

EPFLRT

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ORGANISATION

COMMITTEE

BOARD

SECTION

POLE

DIVISION

Business

PRESIDENT

SP

COM

SUST

COO

OO - compétitions

OO - test

BP

OO - event

Technical

MECA

CO

MS&K

AE

CH

ELEC

LV

BESS

PE

SOFT

S&S

S&C

DV

LAUSANNE

01

BUSINESS

OPERATION OFFICER EVENTS (OO-E)

The OO External Events is responsible for ensuring the smooth running of all events involving the association with the outside world. The role covers planning ahead, coordination on the day, and post-event debriefs, mobilising the right people and resources at every stage.



Event organisation cycle

Planning ahead

Estimating human and material needs, identifying which divisions need to be present (tech/business), catering if required, communicating information to members.

On-the-day coordination :

Managing teams on site, handling unexpected situations, acting as the single point of contact for external speakers and association members.

Post-event debrief :

Gathering feedback, synthesising learnings, and building on them for future editions.

Types of events covered

- **EPFL events** — Associations Week, Forum, Scientastic, etc.
- **Internal association events** — Team building (karting...), general presentation, alumni events.
- **Stakeholder & sponsor events** — AutoX, company discovery days (e.g. Audi-Revolut), roundtables (e.g. women in F1 with iconic figures from the F1 world).
- **Partner workshops** — Sessions with partners (e.g. Garrett, Dassault, Matlab and other technical partners). Events with high-profile guests are already planned for next semester.



Valued skills

- Organisational skills and ability to anticipate
- People skills and diplomacy
- Ability to stay calm under pressure and handle the unexpected
- Strong written and verbal communication

Skills you will develop

- End-to-end event management
- Multi-team coordination
- Relationships with high-profile speakers and stakeholders
- Event logistics and budget management

Workload

Variable depending on the calendar, with busier weeks leading up to major events. Physical presence required at events.

BUSINESS

OPERATION OFFICER COMPETITIONS (OO-C)

The OO Competitions role is central to preparing the team for the Formula Student summer competitions. The year is structured in two complementary phases: qualification in autumn/winter, then operational preparation of the competitions in spring/summer — and chasing the podiums.

Autumn / Winter — Qualification phase

- Setting up the tools and resources needed to succeed in the qualification quizzes (FS regulations, safety, technical knowledge)
- Coordinating the mandatory weekly qualification sessions
- Tracking members' progress and managing the selection of the Dream Team for the quizzes
- Consolidating feedback and continuously updating preparation materials

Spring / Summer — Competition preparation

- Identifying competitions aligned with the team's objectives and structuring their planning
- Tracking mandatory document submissions throughout the semester
- Maintaining and communicating timelines to TLs, CTO and COO to ensure deadlines are met - Coordinating logistics (travel, accommodation, equipment) with the relevant leads

Valued skills

- Organisational skills and attention to detail
- Long-term vision and project management
- Knowledge of Formula Student regulations (or willingness to learn)
- Clear communication with technical and business teams

Skills you will develop

- Multi-deadline planning and schedule management
- Cross-functional coordination (Business / Technical)
- Official document management
- Leadership and team follow-up

Workload

Around 5–8h per week, with peaks during document submission periods and the weeks leading up to competitions.



OPERATION OFFICER DYNAMIC EVENT - TEST (OO-T)

The OO Tests is responsible for the planning and smooth running of testing days. The EPFL Racing Team tests almost every weekend to validate the mechanical and software developments of the car. The goal of the role is to ensure that every test day is prepared efficiently in order to maximise track time, the quality of the data collected, and their follow-up.

Key responsibilities

- **Test session planning:** Building the testing calendar in close coordination with the technical leads. Defining time slots, booking infrastructure and anticipating the resources needed.
- **Preparation and readiness check:** Making sure ahead of time that the car is ready to run, that the day's objectives are defined and communicated, and that members present know their role.
- **On-the-day coordination:** Managing the presence of members and SOs, facilitating communication between teams on site, and ensuring sessions run smoothly in compliance with safety protocols.
- **Follow-up and debrief:** Documenting sessions (objectives achieved, incidents, observations), sharing reports with TLs and ensuring continuity into the next session.



REMARK : This role requires regular weekend presence during test days. It is a position at the heart of the team's technical day-to-day — ideal for those who want a deep understanding of how the car works without being in a technical division.

Valued skills

- Reactivity and composure under pressure
- Interest in the technical side of the car
- Ability to communicate with technical profiles - Rigour in follow-up and documentation

Skills you will develop

- On-the-ground operational coordination
- Planning management in a constrained environment
- Cross-functional communication

Workload

Around 5–8h per week + regular presence at test sessions (near-weekly frequency).



BUSINESS

SPONSORSHIP DIVISION (SP)

The Sponsoring division's mission is to provide the team with the resources needed to turn its ambitions into reality. We act as the link between the association's needs and the companies that can support us, whether financially, through equipment, or through services.

Our work mainly consists of identifying new partners, preparing outreach strategies, presenting the project, and building long-term collaborations. We also manage relationships with existing partners in order to maintain trust and highlight their support through our events, communication materials, and the visibility offered by the team.

