TAYLOR VISION

UPCOMING ACTIVITIES

INTERVIEW with Richard Norte

RECIPE flemisch stew

PUZZLE Sudoku

February 2025

About Us

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HISTORY

Taylor is the study association related to the department Precision and Microsystems Engineering of Delft University of Technology. The association was founded in 1988 to enhance the study experience of the students. The Taylor Foundation, in its legal form, was subsequently founded in 1992, making it an official organ in the TU Delft. During this time, the department changed its name from "Production Engineering" to the PME you are all familiar with. In contrast to what many people think, Taylor is not named after the famous mathematician known for the Taylor expansion. It is named after the mechanical engineer Frederick Winslow Taylor, who was active in production engineering and industrial efficiency. The logo of Taylor was inspired by the tip of an Atomic Force Microscope, an instrument that requires technology from all the divisions of the department. Taylor aims to enhance the study experience of the students by: trying to improve the relation between the students and the department staff, bringing the students in contact with the industry, providing the department with student feedback about courses and, last but not least, organizing recreational events to de-stress from the hard working life as a PME student.

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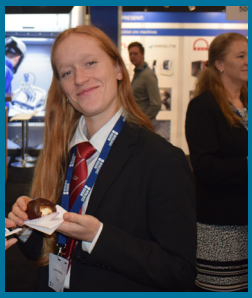
From the Board







Dear HTE'ers,

As we enter the second semester, we take a look back on what a great first half year it has been. We were really thrilled to see your enthusiasm for all of the events, and we certainly expect nothing less in the future. There were many nice educational events last quarter, as well as some memorable social events, such as our own birthday party, which was filled with tasty beer and (some) great karaoke performances.

This was also the last appearance of our former secretary Stijn, who has now continued working on his thesis in Boston at Harvard university. We wish him all the best in the USA, as it can get quite chaotic there at times.

We have had some quite gloomy weather the past few months, but as the sun (hopefully) starts shining again and the temperature starts hitting double digits, we can look forward to more great events coming up next quarter, including more company visits, lunch lectures and more.

On behalf of the Taylor Board,

Tim Kok

Recent Graduates

7-10-2024	Ronald van den Berg	Improving Disturbance Rejection With Reset Control in the Presence of Wideband Disturbances
14-10-2024	Xinyi Wang	3-D printed Piezoelectric Micropump with Ball Valves
18-10-2024	Luuk Schattenberg	Metamaterial Behaviour for Motion Systems Using an Approximated Ideal Shear Cell
22-10-2024	Yuxuan Liu	Characterization of Piezoelectric Properties in GaN/AlN Stacks Using Surface Acoustic Wave (SAW) Devices
22-10-2024	Niels Dee	Active Damping Control of Higher-Order Resonance Mode in Positioning Systems
25-10-2024	Matthias Blaakman	Relax to stress - Generating neutral stability in zero-stiffness mechanisms by utilizing a novel prestressing method making use of stress relaxation
29-10-2024	Mark Baken	Active Vibration Control of Sandwich Beam Structures utilizing internally placed Piezoelectric Shear Actuators and Sensors
31-10-2024	Pepijn Neeteson	Designing and Fabricating a Soft Robotic Fish Using Polyvinylidene Fluoride-based Actuators
8-11-2024	Justas Papučka-Platūkis	Flattening of Convex Adaptive Secondary Mirrors Using Focal Plane Image Metrics: A Case Study on the UH-88 Telescope
12-11-2024	Tom Vis	Statically Balanced Multi-Degree-of-Freedom Compliant Mechanism utilizing Preload Integration
13-11-2024	Matthijs Derksen	Sound Shaping in E-Drives for electric vehicles
15-11-2024	Niels Beaufort	Miura-ori pattern optimization for origami shape matching using the bar-and-hinge model
22-11-2024	Joris Gregoire	Control of a reluctance actuator using hybrid flux estimation
27-11-2024	Tom Vreugdenhil	Dynamical Mechanical Metamaterials for Path Generation

