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THE PURSUIT OF EXCELLENCE

FORMULINO

THE ORIGINAL SINGLE SEATER EXPANDS ITS HORIZONS. THANKS TO AN INTELLIGENT PROJECT THAT COMBINES MODULARITY, ABSOLUTE SAFETY AND VERY LOW COSTS

SIMULATOR

LEADING DRIVERS BERTRAND BAGUETTE AND BEN HANLEY DESCRIBE THEIR EXPERIENCES IN THE "CHAMBER OF WONDERS" AT VARANO: "IT'S JUST LIKE BEING ON THE TRACK"

DESIGN

TOMORROW'S RACING AND PRODUCTION CARS WILL FEATURE HIGH TECHNOLOGY AND LOW RUNNING COSTS. WE SHOW YOU HOW DALLARA'S DESIGNERS ARE PLANNING TO MEET THE CHALLENGE

DESIGNED SPECIALLY FO

ORIGINALLY CREATED TO HELP YOUNG DRIVERS MAKE THE STEP UP FROM KART RACING TO F.3., "FORMULINO" IS RAPIDLY ESTABLISHING ITSELF THANKS TO ITS MODULAR FORMAT, WHICH MEANS THAT ALL THREE VERSIONS CAN BE ADAPTED IN ORDER TO MEET THE REQUIREMENTS OF CHAMPIONSHIPS AND TEAMS. AN INTELLIGENT WAY OF RACING THAT REDUCES COSTS WITHOUT COMPROMISING ON SAFETY AND WHICH IS GAINING POPULARITY ALL OVER EUROPE.
WE SPOKE TO THE PROJECT'S COMMERCIAL MANAGER, ENGINEER NENCI

OR EVERYONE

- Engineer Nenci, how did the Formulino project come into being?

"Formulino grew out of the idea of establishing a connection between karting and F.3. A market segment that is "crowded" with cars produced by our competitors. However, Dallara's top priority is driver safety, and this, inevitably, means higher costs than manufacturers who produce simpler models. I would like to stress that Formulino is built to the same standards as an F.3. car: vehicle body, front and rear crash boxes. There are very few vehicles that can boast comparable specifications at this market level".

- How was the concept of this car developed? How does it differ from the F.3?

"The Formulino philosophy is to create a car whose technical specifications are very similar to those of the F.3. – geometry of the suspension systems, weight distribution, gearbox, components – but that is much less expensive. At Dallara we possess all the know-how needed to achieve this aim; since we already build the F.3. chassis we know where it is possible to intervene, for example using less costly materials, but in greater quantities: with respect to the F.3. model it will weigh about a kilogram more, cost less, but will be just as safe. To give you another example: all four hub-brackets will be identical, the only difference being in the front and rear mountings. This means that, if the driver crashes, the team can get by with one or two hub-brackets rather than all four. The same applies to the suspension forks, brake discs and so on. This helps to reduce team budgets with respect to F.3".

- An economic management concept that also applies to the engine…

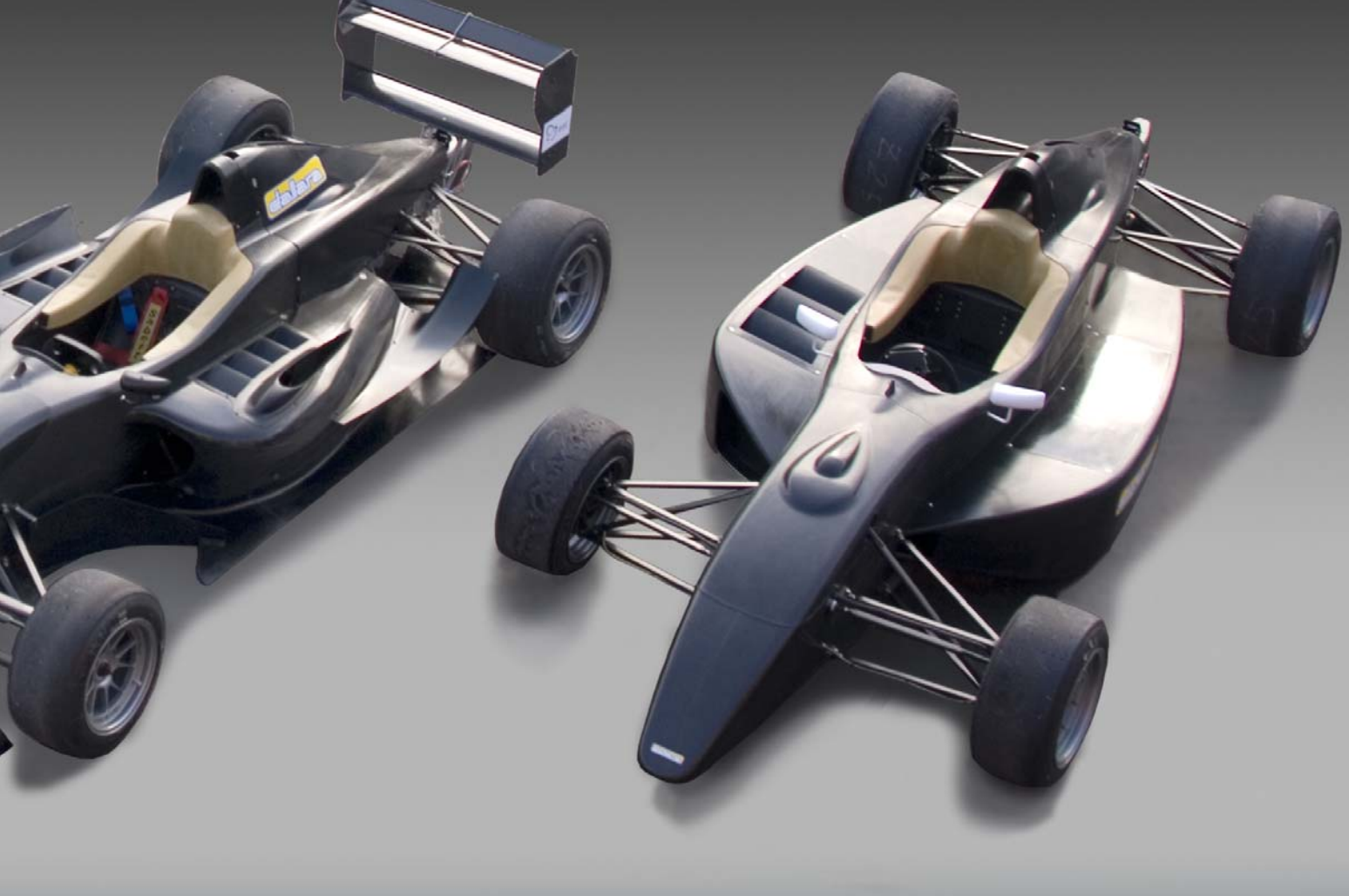
"Indeed. The capital cost of a F.3. engine is very high, in the region of €400,000 a year. By contrast, the Formulino uses a standard production car engine. We have created three engine-installations, two Ford models and a Volkswagen; the latter is the 145 horsepower, 1.6 Golf engine, which has been modified slightly in order to adapt it to a racing car. These engines require practically no maintenance whatsoever, in fact, at the end of each season, just to be sure, Volkswagen opens the engines and then closes them again immediately because they are just like new. The same applies to the Ford Duratec 2000".