On a daily basis, members may work on:

- researching new sponsors;
- calls and presentations with sponsors;
- following up on partnerships;
- organizing counterparties and sponsor benefits;
- coordinating with other divisions to understand their needs.

Required skills :

motivation, organisation, responsiveness

Skills you will develop :

negotiation, interpersonal skills, professional communication

Workload :

Around 7 hours per week, with a workload that can vary significantly depending on the week (meetings with a partner, events, etc.).



BUSINESS

DIVISION COMMUNICATION (COM)

The Communication division promotes the image of the association to different audiences — sponsors, partners, EPFL community.

Beyond the car, it talks about the technique, the investment and the people behind the project.

Its objective is to transmit our passion and forge a strong identity that inspires and unites.

Positions sought :

- **Editor & Publication:** Maintain the weekly rhythm of publications and maintain the series (Zoom on member in particular), write one-off content related to events and structure messages according to audiences (social networks, newsletter, official media).
- **Editing & Content Creation:** transform raw photos/videos into clear, dynamic and coherent video content, adapted to social networks, to the requested format(s) and to official EPFLRT media.
- **Graphic Designer & Design:** Bring the team's visual identity to life through digital and physical media.

Required skills :

- **For all:** Autonomy, respect for deadlines, curiosity on both a technical and human level.
- **Redactor:** Excellent command of French, good foundation in English, concise and impactful writing.
- **Editor:** Proficiency in Premiere Pro, DaVinci Resolve or equivalent. Sense of rhythm and visual storytelling.
- **Graphic designer:** Mastery of design software, sense of aesthetics, ability to work within an existing graphic charter.

Skills developed :

- Content management and community management
- Video editing in real conditions
- Branding and applied graphic design
- Professional French/English writing

Workload : Around 12 hours per week, up to 20 hours depending on events. Attendance at tests and weekend events depending on positions.

Zoom on Member : Weekly interview to introduce a member and their work

Épisode 5 Zoom on Member



Newsletter extract

TEST PAYERNE

27 - 29 MARS



DIVISION DRIVERLESS

Les tests effectués à Payerne, visaient principalement à confirmer les récentes améliorations du système Driverless et à perfectionner les paramètres de contrôle.

Après un début marqué par quelques problèmes techniques (détection de cônes, capteurs, communication), l'équipe a rapidement réussi à enchaîner les runs en skidpad.

La voiture s'est montrée globalement fiable, facilitant l'évaluation complète de la pipeline (perception, LiDAR, motion planning)

Swiss GP photo



DIVISION SUSTAINABILITY (SUST)

The **Sustainability Division** is a recent addition to the Racing Team, but certainly not a minor one!

Together, we integrate sustainability into the team's technical and strategic decisions in order to anticipate future challenges and help train responsible engineers.

What's the program ?

- Material **testing**
- **Research and optimization** projects with sustainability constraints
- Preparation of a **CCBOM** (Costed Carbonized Bill of Materials) for the Cost and Manufacturing event at competitions

One of this semester's projects is to explore the creation of a potential **closed-loop** system around our carbon-fiber monocoque mold!

The Sustainability Division is therefore aimed at those who want to work on concrete, impactful projects that benefit the entire team, while helping to build a Racing Team that is more aligned with the realities and challenges of today and tomorrow.

Compétences requises :

- Être curieux et organisé
- Avoir envie de s'investir dans des projets concrets
- Avoir l'esprit d'initiative

Workload :

Expect to dedicate around 5 hours per week. With good teamwork and an even distribution of tasks, the workload remains both manageable and rewarding.

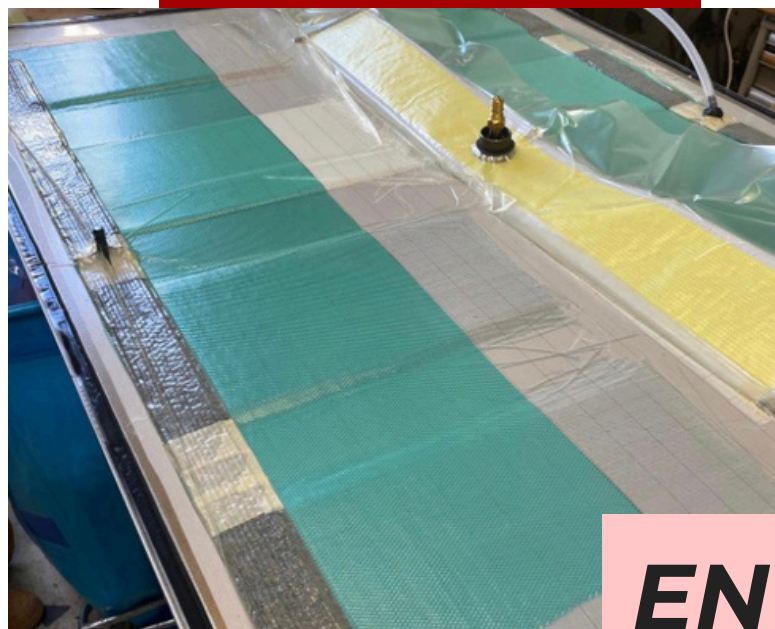
2020 – Development of a flax fiber seat



2025 - FSCH, Cost & Manufacturing event



2024 – Testing and comparison of fiber materials



BUSINESS

DIVISION BUSINESS PLAN (BP)

The Business Plan is a static event in Formula Student competitions, accounting for **7 to 8%** of the total score.

