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expertise

ANNUAL REPORT 2023

Sustainable network within the automotive and mobility sector

ACE MOBILITY
IS DRIVEN BY:



together we create
the future of mobility



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Together we develop automotive

A fundamental aspect of our success is the close collaboration with the Universities of Applied Sciences HAN and Fontys, bridging the gap between theoretical knowledge and practical applications. The addition of the research departments from HAN and Fontys to our team this year primarily serves to enhance this collaboration. Our active involvement in various important research projects has contributed to significant innovations that continue to transform the mobility industry. In this preface, we want to highlight the pivotal importance of this collaboration and express our deep appreciation for the partnerships with the Universities of Applied Sciences HAN and Fontys and of course our ACE Mobility partners for recognizing the importance of our foundational activities such as the Career Day, the Student Award, ACE Mobility Professional Program, Premaster Program, and second-year workshops, in effectively connecting automotive knowledge with the automotive industry and development of talent.

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HAN, UNIVERSITY
OF APPLIED SCIENCES

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TIMELINE HIGHLIGHTS 2023

JANUARY

- Start Saskia Lavoo as General Manager at ACE Mobility (1 January)
- New Year's Talk (RAI Automotive Industry NL, Automotive Campus and ACE Mobility) (24 January)
- Sponsoring Student Teams (HAN and Fontys) (ongoing)



FEBRUARY

- Start Niels Winter as Account- and Relationsmanager at ACE Mobility (1 February)
- Workshops second-year Automotive students Fontys (1 February)
- Submitted National Growth Fund proposal (3 February)
- Start Basis Mathematics course (6 February)

MARCH

- Visit from student team NovaFast (3 March)
- New ACE Mobility Partner Nijwa BV (7 March)
- Network meeting HAN Hydromotive Team (10 March)
- PRO ACE at Punch Powertrain (14 March)
- VR Experience at Gemeente Helmond (27 March)
- Internship market at HAN Engineering & Automotive (29 March)
- IMIAT Meeting in Delft (30 March)

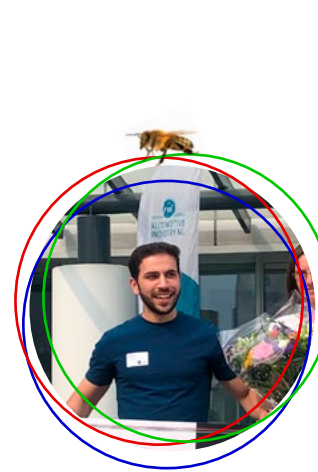


MAY

- Brainstorm session demarcation Mobility (10 May)
- ACE Mobility visits ITS European Congress in Lisbon (22 till 24 May)

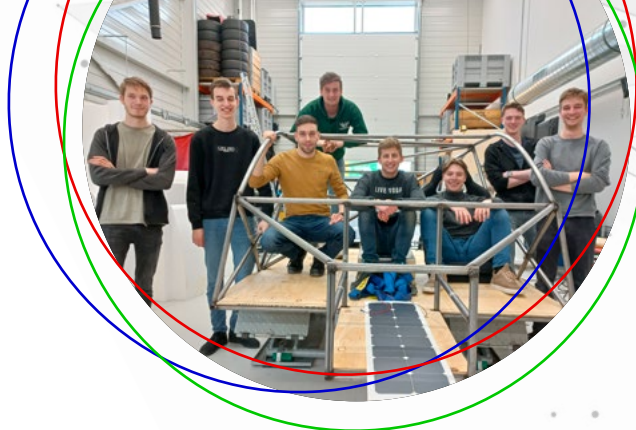
JULY

- ACE Student Award 2023 incl. network BBQ with RAI AINL & Automotive Campus (4 July)



OCTOBER

- ACE Automotive Career Day 2023 (11 October)



DECEMBER

- ACE Mobility becoming a member of CCAM partnership
- Workshops second-year Automotive students Fontys (8 and 15 December)

APRIL

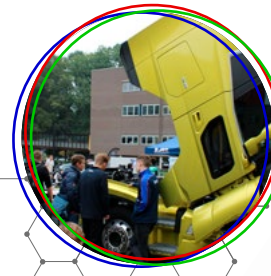
- ACE Mobility as Main Sponsor Automotive Week 2023 (16 till 19 April)
- ACE Mobility as Jurymember at Ceremony KIVI Best Student Award (16 April)
- Workshops second-year Automotive students Fontys (17 and 20 April)
- New ACE Mobility Partner Van den Broek Logistics (19 April)