- What is the strength of Formulino?

"In addition to safety and reduced costs, I would say its modularity. Formulino exists in three versions, and it is possible to switch from one version to another simply by changing a handful of components. Each version has been designed for a different target, but clients can customize them according to their requirements".

- Can you describe the three versions in a little more detail?

"The basic version, without wings, is very similar to an English F.Ford, and was created in order to accustom drivers to the purely mechanical reactions of the car. The second, which is called "Plus" and features aluminum wings, is designed to get the driver used to handling aerodynamic loads on curves. This is the most marketable version since it represents the link between kart racing and F.3.; an F. Junior in an F.3. championship. In Germany, for example, it helped to develop a young driver like Richie Stanaway, who went on to win convincingly in F.3 and even won a GP3 race on his debut. The third option, known as "Pro", is more complex: it has two radiators, connected by a crossover tube, the F.3. type extractor, the bodywork, the carbon wings with flaps that generate much more load than the "Plus", the dual front shock absorbers and the same tyres as the F.3. It has been designed to be used instead of the F.3. in emerging markets where a championship at that level would be too expensive. To the untutored eye, it looks very similar to a F.3., and can be used as a substitute when it is necessary to keep running costs low. The Formulino powered by the Ford engine, which is on show at Indianapolis and has also appeared at Sebring, was created to satisfy the demand for a "ready to drive" car for new organizers, who are maybe less familiar with many aspects of motorsports, and hence not in a position to



go out and source suppliers for engines, electronics, etc. This is a first off for Dallara because our cars are normally supplied without these items. A first off that opens up new horizons for us since we are now prepared for the fact that we could be asked to organize a complete package, involving mechanics, engineers, spare parts and logistics".

- In what ways can the Formulino be customized?

"If the customer requires a Basic version with a few modifications, nothing could be simpler. For example, the wheels normally feature rims with four mounting holes, because these cars are not designed for pit-stops, but if the customer wants centre lock wheels then the cars can be supplied with them. The same applies to the wings, or preparing the bodywork so that the car can be converted from the single to the dual shock absorber version. An innovative feature in a world where everything usually conforms to the specifications and modularity does not exist. In theory, it is possible to purchase the "Basic" version and then "upgrade" once every two years or when it is necessary".

- What skills should Formulino drivers have?

"That's easy: they should know how to put their right foot down!.
As the drivers will tell you, it's very easy to take the car to its limit, but very difficult to take it to extremes. Anyone can enjoy themselves, and most drivers will reach acceptable performance levels, but if you're a really good driver than you have to demonstrate it. Exceptional drivers, like Stanaway, can achieve the very highest levels, whereas most drivers will only be able to reach the occasional peak. Christian Abt took it for a test drive and was highly enthusiastic about it afterwards. It's a car that anyone can drive, once they've got used to the clutch, which means that it won't intimidate young drivers making the step up from kart racing. Furthermore, several German F.3. teams also have a Formulino, which they use when conducting trials with young drivers, since it costs a lot less to run: just start it up and off you go. Also, engine hours cost a lot more in F.3. In this way Formulino could also develop into a business in its own right".

What has been the response from the German market? Are there any plans or requests to extend the use of Formulino to other countries?

"Initially, the response from the German market was very encouraging, with orders for around thirty cars, but once the effects of the financial crisis began to be felt the demand dried up. However, last year things had already started to pick up, and there were around 25-29 vehicles in use, with additional orders to come. We already have two orders for next year. And, as I mentioned, the drivers are happy because it offers them a smooth transition to F.3. Next year we expect to see one, probably two, new championships, with expansion outside Europe, for example in the United Arab Emirates and India".