The challenge is ambitious: build a **fictional business model** from scratch, as if creating a real startup from the ground up. This fictional company has the opportunity to collaborate with the EPFL Racing Team and must base its product or service on one of the technologies embedded in the race car.

Throughout the year, you will work on the **design and evolution** of this business model. The final goal? **Represent the team** at Formula Student competitions and take the stage to **convince** a jury of investors that the idea is worth the **investment**.

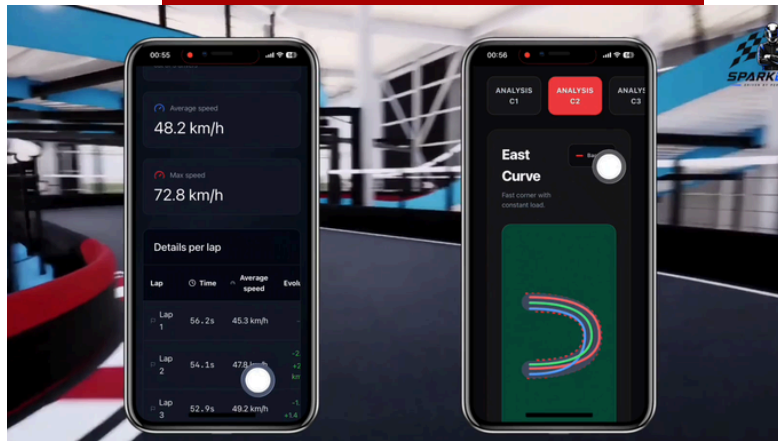
Missions

- Market research: Analyse opportunities and define the strategic positioning of the startup.
- Financial modelling : Build a viable business model (cost structure, revenue, profitability).
- Competition pitch: Present the project in English in front of the judges and answer their challenging questions.

Valued skills

- Motivated and eager to learn
- Ability to create visual materials
- Basic knowledge of finance and marketing is a plus
- Ability to pitch in English

Workload : Around 8h per week.



DIVISION COOLING (CO)

The Cooling division is responsible for cooling all components that require thermal management, in order to prevent failures and ensure optimal performance during dynamic events. The work is organised around three critical systems, each requiring both simulation and physical design:

- **Motor cooling** : Design and validation of the motor cooling system, ensuring thermal regulation under peak performance conditions.
- **VSI cooling** : Development of the cooling solution for the power inverter, managing heat dissipation from power electronics.
- **Battery cooling** : Simulation and design of the battery thermal management system, ensuring safe and efficient operation of the high-voltage pack across all race conditions.

Valued skills

- CAD / thermal simulation (CFD, FEM)
- Rigour and methodical approach
- Interest in thermodynamics and fluid mechanics

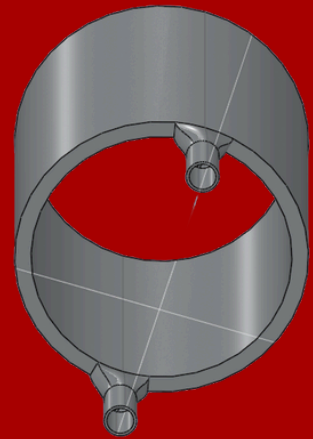
Skills you will develop

- Thermal and fluid simulations
- Design of cooling systems for high-performance applications
- Integration of thermal constraints into a broader vehicle architecture

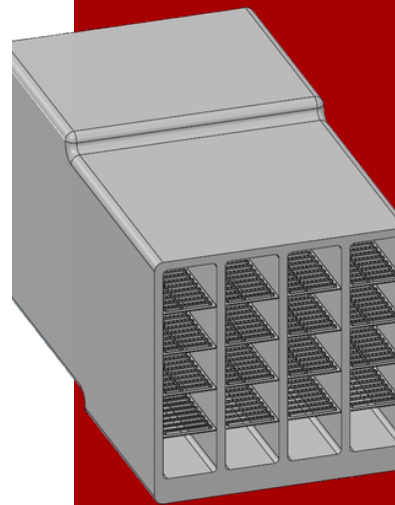
Workload

Variable depending on the period, with more intense phases during design iterations and testing campaigns.