JUNE

- Workshops second-year Automotive students Fontys (1 and 8 June)
- PRO ACE at HAN (6 June)
- Kickoff SPRONG Fast at DAF (8 June)
- NGF Proposal Material Independence & Circular Batteries and Charging Energy Hubs approved (30 June)

SEPTEMBER

- Start Labor market study (25 September)
- Kick-off ACE Mobility Professional Program (7 September)
- Start premaster minor TU/e HBO TOP (4 September)
- ACE Mobility participates in Katapult Day (26 September)
- ACE Mobility participates in FISITA Technology of Mobility Conference & Exhibition (12-15 September)



NOVEMBER

- Start Carl de Ruiter as Project Leader Human Capital Charging Energy Hubs (1 November)
- Workshops second-year Automotive students Fontys (28 November)
- SLIM Application approved (3 November)
- RAAK PRO Change: Data-driven smart design approved (3 November)
- RAAK PRO Leverage: Better deployment of LEVs in (inner) cities approved (3 November)
- RAAK PRO Sustainable Batteries approved (3 November)
- PRO ACE at Nijwa (7 November)
- Interreg NWE Green SkHy approved (22 November)



**TOGETHER
WE GROW
THE NEXT
GENERATION**

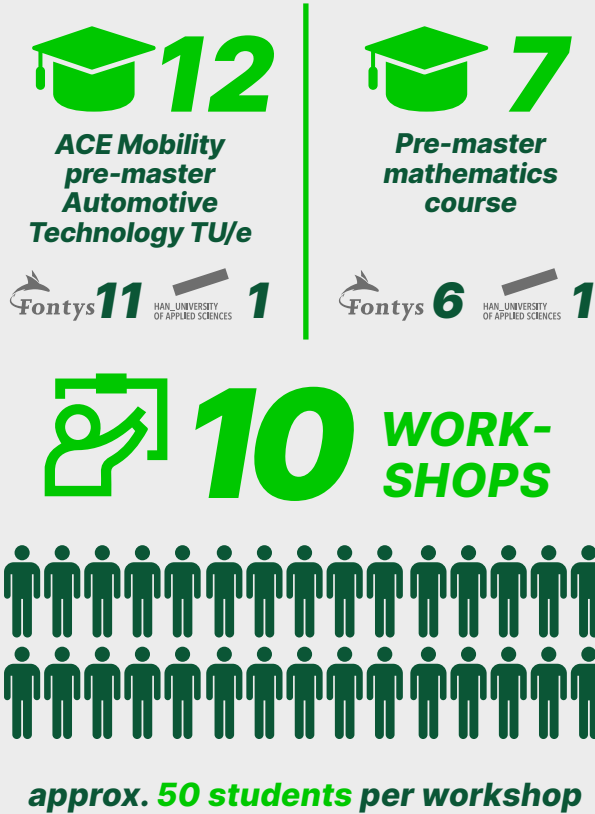


Highlights

The decrease in enrollment in automotive courses reflects a broader trend within the technical field and is partly due to changes in the technology landscape. This trend emphasizes the importance of flexibility and adaptability in education, while the demand for technical skills continues to grow. Therefore, the delivery of high-quality automotive talent remains a top priority for us. In order to achieve this, it's crucial to continue our regular activities, such as supporting the Universities of Applied Sciences Fontys and HAN to generate enrollments and ensure a steady flow of graduates into industrial employment.

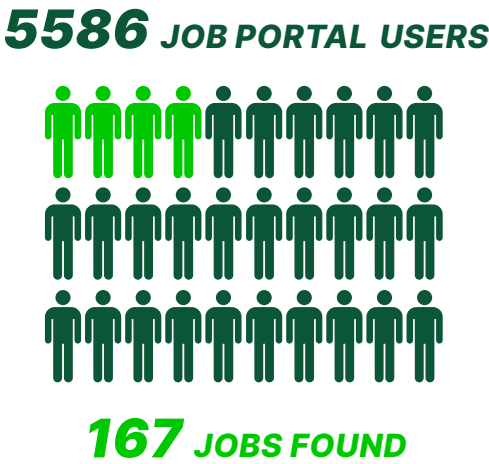
Our efforts, including the pre-master, workshops, vlogs, the ACE Mobility Job Portal, sponsoring student teams, the ACE Mobility Professional Program, the ACE Mobility Student Award, and the ACE Mobility Automotive Career Day, all contribute to this goal. Furthermore, we are increasingly taking a leadership role in various topics related to human capital.