Stefano Semeraro


MOOG

TOO REAL TO BE TRUE

The simulator at Varano is the only one of its kind and can be used to reproduce the track experience in amazing detail, so much so that it can even be used to determine the right set-up. Bertrand Baguette and Ben Hanley explain

Bertrand Baguette, 25 years old, Belgian, won the World Series Renault 3.5 in 2009, he has raced in IndyCar and test driven F.1. cars for Renault and Sauber

BAGUETTE: "THE SIMULATOR HAS HELPED ME TO IMPROVE MY DRIVING STYLE"

What was your first impression when you entered the simulator?
"It's a really nice machine and when you get in it you feel like you're in a real car. You have to do a proper seat, you go in the simulator with your helmet, suit gloves and everything which really gives you the sensation you get in a real car".

What impressed you the most?
"The realism of this simulator. The first time I crashed at Indy, I just closed my eyes, put my arms on my breast and wait for it to stop. You're so much in the simulation that when you crash you need a few seconds to realize that you don't risk anything".

Have you ever tried any other simulators in the past? What makes Dallara's simulator different?
"Yes, I tried a few others simulator but never at the level of the one in Dallara. In Dallara, you have a complete building dedicated to that. 20 engineers working full time to make it as accurate as possible. The simulator is always getting better and better thanks to that".

What benefits can a driver derive from this instrument?
"For a driver it's more to get a first feel from a new car, in my case it was the new DW12. It's also very useful to learn a new track. As track, time is really limited during a race weekend you can quickly get up to speed when you got to do some laps on a simulator before".

Is such a sophisticated simulator capable of substituting an actual test carried out on the track? Is it also possible to use it to test set-ups for specific races?
"The feeling you get is so accurate that you can start to work on a proper setup with your engineer. For sure there's nothing better than the real track but the simulator can give you the good direction to take with the setup. After that you can fine tune it on a real track".

Is it as physically demanding as a real drive?
"The steering wheel is as heavy as in real life but the physical effort isn't so important because you don't have as much G force as in reality".

Do drivers trust the indications that they receive during a test in the simulator?
"Yes, for sure otherwise there is no need to go there. It gives you a very good first feeling about a car, a track or a setup. You spend days and days on a simulator trying a lot of different things which allows you to spare a lot of time on the track".

Do you think that this type of technology can actually help to refine driving technique and improve safety?
"It's one of the best tools to improve your driving style. You can try different things without risking to damage something. You can analyze quickly what you're doing on the data with different runs done with same conditions same tires, same load of fuel which is impossible to do in real life. You can like this compare different runs where the only difference is your driving style".

What suggestions would you as a driver offer to make the simulator even better?
"The only big point missing on the simulator right now is the G force. I know that it's difficult to reproduce that because you would need a lot of space but if we could find a way to reproduce this feeling in the simulator, this would be a big step forward".

Alessandro Santini

HANLEY: "IT EXCEEDS ALL EXPECTATIONS"

What was your first impression when you entered the simulator?
"When I first went into the simulator room I thought WOW, it exceeded all my expectations especially with the size of it!".

What impressed you the most?
"The sheer size, the wrap around screen and graphics and above all its realism!".

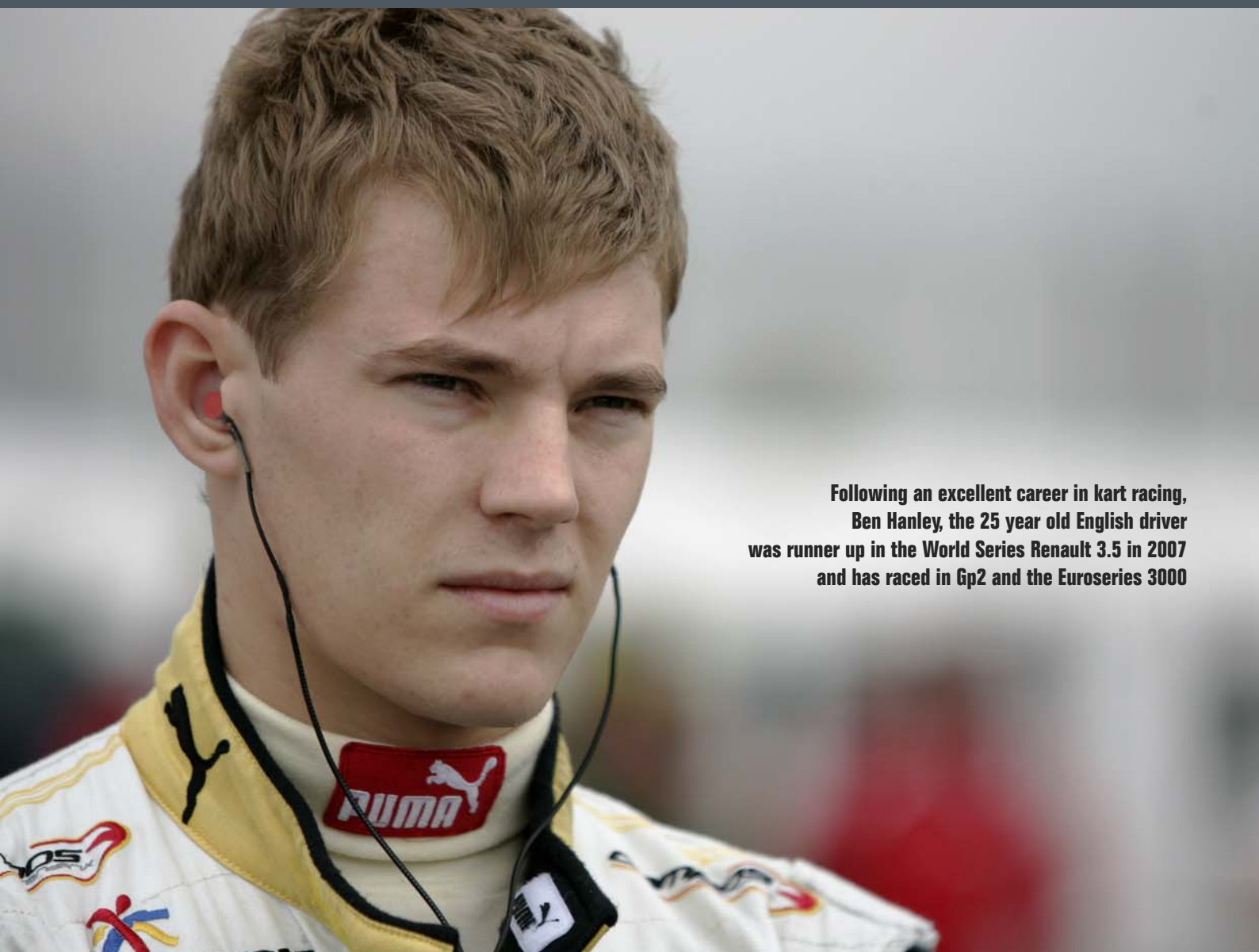
Have you ever tried any other simulators in the past? What makes Dallara's simulator different?
"The DAllara simulator was the first simulator I had tested but I had seen images of some other ones which was why I was so surprised when I first saw it.".
What benefits can a driver derive from this instrument?
"The simulator is now at such a high level the driver can use it not only to learn tracks but also how setup changes affect the handling and the tyres".