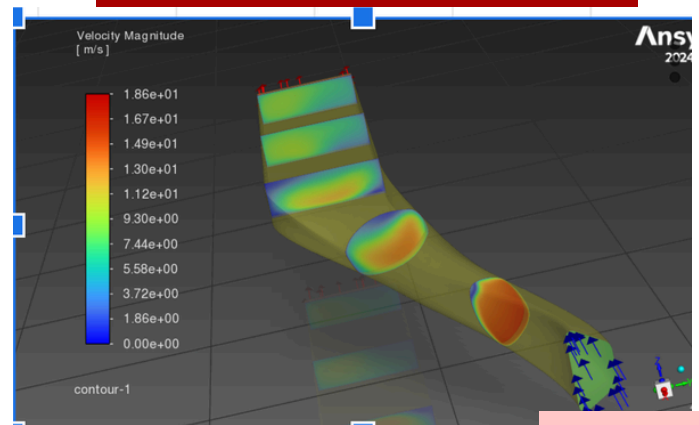
Motor cooling jacket



VSI cooling



Battery air cooling simulation

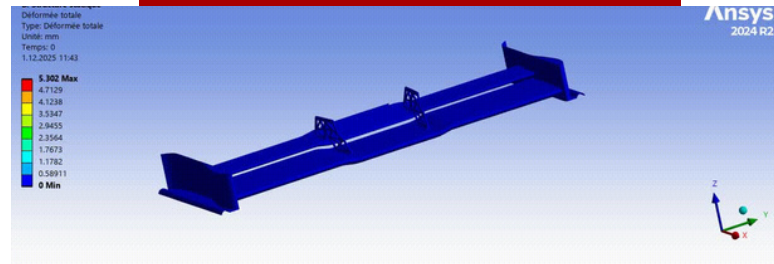


TECHNICAL - MECA

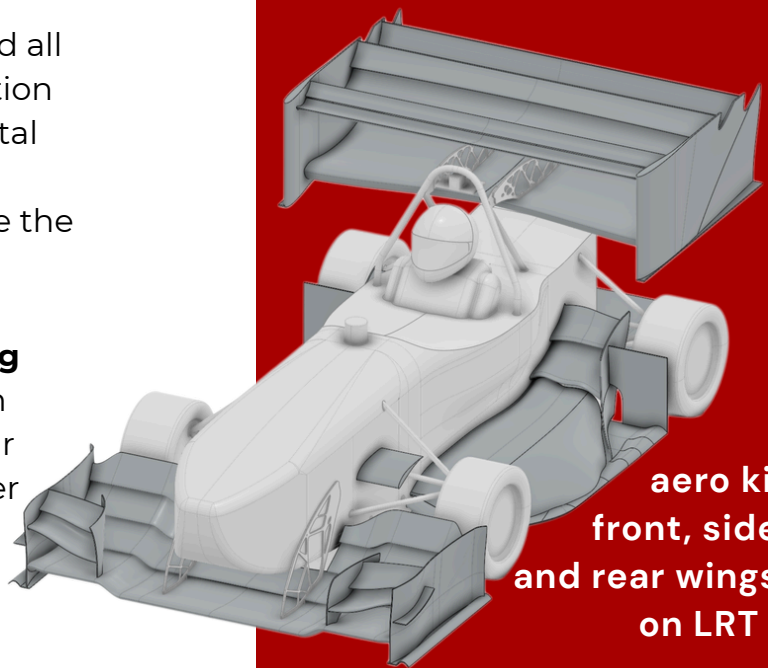
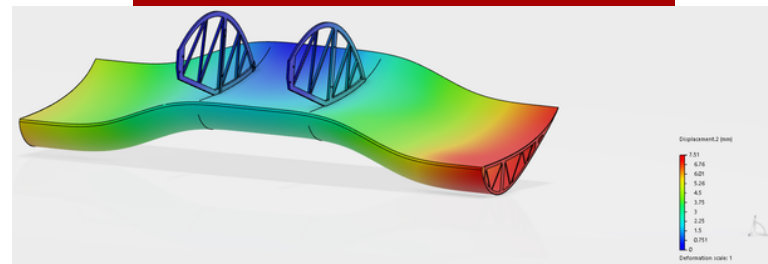
DIVISION AERODYNAMIC (AE)

The Aerodynamics division designs high-performance aerodynamic systems to control airflow around the car, maximise downforce and reduce drag, while ensuring seamless integration with all mechanical and electronic subsystems. The division is organised around two main areas, each offering the opportunity to specialise in a precise domain — from numerical simulation to physical manufacturing.

- **CFD**: Computational fluid dynamics simulations to optimise airflow around all aerodynamic surfaces. Covers simulation workflow automation and experimental validation.
- **FEM**: Structural simulations to ensure the mechanical integrity of aerodynamic components under race loads
- **Subsystems Design & Manufacturing**: Design, optimisation and production of all aerodynamic subsystems — Rear Wing, Front Wing, Underfloor (Diffuser & Front BIP), Winglets, Wishbone Covers and Side Structures.