6-12-2024	Marie Matzdorf	Quantification of cell membrane insertion events using force spectroscopy
6-12-2024	Riccardo Di Girolamo	Layer Thickness Control in 3D Fabrication Sequence Optimization for Multi-Axis Additive Manufacturing
11-12-2024	Tom Duivenvoorde	Dissecting the mechanical properties of epithelial cells with Atomic force microscopy
11-12-2024	Monique Nguyen	Experimental Characterization of the Young's Modulus of MCF-7 Cancer Cells in Cell-Cell and Cell-Substrate Configurations using AFM
12-12-2024	Quinten Fabian	Closed-loop frequency domain reset control design, application for an industrial motion platform
16-12-2024	Victor van Merriënboer	Development of a novel Three-Zone LED Heater Array for Rapid Thermal Annealing of 300mm Silicon Wafers up to 1000°C
18-12-2024	Sebastiaan van Geuns	Design and Validation of a Novel Electrochemical Flow Cell for Per- and Polyfluoroalkyl Substances (PFAS) Degradation Using Boron-Doped Diamond Anodes
19-12-2024	Kunal Mathur	Conceptualization, Modelling and Control of a Novel Coil-Less Magnetic Actuation Technology based on Reluctance Tuning
19-12-2024	Denzel Hopman	High-resolution multi-material 3D printing for microfluidic applications
20-12-2024	Céline den Bremer	Advancements in 3D-engineered scaffolds to capture core and edge features of glioblastoma
20-12-2024	Koen Tack	Electrowetting for chip assembly
20-12-2024	Scott van Hien	Towards a neutrally stable meta-material consisting of coiled spatially curved shells

Congratulations!

Upcoming Activities

12 FEB | **Taylor Drinks**

27 FEB | **Lunch Lecture**
ITEC

6 MAR | **Company Visit**
VDL

12 MAR | **Ladies Night**

19 MAR | **Lunch Lecture**
PM

19 MAR | **Taylor Drinks**
with Senserion as special guest

Taylor Football

The last quarter for the Taylor football team has been a journey of highs and lows. The team started strong, securing a well-deserved win in the first match of the quarter. Confidence was high, setting an optimistic tone for the matches ahead. However, what followed was a challenging period as Taylor encountered a string of losses. Opponents proved tough, and despite moments of brilliance, Taylor struggled to turn performances into results. The frustration grew, yet the team remained determined to push forward.

That perseverance paid off in the final game of the quarter. Taylor delivered a well-deserved dominant victory, proving that their efforts had not been in vain. The win was a significant morale boost, restoring belief in their abilities and reigniting their competitive spirit.

Rather than resting on this success, the team immediately channelled their momentum into improvement. Dedicated training sessions followed, focusing on refining tactics and addressing weaknesses from the past matches to build a stronger foundation for the upcoming games.

Now, with a mix of battle scars and renewed determination, Taylor is looking forward to the next quarter. With the hard work put in during training, Taylor aims to return stronger, more cohesive, and fitter than ever to secure more victories in the matches to come this quarter.

By Martijn Smak

Precision Fair

What a day it was. The precision fair! We took off from the spar, 20 minutes after the scheduled time because the busdriver didn't know where we were. But, once at the precision fair it was smooth sailing. A slight introduction from the Young Precision Network sent us on our way. We started with a visit to the booths of VDL, IBS and MI partners. When we finished the tour, it was already time for lunch where we had some nice presentations from ASML and CERN.

During the second part of the day we strolled around some more while looking at the craziest projects and companies. Somewhere in the back, we found a guy that showcased a robot arm that failed constantly. We closed the day off with some drinks. Some guy won a prize during the drinks, but we payed more attention to the drinks than to the stage. I had a great day in Den Bosch. See you next year Precision Fair!

By Laura Graziosi

Lunch Lecture

hittech
masters in improvement

Monday November 18th it was yet again time for the first lunch lecture of the second quarter. This time our partner Hittech, which is a major system supplier for high tech equipment. Their presentation gave a good overview of how the company is structured and what their main applications are. It was also great that they showed in the lecture what projects a junior engineer would be able to work on within their company and in addition to that how the working environment is within the company. This provided some much wanted context to our students. They showed also a nice project where they developed a high precision linear guide system and they did a good job of explaining the process of designing such a system, then also manufacturing and assembling it.