Is such a sophisticated simulator capable of substituting an actual test carried out on the track? Is it also possible to use it to test set-ups for specific races?
"I think the simulator could be used for these situations, especially setup but a race is more difficult especially seen as the driver has much less pressure in the simulator than on the track and the weather is more predictable in the simulator!".

Is it as physically demanding as a real drive?
"Yes, I think it is difficult, braking and steering are identical but the g force on the neck cannot be replicated for the same amount of time so that aspect is much easier for the driver".

What suggestions would you as a driver offer to make the simulator even better?
"From a driver point of view if the g forces could be replicated to that which we experience on the track then it would be amazing!".

Alessandro Santini



Following an excellent career in kart racing, Ben Hanley, the 25 year old English driver was runner up in the World Series Renault 3.5 in 2007 and has raced in Gp2 and the Euroseries 3000

CE
EXPERIE

ECOTTO: "I ALSO OWE MY ENCE IN F.1 TO DALLARA"

The Venezuelan driver, son of the great Johnny Cecotto senior, came to the attention of the motor racing world in the Force India during the tests in Abu Dhabi. He earned his debut at the highest level partly through his performances in GP2, where he was awarded the Dallara trophy for the most aggressive driver of last season

Johnny Cecotto was presented with the award for the most aggressive driver of last season at the Dallara GP2 end of year ceremony. The Venezuelan driver, whose father is an ex-Formula one driver and world 750cc motorcycle champion in the 70s, has been living in France for a number of years, while maintaining close personal ties with Italy. During November he took part in Formula 1 testing in the Force-India and is looking forward to a successful 2012

You received a trophy for being the most aggressive driver in GP2. Were you expecting this award?
"I was really pleased to receive an award, especially from an important company like Dallara. I am happy that the efforts I've made this year have been recognized, despite the fact that my car was certainly not one of the best. We had numerous problems during the season although the team made every effort to respond to my suggestions".

Which Dallaras have you driven during your career?
"I achieved some very good results with the F.3. I won at Assen in the German F.3. championship in the F304 on only my second outing, when I was still only sixteen years old; in fact I was the youngest driver to win an international race in that category. Subsequently, I competed in the same championship, but with a different team, driving the same model, but with a completely different configuration. Also, during the 2008 Formula 3 Euro Series, I drove the most recent model, the F308, which is significantly different to the older models. In addition, I have tried out all the GP2 models, from the first version in the Asian series to the two new Dallaras".