FEM



aero kit
front, side
and rear wings
on LRT 7

Valued skills

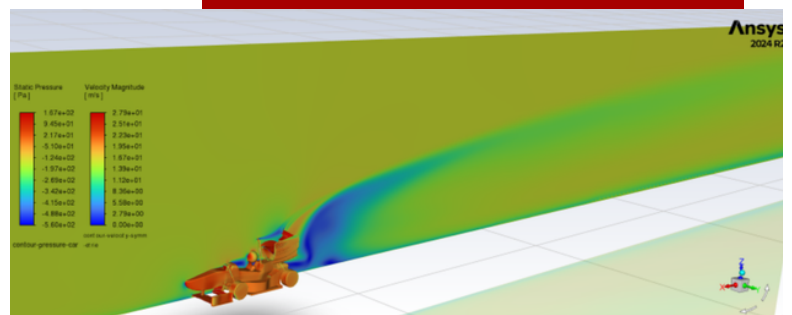
- CAD / CFD / FEM
- Curiosity and analytical mindset
- Attention to detail and rigour

Skills you will develop

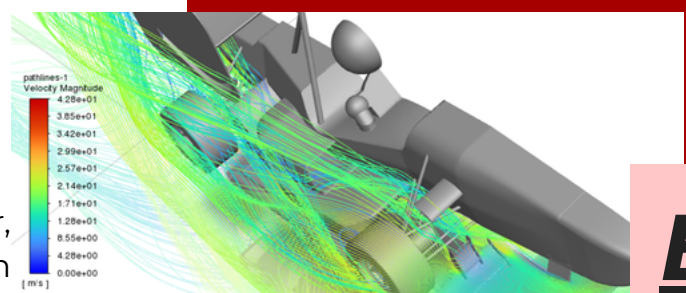
- Aerodynamic simulation (CFD & FEM)
- Composite manufacturing
- System integration in a race car environment

Workload

Variable depending on the period of the year, with more intense phases during production and manufacturing ahead of the roll-out.



CFD



TECHNICAL - MECA

DIVISION CHASSIS (CH)

The Chassis Division is responsible for the design and manufacture of the prototype's composite structure. Development is organised around several key systems, offering the opportunity to focus fully on a specific area, from numerical simulation right through to the workshop:

- **Monocoque:** Fine-tuning the design and preparing for the production of the centrepiece, with a particular focus on mould making.
- **Layup:** Optimisation of the composite structure using FEM simulations and physical testing to maximise stiffness and reduce mass.
- **Inserts:** Design and reinforcement of key structural interfaces between the chassis and other vehicle components.
- **Cockpit:** Development of the driver's environment, focusing on the ergonomics and reliability of the human-machine interface.
- **Electrical boxes:** Study of the integration and critical interaction of electrical components with the monocoque.
- **Carbon fibre wheels:** R&D project focusing on simulation and testing to optimise the performance of these composite parts.

Valued skills:

- CAD / FEA
- Independence
- Curiosity

Skills acquired:

- CAD / FEA
- Manufacturing (CNC, turning, milling)

Workload:

Some weeks are very busy, others less so; it depends on the time of year. Between 15 and 20 hours during the busiest periods of the year.



TECHNICAL - MECA

MECHANICAL SYSTEMS AND KINEMATICS (MS&K) DIVISION

The MSK division designs and validates the vehicle's mechanical systems (wheel assembly, braking, steering, and suspension) based on the load cases and geometry defined by Kinematics.

- **Wheel assembly** : design of the gearbox integrated into each wheel, which converts the motor power into usable power for the car, with increased torque and reduced output rotational speed, including thermal analysis and lifetime calculations.
- **Braking** : design and testing of the brake pedal, with a focus on the distribution of pedal travel between regenerative braking and hydraulic braking, as well as on driver feel.
- **Steering** : Design of the full steering chain, from the steering wheel to the rack, including the Driverless motor.
- **Simulation** : FEM analysis and topological optimization support for all MSK subdivisions.
- **Kinematics** : Definition of the suspension geometry, working on vehicle dynamics and on-track performance through theory and simulation.

Appreciated Skills and Traits:

- CAD / FEA
- Searching for performance and durability
- Team spirit

Skills Aquired:

- CAD / FEA
- Manufacturing
- Vehicle dynamics knowledge

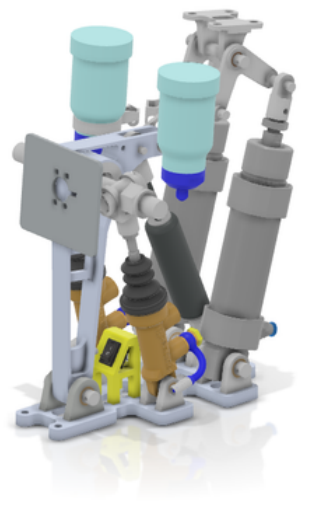
Workload:

Around 10 to 15 hours on normal weeks, with longer hours during manufacturing phase before roll-out.