We would like to express our gratitude to Timo and Roy for the presentation and their insights. There is also a company visit later in the year at Hittech, where they will be able to show a lot of the company and go in depth into your questions.

By Laura Graziosi

Wine Quiz

Last November, on a chilly Wednesday evening, we turned our cosy PME meeting room into a lively spot for our very own wine tasting quiz. The room was nicely decorated, and the smell of fresh pizza welcomed twenty excited students. We kicked things off by enjoying the pizzas together, getting ready for the night ahead.

Once everyone was full, we gave a quick intro on how to properly taste wine. It wasn't too long but covered the basics, how to look at the wine, smell it, and, of course, taste it like a real vinologist. Feeling a bit more confident after our crash course, we moved on to the real fun.

We had a line-up of ten different wines ready to be tasted. For each wine, we had five minutes to guess a few things: which country it came from, how much alcohol it had, whether it was soft, acidic, dry, sweet, bold, or light, and what flavors it had, like fruit, citrus, oak, or something vegetal. We also had to guess the price, which ranged from a few euros to some quite expensive ones.

As the wines kept coming, our guesses got more and more random, and the more our tipsy meter increased. By the end, we gathered all the scores, added up the points, and revealed the evening's big winner. Congrats to Jantien! She walked away with a nice bottle of Taylor's Port. Hopefully you enjoyed it!

by Stijn de Bruin

Company Visit

settels savenije
group of companies

As we arrived in Eindhoven to visit Settels Savenije, we were warmly welcomed by Guustaaf Savenije, who introduced us to the company. We learned about its rich history, company culture, fields of expertise, and design philosophy. One of the most inspiring aspects was their investment in personal growth and their innovative mindset, encouraging employees to think outside the box and develop creative solutions.

Following the presentation, we were challenged to design a pneumatic actuator within a restricted volume, adhering to criteria such as input pressure and required output force. Starting with a blank sheet of paper was challenging, but once we realized that increasing the contact area of a piston would generate the necessary force, we were able to develop a concept. This challenge perfectly showcased Settels' approach to design, encouraging creativity and unconventional thinking.

During the tour, we explored the manufacturing halls and offices. The building, once part of a Philips factory with water purification installations, retained historical features like water pumps and concrete basins, adding a unique touch to the environment. Although we had to cut the networking drinks short to head back to Delft, it was a pleasure meeting the staff and seeing their enthusiasm for the company.

A big thank you to Settels Savenije for being so open and sharing such an inspiring and innovative work environment with us!

By Laura Graziosi

YOUR PERSONAL DEVELOPMENT IS OUR PRIORITY

Settels Savenije is a group of companies where high-level technology is combined with a passion for people. We integrate development, engineering, parts manufacturing, and system assembly under one roof. You can find us at Strijp-T in Eindhoven. We hope to meet you soon!

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Network Drinks

On Tuesday, December 3rd, TWD visited us for another Network Drinks! This time, we met in the cozy atmosphere of 't Lagerhuysch, which was a nice change from the PME square meeting room. Even though the old bar and draught beer tap were gone, we still enjoyed a great selection of Dutch and Belgian specialty beers from the bottle, along with some tasty snacks.

Jelmer and Stefan gave an interesting presentation about TWD and the kind of work they do. Their projects are on a much larger scale than what we usually see in the High-Tech industry. For example, their offshore monopile installation systems can handle structures as tall as some high-rise buildings! TWD is active in markets like offshore wind, heavy lifting and transportation, heavy civils, and vessel outfitting. The best part? Their headquarters are right around the corner in Rotterdam! They however work on projects all over the world.

A big thank-you to Jelmer and Stefan for the fun and informative evening!

by Stijn de Bruin

Taylor Drinks

SinTaylor-Kerst-en-Nieuw (05/12/24)

On December 5th, PME welcomed a very special guest at the Taylor drinks, SinTaylorklaas! With Christmas just around the corner, he enjoyed a warm glass of glühwein, some oliebollen, and a nice glass of Cava before making his way back to Spain. But not before filling the shoes of the eager students who had carefully placed them by the fireplace.