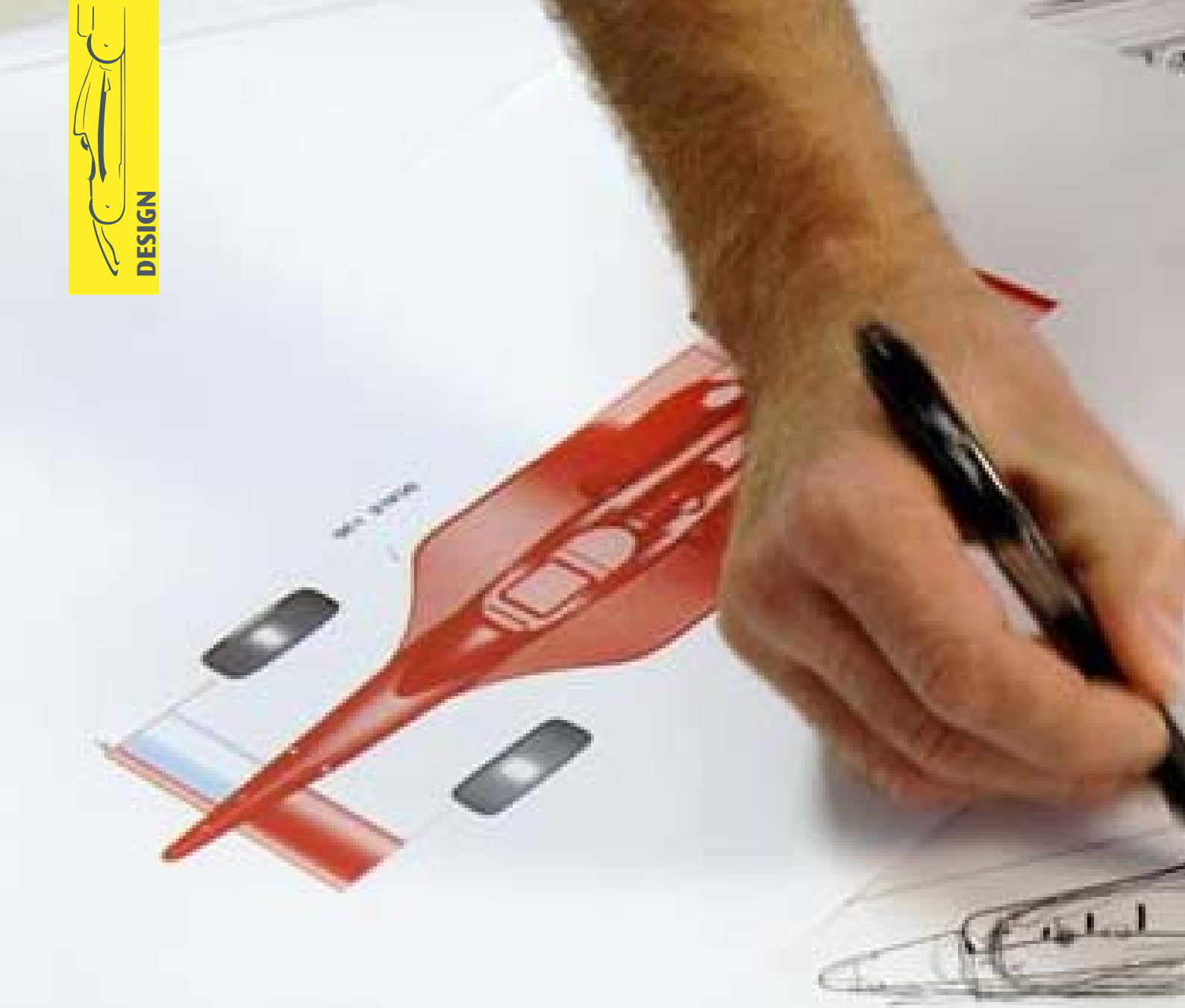
Have you ever visited Dallara's headquarters?
"Yes, I remember going there when I was very young, right after I started my career in motor racing. I went to the factory in Varano de' Melegari with my father who knew a lot of the engineers. I have fond memories of being shown around by Engineer Dallara's daughter, Caterina, who sadly passed away a few years ago".

How would you evaluate your season in GP2 this year with Ocean?
"It was a very difficult year, but I learnt a lot. I often had to put a lot more effort in than I would have had to with another car, stretching both my limits and those of the car. We were frequently in a position to achieve good results, but we couldn't always get it done in the end, with exception of the races at Spa and Monza where everything went to plan. During the first days of winter testing, in September, I had trials with Dams, the current champions, and achieved the fourth best time while competing against practically all the drivers involved in the championship, and I think this underlines my potential".

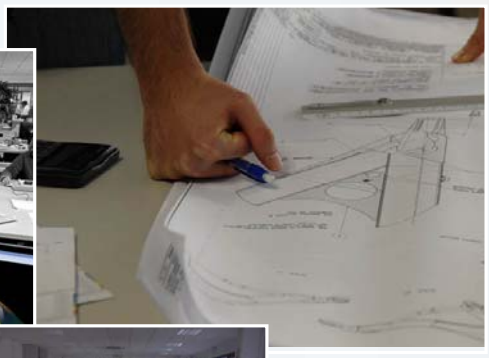
Not only GP2. In fact, in Abu Dhabi, you also took part in Formula 1 testing; tell us about that experience.
"It was the first time I had ever driven an F.1. single seater. Thanks to the Dallara, who recognized my achievements and helped increase my visibility by awarding me the trophy, Force-India asked me to test drive their car, which, in my opinion, is the best one currently competing in the championship, outside the official constructor teams. They placed a lot of faith in me, and I would like to thank them for that, because it meant that we worked in a very professional way. Also, I managed to stay ahead of drivers that are usually ahead of me in the standings in GP2. With the new soft tyres, which I used to record my best time, I was stopped by a red flag then slowed down by a car that was going slowly in front of me, which meant that, according to the telemetry, I could have been up to six tenths of a second faster".

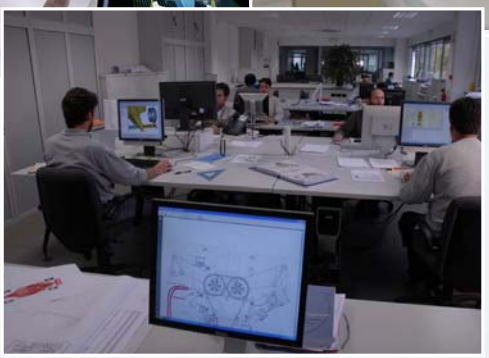
What differences did you notice with the Pirelli GP2 tyres?
"I raced here in Abu Dhabi last February in the GP2 with the first evolution of the Italian tyres, and I have to say that I didn't really notice much difference. In F.1 you can choose the mixture and use tyre warmers so that they are ready for the track, whereas in GP2 the driver has to warm them up without damaging them too much. It would be difficult to give objective opinion given the difference between the two cars".