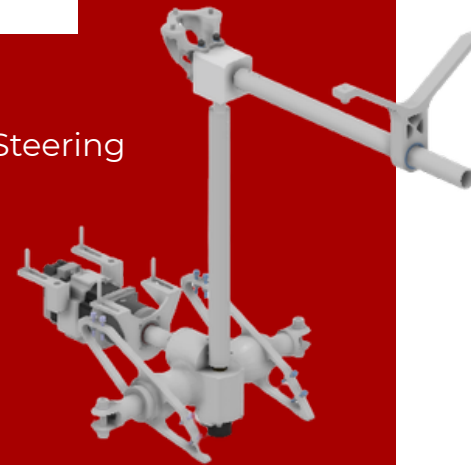
Wheel Assembly



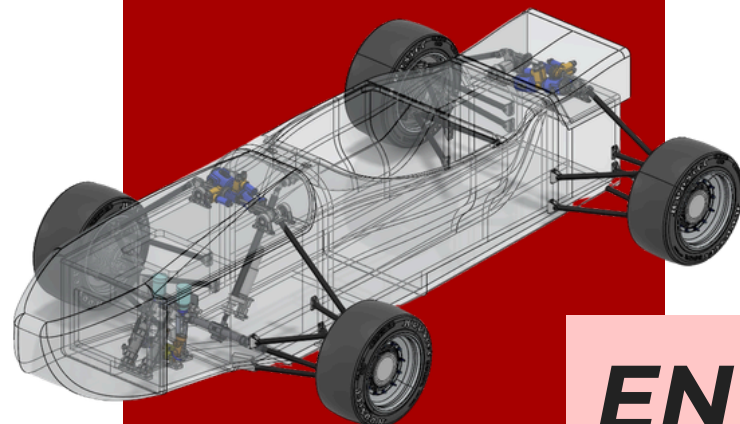
Braking Pedals



Steering



Mecanical systems together



TECHNICAL - ELEC

General - ELEC

For this new season, the structure of the department is evolving. Previously organized into three divisions — Power Electronics, BESS (Battery Energy Storage System), and Low Voltage — the department will now operate as a unified team. All members will work together within a cohesive group rather than in separate, siloed divisions. Each person will be assigned a specific system or project for which they will be responsible, while also contributing to the overall teamwork and collective success of the department.

The department develops the car's electronic and electrical systems. We work on PCBs and systems ranging from 24 V to 600 V, covering sensor measurement electronics, vehicle control systems, as well as battery and power inverter protection.

If you are interested, we will be **present on campus throughout the summer, from June 5 until September**, at EPFL to continue advancing the project.

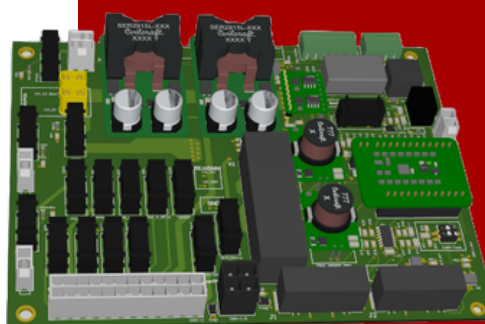
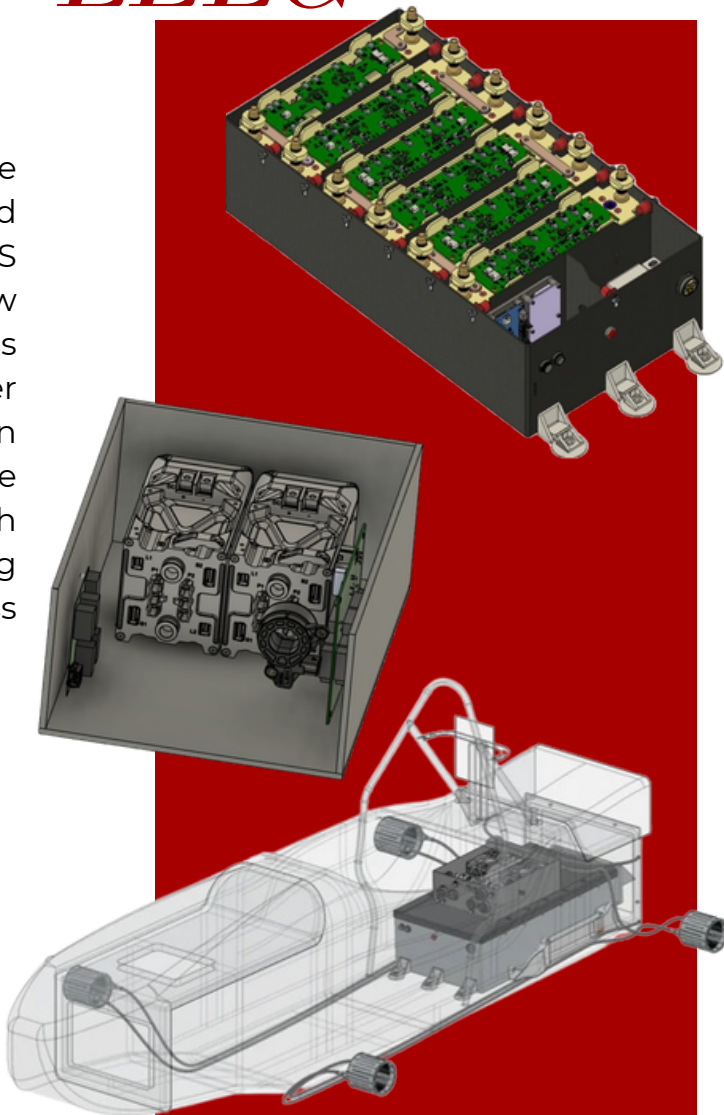
This is a great opportunity **to discover the work of the department**, meet the team, and join the adventure.