Enrolment:	2019	2020	2021	2022	2023
Total	366	368	391	435	345
HAN	227	231	214	232	154
Fontys	139	137	177	203	191
Fontys AMM	57	59	70	29	46

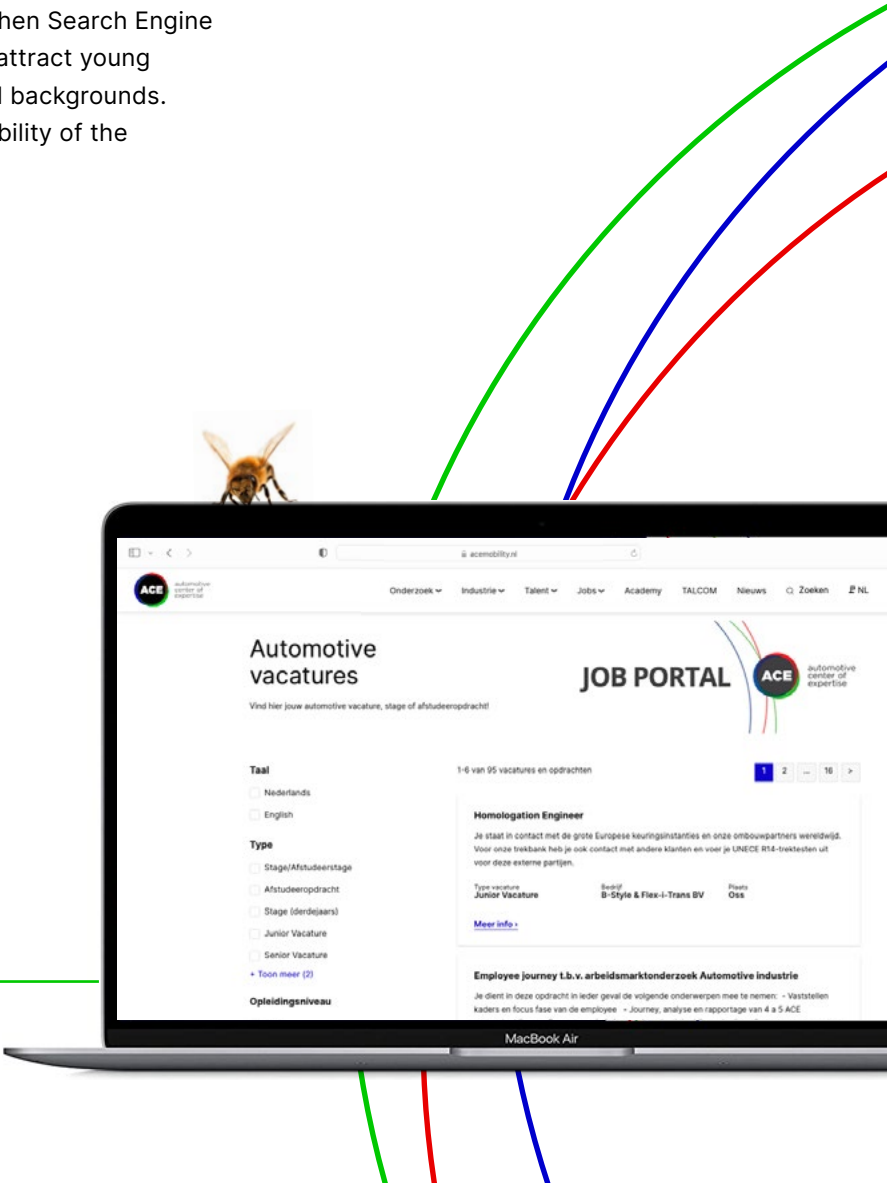


ACE Mobility Job Portal

Since 2020, the ACE Mobility Job Portal has been part of our basic activities. On this online platform we publish junior vacancies, internships and graduation assignments, offered by our leading ACE Mobility Partners. In 2023, ACE Mobility put full effort into the findability of the Job Portal through strengthen Search Engine Optimization and Search Engine Advertising to attract young professionals and students from other technical backgrounds. In 2024 we will continue the efforts in the findability of the ACE Mobility Job Portal.