Antonio Caruccio



Matteo Serventi and Marcello Corsini: two of Dallara's designers at work





DESIGNING FOR EXCELLENCE

GROWING AND INNOVATING DESPITE THE GLOBAL ECONOMIC CRISIS, PREPARING FOR A FUTURE WHERE IT WILL BE IMPORTANT TO PRODUCE CARS THAT OFFER HIGH PERFORMANCE AND SAFETY, WHILE COSTING LESS TO BUILD AND MANAGE, IN BOTH THE PRODUCTION AND THE RACING SECTORS. ENGINEER LUCA PIGNACCA EXPLAINS HOW THE DALLARA DESIGN DEPARTMENT PLANS TO MEET THE CHALLENGES THAT LIE AHEAD

Engineer Pignacca, what is the role of the Design Department?

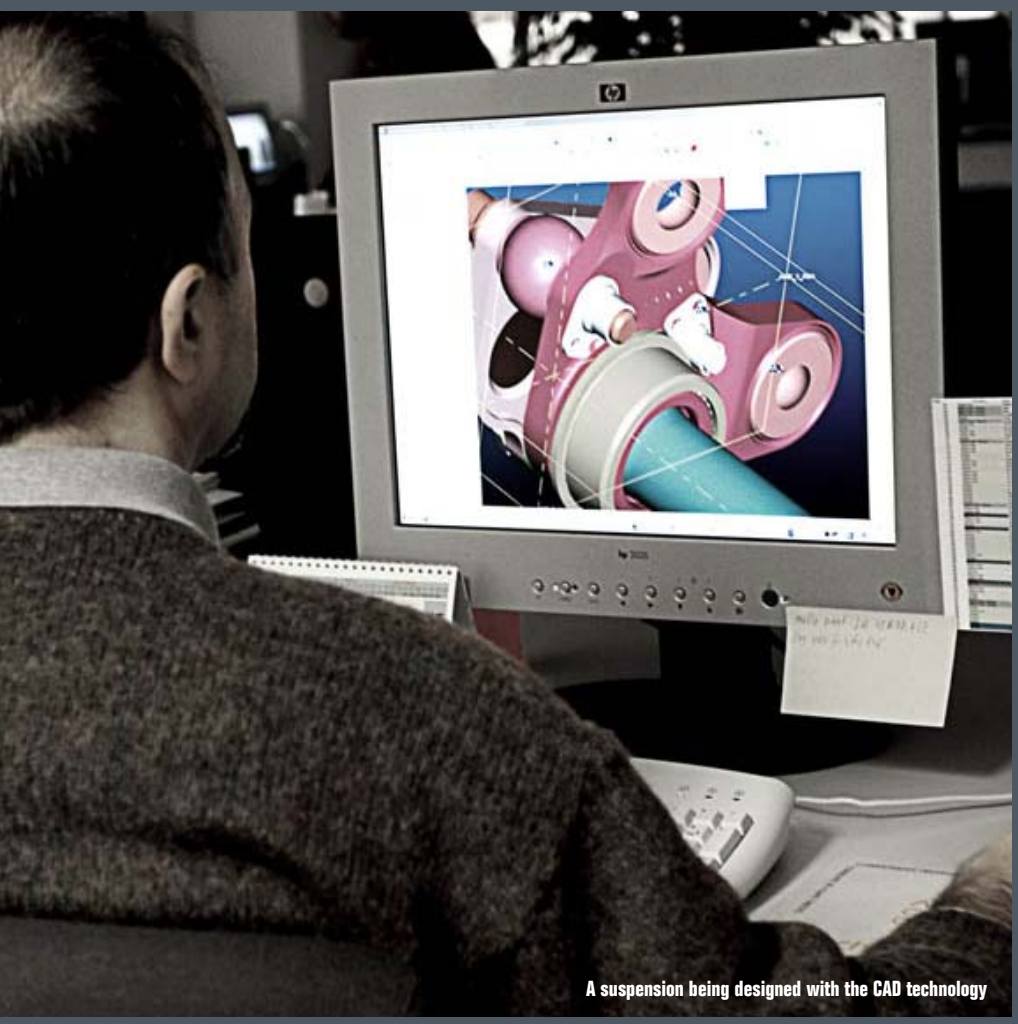
"We are responsible for transforming product specifications, requests and restraints into solutions. First and foremost, designing means giving a form to an idea: we do this for both production and racing cars, integrating the mechanics and the systems with the forms generated by the style and aerodynamic development as part of a continuous process. Defining the product involves carrying out a series of virtual tests, such as calculations, structural analyses, packaging trials, to name but a few. Once the development stage is over, the engineering process is completed by preparing the assembly drawings and all the other information that will be necessary in order to manufacture and assemble the various components.
These activities are carried out in the Design Office by mechanical and bodywork designers, aerodynamic development designers, experts in composite materials and structural analysts".

→

How many people work in the design department? Which areas have seen the most development of the last few years?
"There are around forty of us, and we all share a technical background coupled with a passion for competition. And by competition I mean competition on the track, where the cars that we design race, but also technical competition, the challenge to find the solution to a problem, which allows us to collaborate with highly prestigious manufacturers on high performance cars.
The average age is quite low, approximately 33, and we haven't concentrated our resources in any particular areas: the department has grown by about 30% over the last three years, with all the various sectors expanding uniformly, in order to ensure that we are always better prepared to respond to our customers' requests".