Welcome Back Drinks (15/01/25)

It was really nice to see everyone back again on the Taylor Drinks on January 15th. After the holidays it was great to catch up and share a drink together, reminiscing about the good old Lustrum party. An amazing way to start the new year!

By Guus Tulen en Tim Kok

Company Visit

hittech
masters in improvement

We started off the visit by hopping on our bikes and heading to Hittech Multin in Ypenburg. It was challenging keeping up with the guys on my 40 euro Marktplaats bike, but we made it there!

We were warmly welcomed with a hot cup of coffee before diving into an introduction about Hittech Multin. Following the talk, we split into two groups for a tour of the facility. It was great to see their products up close and learn about the many roles engineers play. Not just in design but also in prototyping, testing, and even planning the test setups.

After the tour, we tackled a challenging case study presented by the team. It was fascinating to see their approach and the emphasis they placed on material science and manufacturing techniques. These factors were highlighted as crucial for achieving the best possible designs.

We wrapped up the visit with some drinks and casual conversations with Hittech employees, which gave us a deeper insight into their work and culture.
A big thank-you to Hittech Multin for hosting such an engaging and informative event!

By Laura Graziosi

Interview with Richard Norte

Where did you grow up?

I grew up in Los Angeles, California, in the valley. My background was not academic at all—my parents were from El Salvador, new immigrants raising me while working hard. They sparked my curiosity by taking me to space movies, and I grew up speaking Spanish at home. I was quite talkative in class, but one teacher saw potential rather than annoyance and encouraged me. This led me to be tested and placed in an advanced school. There, I was surrounded by students whose families included engineers and doctors, which opened up new perspectives and opportunities for me. It was difficult at first, especially without academic support at home, but eventually, I found my footing with the help of peers and mentors. The transition from a non-college background to an academic environment was a huge leap.

Where did you study?

I studied at Stanford University. Figuring things out on my own was challenging, which is why I strongly support diversity, equity, and inclusion (DEI) initiatives—socioeconomic status should be considered in university life. For my undergraduate studies, I pursued math and physics. Without a safety net, choosing physics felt like a risk. I often questioned whether I should continue, but my drive to understand the universe kept me going. Unlike engineering, which focuses on building things, physics fascinated me conceptually, though I always leaned toward practical applications—like when I built a rocket engine at Stanford.

Later, at Caltech, I studied black hole physics, which can sometimes feel like a luxury field—something often pursued by those with financial security. It was a major risk for someone without wealth. One of my original goals was to become an astronaut, but when the space shuttle program was closed in 2009, I had to pivot. I wanted to work in a field where I could understand and see tangible results, so I transitioned into microchip engineering. Now, I'm still working on space travel and gravity—just with different tools.

How did you end up in Delft?

After spending so many years in California, I moved to the Netherlands and fell in love with the lifestyle here. Beyond that, Delft offers a wealth of opportunities in nanotechnology—there's cutting-edge research and incredible resources. I started as a postdoc in Applied Physics and later applied for a faculty position. Working in a cleanroom feels like being in a workshop, building setups, which I love. My perspective has evolved since moving to Mechanical Engineering. Now, I think much earlier about practical applications—whether something is truly useful beyond the hype. I find this perspective more rewarding because it ties fundamental physics to real-world solutions.

Can you tell us about your research group?

We focus on microchip technologies, using light and sound to develop advanced sensors and computing systems. We design mechanical structures that interact with light, creating some of the most sensitive force sensors. These sensors not only function at ambient temperatures but are also precise enough to detect fundamental physical phenomena.

Our group consists of fourteen members: two postdocs, five PhD students, and eight master's students. We try to socialize outside of work because I believe that when people enjoy working together, they collaborate better and make research more fun.

What is your role in Diversity & Inclusion (D&I)?

One of my main goals is fostering open communication—getting people, especially those from underrepresented backgrounds, to share their experiences. This includes discussing issues like learning disabilities and ensuring that students feel they're not alone. We aim to create an open and supportive community through events and continuous dialogue with students.