Take a look at the jobportal



TALENT

ACE Mobility Student Award 2023

Every year we organize the ACE Mobility Student Award. At this event the best students, who graduated at an ACE Mobility Partner company, are nominated for the ACE Mobility Student Award. During the event the students have the opportunity to present their graduation assignment to an expert jury. On July 4, Obaydah Alali , Automotive student of the Fontys University of Applied Sciences, won the ACE Mobility Student Award 2023. He carried out his graduation assignment at EDAG Netherlands BV. During this period, he conducted a research on secondlife usage for EV lithium-Ion batteries.



Check the newsarticle of Obaydah Alali



Check the Videopitches ACE Mobility Student Award 2023



ACE Mobility Professional Program

In 2023 we were able to complete another successful semester of the ACE Mobility Professional Program. The ACE Mobility Professional Program was initially created for students who, in addition to their graduation assignment, are looking for an extra challenge where they can boost their professional skills by following several training courses.

The training courses were given by ACE Mobility's partners with topics such as presentation skills, project based working, leadership skills, analysis skills, etc. Due to the success of this program, ACE Mobility, in consultation with the Fontys and HAN Universities of Applied Sciences, has chosen not to only make the program available this year for fourth-year students but also for third-year students. This turned out to be a success due to an increase in students participating in the program.

TRAININGS BY



AR Experience

An Augmented Reality experience was developed with Fontys Universities of Applied Sciences to show how an electric motor functions. Using a real electric motor, AR glasses are used to digitally disassemble the motor and the person wearing the AR glasses can see the different parts. This AR experience is used in information events and at trade shows to show visitors what is going on in the automotive and mobility world. The tool will also be used in college education.



VR Experience

In 2023, the VR Experience has been used in information activities of Fontys and HAN Universities of Applied Sciences, in Automotive Week in April 2023 and in several other events of ACE Mobility. What awaits us in the future in the automotive and mobility world is the key question. The visitor is taken into the future. At the end of 2023, it was decided to update the VR Experience to make the experience even flashier and update the topics.



Interview with Glenn Haverkort,
Managing Director VDL ETS

The evolution of VDL ETS in the automotive sector and its commitment to sustainable solutions

In 1998 Glenn Haverkort began his career at NedCar in Helmond. The company in Helmond was originally serving as the development department for the factory in Born in cooperation with Volvo and Mitsubishi. After the merge with an automotive supplier the company was responsible for the engineering and testing of automotive systems and components, in 2017 the company was transferred into an automotive and high tech engineering and testing service supplier and in 2023 the company activities were integrated into VDL Enabling Transport Solutions (VDL ETS) a VDL Groep operating company that focuses on partners and VDL companies in terms of research, development, building prototypes and testing new innovations and concepts in the world of mobility. Because of this rich history and merge into VDL Groep VDL ETS in Helmond has undergone an impressive evolution.

In January 2020, Glenn took over the management activities in Helmond, in the middle of a period with strategic considerations regarding the acquisition of the company. The challenge was twofold: firstly, the goal was to restore the company's financial situation, secondly to relocate it elsewhere. Fortunately, he succeeded in seamlessly integrating the company into VDL ETS and integrate added value to VDL Groep like testing services and sales for the solution provided by VDL ETS.



The transition to VDL ETS took place on May 1, 2023. Glenn emphasizes the synergy between the two locations: "In Valkenswaard, we, as VDL ETS, mainly focus on busses and heavy duty transport, while here in Helmond, everything outside the bus business is our focus." In Helmond, VDL ETS is dedicated to concept and product development, with the ambition to transfer the responsibilities to VDL Special Vehicles, VDL Nedcar and the Mobility Innovation Center in Born.

Long-Term Commitment to Energy Transition

One of the most notable projects they are involved in is a people mover, a cooperation with Schaeffler to manufacture a people mover and contribute to a sustained commitment to the energy transition. VDL ETS is involved in many innovation projects to push the technology and the Energy transition to an sustainable world.

Another crucial initiative is the Battery Test Facility in Helmond, which Glenn enthusiastically describes: "We are currently investing, the equipment is arriving, and it will be operational by Q2. Here, we can test and validate cells, modules, and packs in all kind of configuration, energy and power levels." This testing facility is a valuable addition to the broader efforts to make the energy transition a success and enhances the automotive campus in Helmond.

