with us as we reimagine motorsport, we'd love to speak with you.



LET'S DISCUSS.

- Our website has much more detail on our company, expertise and services offered, along with a collection of technical articles written to summarise a sample of projects we have undertaken.

Please visit waveydynamics.com to learn more.

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