Required Skills :

We are primarily looking for serious and motivated individuals; technical background is not a determining factor.

Workload:

10 hours per week, adaptable depending on individual circumstances.



TECHNICAL - SOFT

DIVISION SOFTWARE AND SENSORS (S&S)

The Software and Sensors division develops and maintains the code deployed on the car. Our goal is to allow the team to monitor the vehicle's state during testing, easily access important data, and ensure the reliability of the onboard computer.

VCU :

Management of the car's onboard computer and its code. The work also includes setting up tests and improving development workflows.

Sensors :

Integration of sensors on the car, from their connection to the car's network up to their calibration and validation during testing sessions.

Telemetry:

Development of telemetry and data-related tools. This includes the transmission, storage, visualization, and analysis of the data collected during testing.

Required skills :

- Motivation, rigor, autonomy
- Good programming practices

Valued skills :

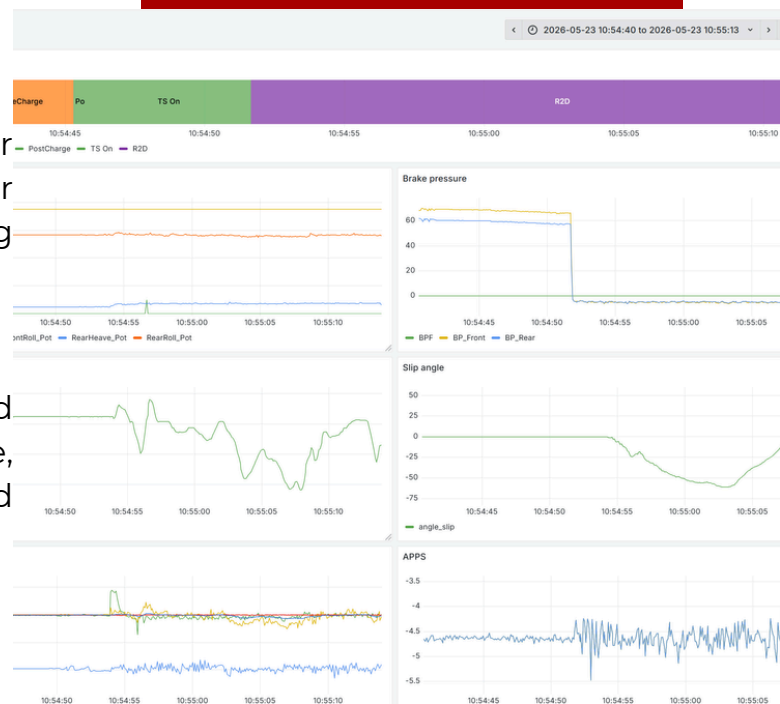
- Matlab/Simulink
- Python
- DevOps

Workload :

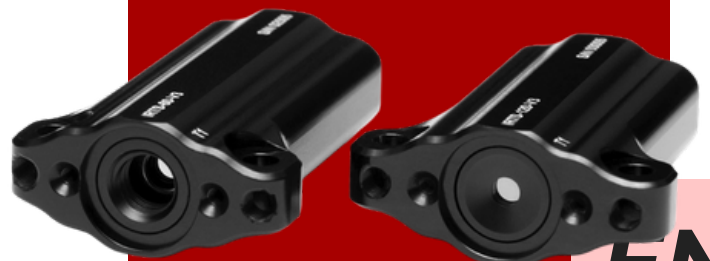
12 hours per week, with attendance at testing sessions on some weekends



Vehicle Control Unit (VCU)



thermal sensors



TECHNICAL - SOFT

DIVISION SIMULATION AND CONTROL (S&C)

Our division's overall objective is to develop a reliable simulation and to maximize the car's performance through algorithms. It is divided into 3 subsystems: the state estimator, control, and simulation. S&C is often required to collaborate with other divisions in order to better understand the vehicle's behavior, and plays an important role during testing.

State estimator: estimates the car's relevant variables for the purposes of data communication or data analysis.

Control: algorithms designed to optimize the car's grip, notably by managing torque allocation.

Simulation: simulation of the car and all its subsystems, allowing desired parameters to be tested in order to validate their benefits before physical implementation.

Required skills :