With involvement in various projects with ACE Mobility, and a long-term commitment to the energy transition, VDL ETS underscores the importance of electrification, smart charging stations, smart buses, and hydrogen and synthetic fuel ambitions.

Importance connection with education

Beyond industry importance, VDL ETS recognizes the significance of strong cooperation with educational institutions. "ACE Mobility is a strong pillar in this crucial partnership, ensuring the engagement of both parties remains high. Participation in various events organized by ACE Mobility helps us stay closely connected with the students." Each year, they welcome multiple interns and graduating students, preparing them for industry developments and providing a taste of the familial company culture at VDL ETS.



Interview with Mees de Groot,
Team manager HAN Hydromotive team

Sustainable racing with the HAN Hydromotive Team: Dedication, innovation and the Shell Eco Marathon



The HAN Hydromotive team has built a strong reputation through their profound commitment to sustainability, with a specific focus on the use of hydrogen. Mees de Groot, team manager, leads the team and ensures clear communication among the various sub-teams. The team has 15 members, guided by 2 tutors, and together they are determined to make their mark on the Shell Eco-marathon.

“Our main goal is to participate in the Shell Eco-marathon, a sustainability race where you drive a certain number of heats within a specified time, aiming for maximum fuel efficiency,” explains Mees. The team distinguishes itself by using hydrogen as fuel, with a compact hydrogen fuel cell converting the fuel directly into electrical energy for the electric motor. Mees emphasizes the green nature of hydrogen as a storage medium, in contrast to potentially polluting traditional batteries.

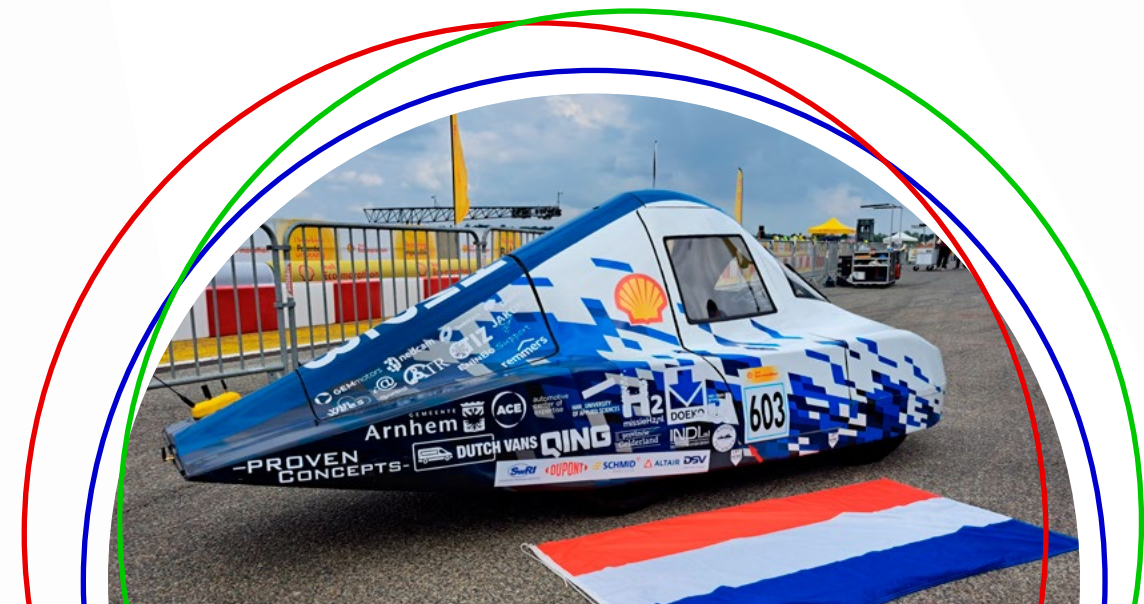
Not only speed but also completing each heat with a clear and good result is high on the priority list. “We want to finish each heat without any problems, and we’re using reliability as our strategy to do it,” he adds.

The team has implemented substantial optimizations this year and has more in the pipeline. “We are working on adjustments to the vehicle, including a new fuel cell that better suits our operational load, lighter components, a different steering system, and adjustments to materials for a better fit with the correct safety margins.” With these significant changes, the HAN Hydromotive Team is ready to take on the challenges of the Shell Eco-marathon.