What qualities are essential for a successful designer? Adrian Newey joked that it was 5% inspiration and 95% perspiration.
"If by perspiration you mean that it's necessary to open your eyes to everything around you, I couldn't agree more. Personally I believe that it's important never to neglect common sense, a factor that is frequently undervalued, but is essential to the success of any project. Also, I frequently hear people affirm the fundamental importance of the tools in performing modern design activities. When I started working for Dallara, we still drew everything by hand; then, a few years later, the advent of CAD revolutionized the way we worked. We use "Creo" by PTC, for mechanical design and for creating surfaces and the fact that we do everything using a single, flexible software, which is parametric and reliable is extremely important in helping us to reduce design times: from a blank sheet to the finished car on the track in six months; something that would be impossible without a tool like "Creo".

In your opinion, how much of the technology currently used in the motor sport will have an impact on the production sector over the coming decades?
"The trend appears to be towards an increased use of composite materials. Weight reduction is one of the main aims for a vehicle designer, because the performance depends on it: using carbon fiber enables us to obtain lighter, stronger structures, without placing too many restraints on the form.
The current challenge facing composite component manufacturers is how to transform small-scale production into an industrial process in order to combine the advantages of this technology with the costs, times and volumes required by mass production.From a designer's point of view, the ability to simulate the behavior of composite components at breaking point correctly is a skill that our structural analysis department has been developing for a number of years: by exploiting the potential of Hyperworks Altair Suite solver we are able to simulate the rigidity of the components, predict which zones are subject to the most stress and optimize the sequence and type of fiber to be used. Nowadays, the real frontier in composites simulation is represented by crash simulations, a field where we are carrying out a great deal of research, together with Altair, since, to ensure that tool does exactly what we want it to do, it is essential that we collaborate closely with the people who



A suspension being designed with the CAD technology

Ferdinando Concari and Roberto Ori, two well apreciated engineers of the Design Department

actually write the software".

Do you think that the present global economic crisis will have a negative effect on safety standards? What will the ideal racing car of the future be like?

"Naturally, in times of crisis, one of the first measures that businesses take is to attempt to reduce costs: while this has always been the case in the production car sector, the economic situation in recent years has also forced the racing sector to reconsider its budgets. But what does the market foresee? The end user will certainly expect a reduction in costs, however, on the other hand, he will not be prepared to accept inferior product quality: the cars of the future will have to cost less than current models, have less problems, be easier to use and offer lower running costs".

Which are the most demanding markets in motorsports, and which markets are emerging?

"As I implied earlier, all markets are demanding these days: customers expect a lot from companies that are able to offer a lot. Perhaps the most important emerging markets are those in the so-called BRIC countries (Brazil, Russia, India and China, ndr). We keep a close eye on developments in the automobile sector in these countries, with particular focus on motorsport. Brazil already has a great motor racing tradition, and the Dallara Formula 3 cars have been present in Russia for a number of years, and despite the crisis, we are convinced that motorsports will take off in India and China too".

What is the secret of Dallara's world leadership?

"There aren't any secrets and neither is there one single explanation for this company's succes s: our reliability, our experience in designing and building cars, the ability to react rapidly to any kind of problem or requirement. It's the sum of these factors, which are there for all to see, that make this company great. What guides us? It's written everywhere: " Dallara – The pursuit of excellence"».