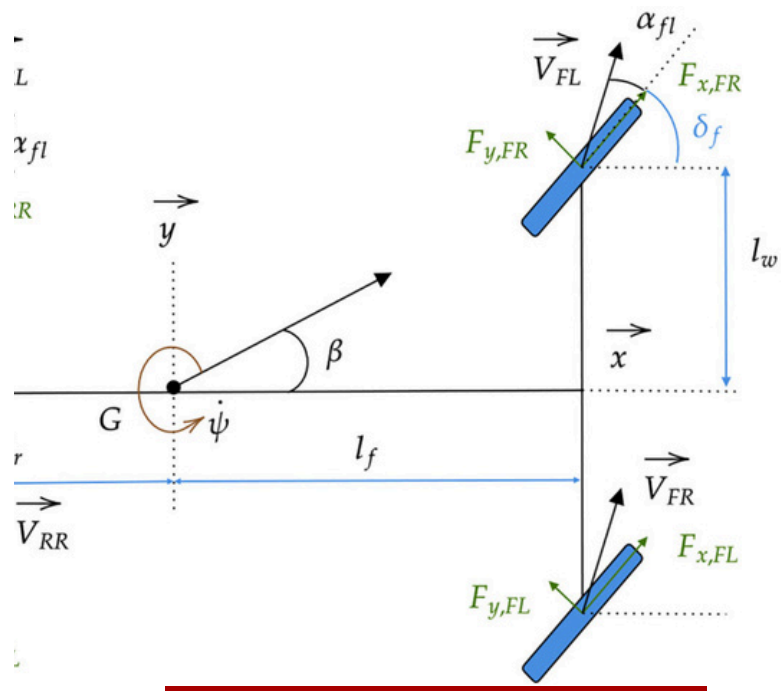
- Motivation, organization
- Fundamentals in control systems (excluding the simulation role)

Appreciated skills :

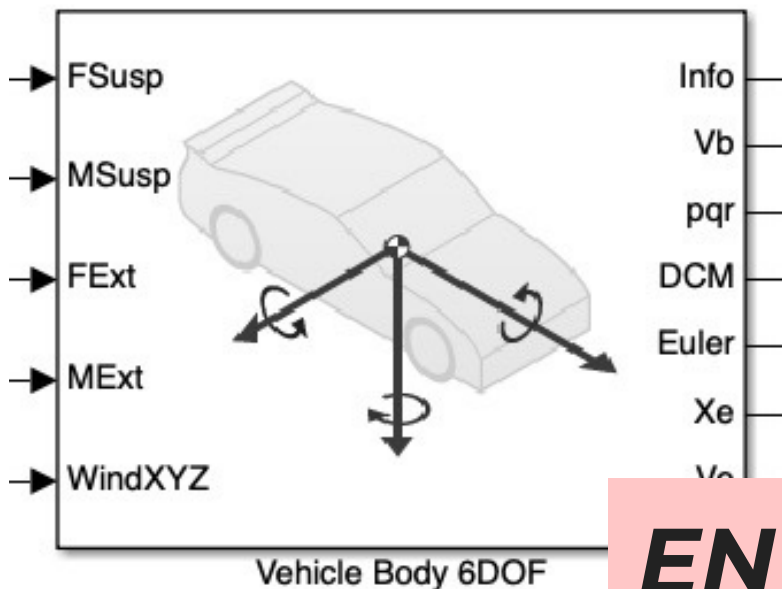
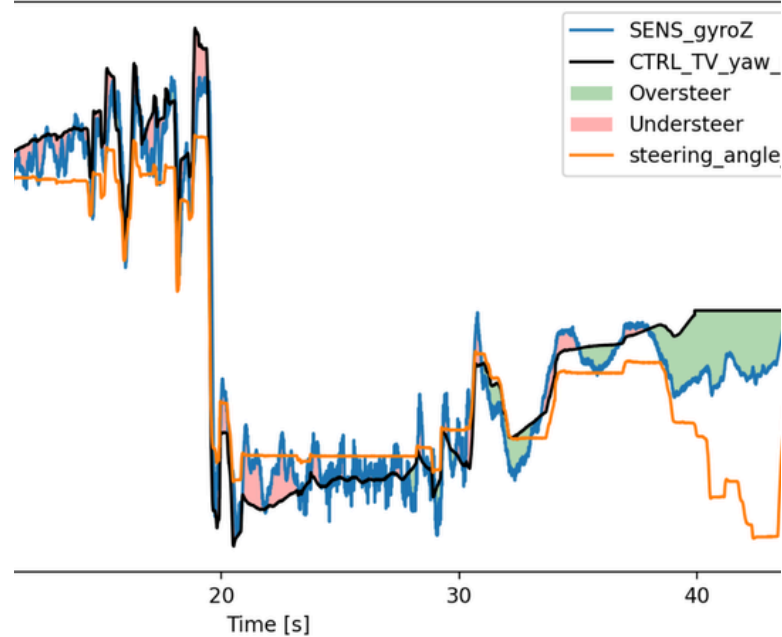
- MATLAB
- Simulink

Workload:

10h per week, with testing on certain weekends as well



TV reference tracking



TECHNICAL - SOFT

DIVISION DRIVERLESS (DV)

Our division is responsible for developing the algorithms that enable the car to operate autonomously, whether on known or unknown tracks. This process can be divided into three main stages: **perception**, **estimation**, and **control**.

Perception:

The track is delimited by cones. The objective of perception is to detect the relative position of these cones with respect to the car. To achieve this, we use a LiDAR and a camera.

Estimation:

The purpose of estimation is to determine the car's position and the centerline of the track, whether the track is known in advance or not.

Control:

Control is responsible for determining the trajectory to follow and the commands to send to the car in order to track it.

Required skills :

- Motivation
- Programming best practices

Appreciated skills :

- C++
- Python
- ROS2

Workload :

- ~15 h/week
- Tests during some week-ends