ACE Mobility has been sponsoring the team for years and strongly believes in their passion. “You are one of the sponsors that engage with us the most, and that feels very positive. The communication is good, and you are approachable. The various events organized, where we are involved, create enthusiasm within the team,” says Mees.

The HAN Hydromotive team, driven by dedication to sustainability and innovation, promises a remarkable performance in the sustainability race with their focus on reliability and fuel efficiency.

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**HUMAN
CAPITAL**

**TOGETHER
WE EXPAND**

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LOGISTICS**

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UNIPARISAS GROUP

VB
airsuspension

Sensata
Technologies

ARRK
SPD Pre-Series Testing & Prototyping

pon

inalfa
roof systems

rai
AUTOMOTIVE
INDUSTRY NL



The Automotive Learning Community (TALCOM)

The Challenge-based digital platform was developed in 2023 and is managed by ACE Mobility. The platform includes so-called challenges in the automotive and mobility world and includes a 'learn' section where knowledge institutions and companies offer their knowledge. The goal is to develop a community that finds each other digitally but also physically. The platform is unique to the Netherlands and is in line with the nationally developed idea of building learning communities. In several NGF applications, the further development of a learning community is part of the applications.



Check the automotive-community at acemobility.nl



Check the Vlog by Remco Mulder

ACE Mobility Automotive Career Day

The ACE Mobility Automotive Career Day is one of our annual basic activities in which we, in collaboration with the Universities of Applied Sciences Fontys and HAN, on the one hand offer students the opportunity to orientate themselves on the automotive industry and on the other hand, we want to give the automotive industry the opportunity to profile itself, showing the possibilities for specific internships, graduation assignments and jobs. The ACE Mobility Automotive Career Day is also the place where both students and the automotive industry can network with each other.

After receiving feedback from students from HAN and Fontys as well as from the partners of ACE Mobility, we have decided to adapt the Automotive Career Day with the aim of making the event more attractive for both companies and students. This year we have chosen to implement a pilot in which the event is supported academy-wide, with the involvement of both automotive and engineering courses. In addition, changes have been made to the program to provide students with a more substantive experience. The pilot has proven successful and will be further developed in 2024.



Check the Vlog by Remco Mulder

PARTICIPATING COMPANIES

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HUMAN CAPITAL



Click the link for more information on Charging Energy Hubs

National Growth Fund Initiatives

The transition to digitization, autonomous driving and electrification requires employees with the right skills and training. This is why ACE Mobility focuses on Human Capital and lifelong development. ACE Mobility participates in NGF project 'Material Independence & Circular Batteries'. Thomas van Berkel (ACE Mobility) is project leader of the Human Capital package. In a recent interview Thomas van Berkel and Richard Kerste of Brainport Development talked about the need for well-trained people for the battery sector.

ACE Mobility is also involved in the NGF Charging Energy Hubs project through the Universities of Applied Sciences HAN and Fontys who are also participating in the project. The project aims to accelerate the electrification of the logistics sector through collaboration, research and innovation. ACE Mobility will mainly focus on the Human Capital agenda implementation.



Check the interview with Thomas van Berkel and Richard Kerste



Workshops for automotive students

The workshops we organized together with Fontys University of Applied Sciences and the partners of ACE Mobility are specifically for second year automotive students. During the workshops students will work in a team on a specific issue and will be presenting their solution at the end of the workshop. In this way we want to ensure that the students get a feel for working in the automotive industry and learn to apply their knowledge by working on a practical topic in a team.

This year we arranged workshops at RDW, VIRO, BRACE, Hyster-Yale, B-style, Politieacademie, MTEE and Ebusco.





**TOGETHER
WE MOVE
FORWARD**

**RESEARCH AND
INNOVATION**

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Research HAN and Fontys

ACE Mobility started in 2023 with intensified cooperation with research departments of the Universities of Applied Sciences Fontys and HAN. Professors Ger Post of the Industrial Engineering and Entrepreneurship Research Center (Fontys) and Frans Tillema of the HAN Automotive Research Center are part of the ACE team. ACE Mobility functions in this intensive cooperation as initiator, connector and knowledge distributor, the professorships take care of the deployment and implementation. In this way, cooperation with the researchers is strengthened, while there is a clear division of roles and responsibilities. This commitment will be strengthened in the coming years.