Alessandro Santini

DESIGN

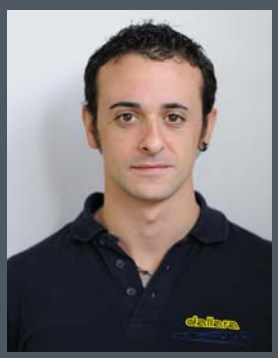
ALL STAFF MEMBERS

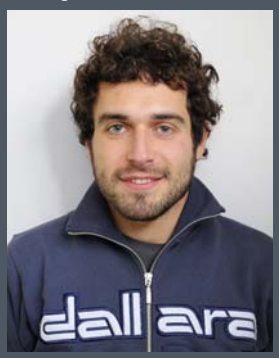

Luca Pignacca


Walter Biasatti

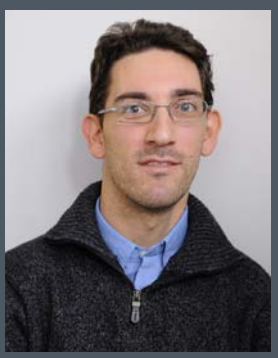

Luca Vescovi

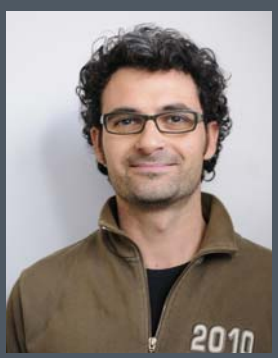

Andrea Burzoni


Lorenzo Bacchini



Giacomo Campione


Daniele Clari

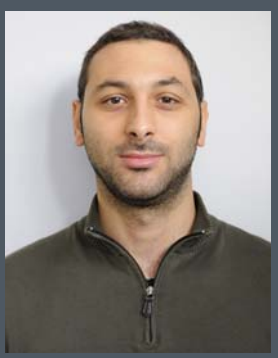


Pietro Guida


Matteo Loiacono


Alessandro Mansanti

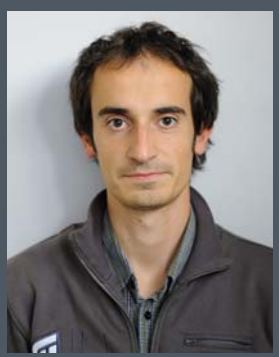

Pietro Montanari


Alessandro Panno

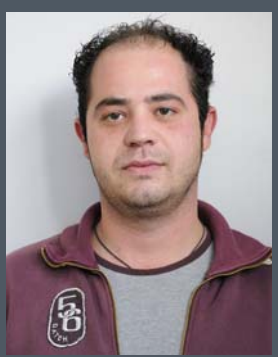

Matteo Serventi


Mauro Dondi

Mirko Bazzoni


Fabio Grippa


Andrea Giubellini

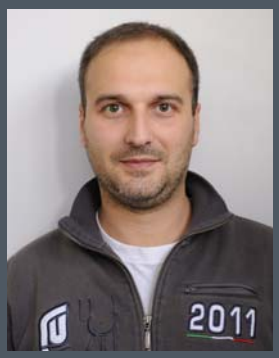

Andrea Dallara


Luca Marcellini


Martina Bassanini

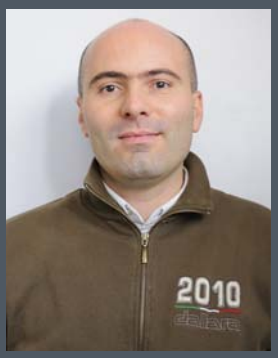

Fabio Di Fano


Matteo Giovannelli



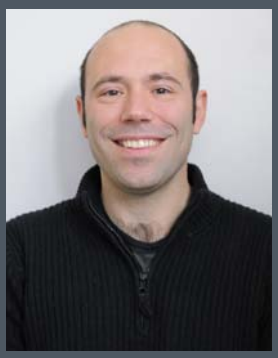
Giacomo Bussolati


Ferdinando Concari

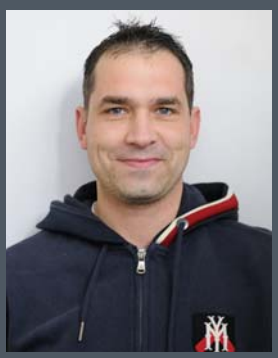


Stefano Ghirardi

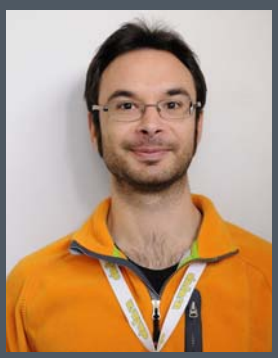

Antonio Montanari


Matteo Tirannanzi

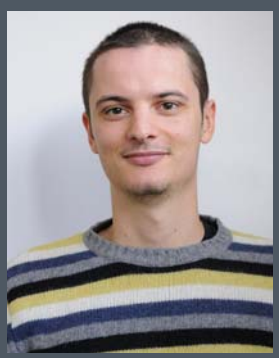

Marcello Corsini


Stefano Dallara

Mirco Ferrari

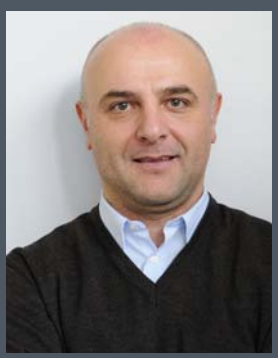

Dario Ghirardello


Daniele Guarnaccia

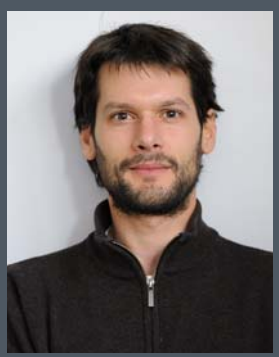

Carlo Pasetti


Stefano Soldati


Nicola Tripputi


Arnaldo Cavallotti

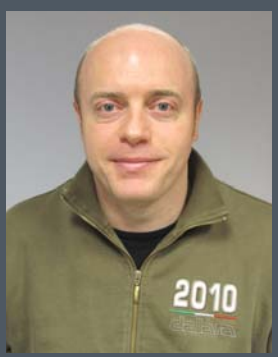

Roberto Ori


Paolo Benigni

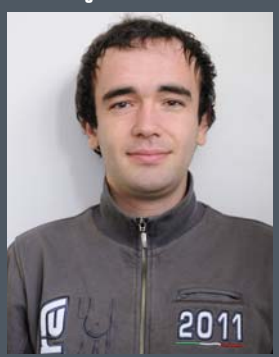

Silvano Cappelli


Gianluca Molardi


Filippo Veneziani



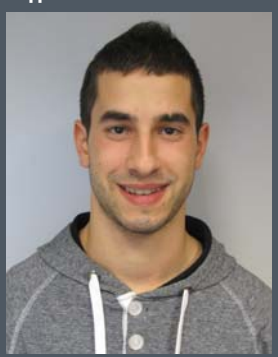
Renzo Giordani

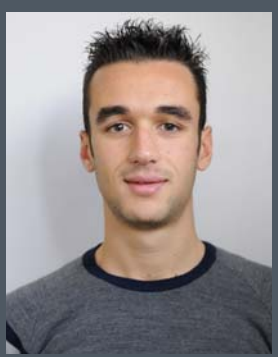


Enrico Sabini


Mattia Simonazzi


Marco Testa


Giacomo Toscani


Yuri Ugolini

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THE PURSUIT OF EXCELLENCE

- Consultancies, design and production of racing cars and high performance road cars.
- Aerodynamics: wind tunnel and computational fluid dynamics (CFD).
- Research & development: vehicle dynamics and driving simulator.

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