Industrial Engineering and Entrepreneurship lectorate



HAN Automotive Research lectorate

RESEARCH AND INNOVATION

SPRONG FAST

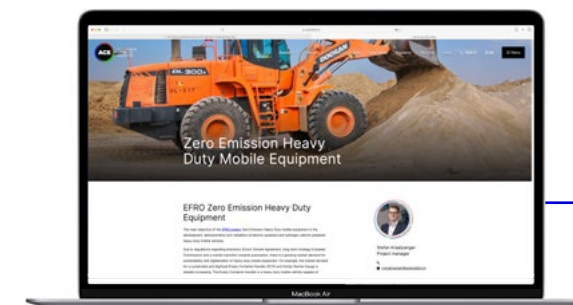
Fontys, HAN and ACE Mobility are conducting research for the next four years with a SPRONG grant. The research group's full name is Future Autonomous Sustainable Transport (FAST). Six lectorates/Centres of Expertise of Fontys and HAN together with ACE Mobility will therefore collaborate for four years on research into FAST. The aim is to contribute to reducing CO2 and NOx emissions from mobility and transport and improving the competitiveness of the Dutch economy. The research is made possible by the award of a SPRONG grant from the Regieorgaan SIA. Ger Post, lecturer at Fontys and Jan van Wijk, head of Research & Development at ACE Mobility are leading the project.

EFRO Zero Emission Heavy Duty Equipment

The main objective of the EFRO project Zero Emission Heavy Duty mobile equipment is the development, demonstration and validation of electric-powered and hydrogen-electric powered heavy duty mobile vehicles.

Due to regulations regarding emissions (Dutch Climate Agreement, long-term strategy European Commission) and a market transition towards automation, there is a growing market demand for sustainability and digitalization of heavy-duty mobile equipment. Among other things, ACE Mobility, HAN and Fontys are developing a modular and scalable technology in this project so that it can be implemented in making other heavy mobile vehicles more sustainable.

In addition, the involved organisations are working on several (digital) innovations related to data analytics. Thus, it is possible to create a predictive maintenance model, which can signal timely maintenance and maximize the operational time of the mobile vehicles.



Check for more information on Zero Emission Heavy Duty Mobile Equipment



THANKS TO ALL OUR DEAR PARTNERS



STAFF



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The ACE Mobility Team



Saskia Lavoo
General Manager



Jan van Wijk
Head of R&D



Gert Blom
Business Development
Manager
(until September 2023)



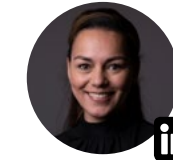
Stefan Kraaijvanger
Business Developer



Niels Winter
Account &
Relationsmanager



Corine Legdeur
Communications Advisor



Gentiana Tijssen
Communications Officer



Jeroen van der Werf
Project Manager IMIAT
(until July 2023)



Ger Post
Leading Lector Fontys



Frans Tillema
Leading Lector HAN



Ingrid van Lierop
Office Manager



Thomas van Berkel
Project Leader
Human Capital



Joop Verhagen
Project Leader
ACE Hydrogen
Test Facility
(until May 2023))



Carl de Ruiter
Project Leader
Human Capital
Charging Energy Hubs
(per November 2023)

ACE Mobility Board

Henk Bos	Chairman
Ella Hueting	Fontys University of Applied Sciences
Albi van Buel	RAI Automotive Industry NL
Gerrit Aversch	HAN University of Applied Sciences

ACE Mobility Supervisory Board

Rob Verhofstad	HAN University of Applied Sciences, chairman
Joep Houterman	Fontys University of Applied Sciences
Hans Corstjens	
Henri Koolen	VDL
Marinka Nooteboom	Koninklijke Nooteboom Group

Graduates and interns at ACE Mobility

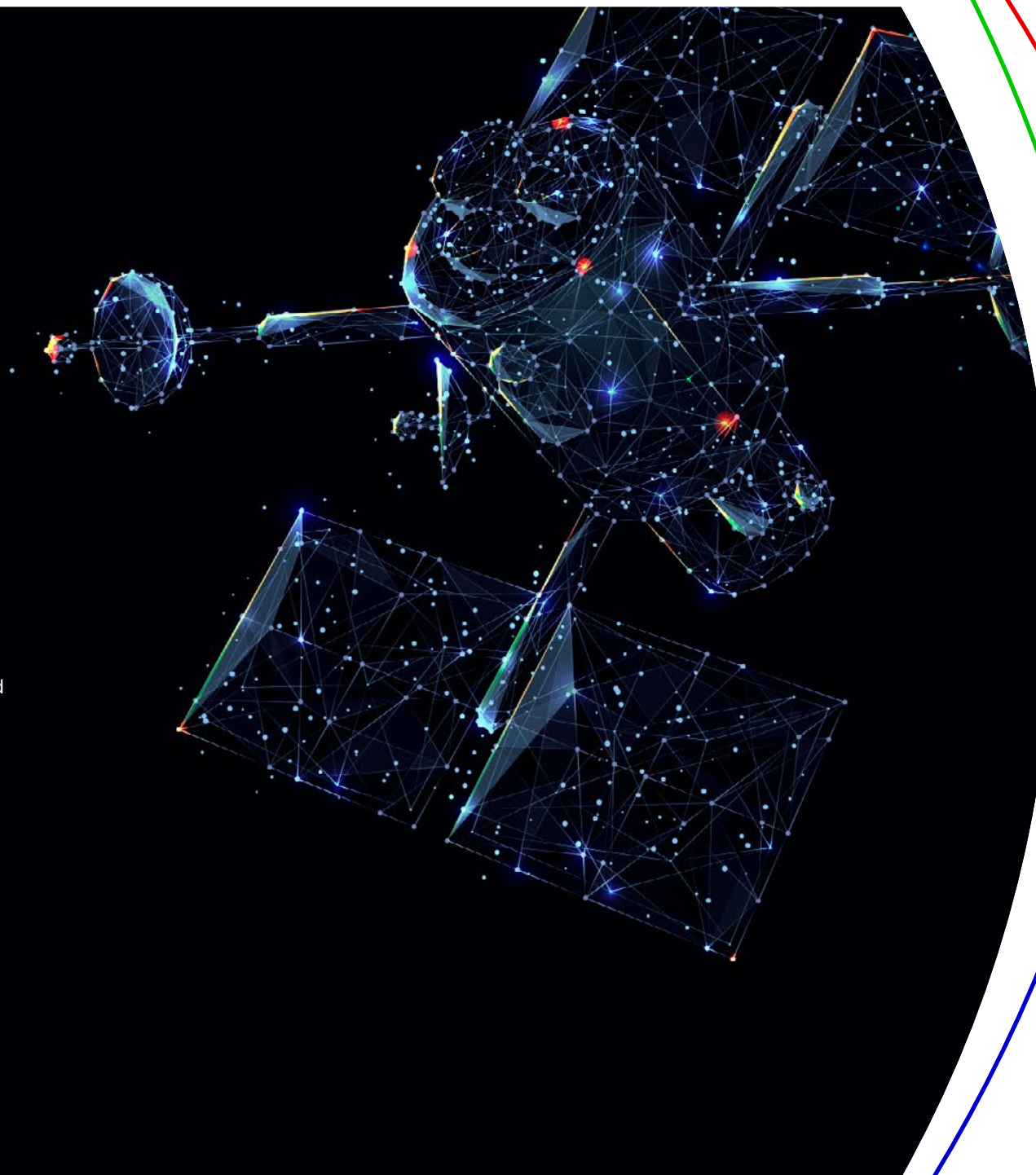
Salah Omari	Student at Avans University of Applied Sciences: Research Report: The efficiency of automated vehicles on a distribution area.
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Ambitions

In the coming year, 2024, ACE Mobility finds itself in an exciting transitional phase. We are embracing a revamped strategy, focusing on Education, Human Capital, and Innovation & Research. This strategic shift is not only based on internal considerations but also on the fruitful outcomes of our collaborations with the Universities of Applied Sciences HAN and Fontys, aiming to strengthen these partnerships further, and forming the core of our future-oriented strategy.

An essential addition concerns the role of ACE Mobility as an intermediary, initiator, and trendwatcher. ACE Mobility is the strategic network supported by the Automotive Universities of Applied Sciences and a number of relevant companies from the automotive and mobility sector. Safety, Sustainability and Clean and Smart Mobility are the guiding principles of ACE Mobility, which contributes to a clean and sustainable earth.





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