I also advocate for social safety in academia, particularly for those with the least influence. My motivation stems from personal experience—I had a PhD supervisor who was incredibly demanding, which created a sense of powerlessness. There's often a false equivalence between academia and business, where students are seen primarily as workers striving for a degree rather than as individuals. TU Delft is doing relatively well in addressing these issues compared to the U.S., particularly through tenure-track courses on management and teaching, which help prepare faculty to foster a better academic environment.

What do you enjoy doing outside of work?

I play the violin—just for my own amusement. I started when I was 12 at a good school where I had the opportunity to learn, which was a strong motivator. Running is another passion of mine. I've been running marathons since I was 15 and have completed ten so far. Science itself is a hobby for me; I love exploring new ideas.

I also enjoy traveling, especially for conferences, though my brain sometimes protests the constant movement. One of my favorite destinations is Japan—I'd love to go back. That said, I also enjoy staying in the Netherlands during the summer. The weather is perfect.

Lastly, I love cooking. One of my favorite dishes is a sweet potato salad with lentils—I'll make sure to share the recipe!

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Ladies Night

Every quarter, the Taylor Girls' Night takes place, and this time, we took our talents to Mooie Boules Delft. Turns out, the girls of High Tech Engineering aren't just good at mechanical engineering — some also have a serious talent for jeu de boules! With mixed-up teams and several rounds played, competition was fierce, but spirits were high.We were also joined by some former High Tech girls, now graduated, who shared their experiences and plans.

But the real fun started when we discovered the karaoke room. Naturally, we sang our hearts out until closing time, and yes, for everyone wondering—of course we also sang some Taylor Swift songs. I mean, with a name like Taylor, how could we not?

So if you couldn't make it this time, be sure to join the next Girls' Night! It's a great way to connect with your classmates, have some fun, and get advice from the older years if you want it. See you there!

By Isabelle Block

Lustrum Party

After much anticipation and excitement, the moment had finally arrived—the grand celebration of Taylor's 9th Lustrum! We kicked off the evening on the PME square, enjoying pizza and drinks, setting the perfect tone for what was to come. The energy was high, and everyone was eager to head to the karaoke bar, ready to belt out some Taylor Swift classics in unison.

However, not everything went as planned. Due to some miscommunication, the Koperen Kat was hosting a private event, leaving us temporarily stranded. But in true Taylor spirit, we improvised. A detour to the narrowest bar in Delft gave them some time to wrap their party up.

The night was filled with joy, laughter and, of course, a few tears. We had to bid farewell to our beloved secretary, Stijn, who passed the torch to Martijn in a heartfelt and emotional speech. A bittersweet moment, but one that made the evening all the more memorable. With emotions running high we sang more bangers from James Taylor and Taylor Dayne. It was an unforgettable night, and I hope everyone enjoyed it as much as I did!

By Stijn de Bruin

Recipe

Flemisch Stew

This recipe is perfect for the cold days! It takes quite some time to make, so start on time, however it's not actually that much work.

Ingredients

For the stock

- *carrot*
- *2-3 stalks of celery*
- *5 bay leaves*
- *A few sprigs of herbs (rosemary, thyme, sage)*
- *1 onion*
- *4 cloves of garlic*

For the stew

- *500 g beef chuck OR*
- *Your choice of veggies (carrots, fennel, green asparagus)*
- *250 g mushrooms*
- *Mustard*
- *2 slices of ontbijtkoek*
- *50 g butter*
- *1 bottle of Belgian brown beer (Leffe bruin)*
- *5 bay leaves*

General

- *Salt, pepper, olive oil*

1. Put 500 ml of water into a pan, cut the veggies for the stock and add them to the pan, then simmer for an hour or until the veggies are soft and tasteless. Also add the herbs, bind them together using kitchen twine. You can also buy veggie/meat stock but making it yourself is easy and tastes great.

2. Take a good pan for stock, and after seasoning them first, fry the beef/veggies in a mix of butter and olive oil on medium-high heat until they have a good brown color. If bits are stuck to the pan that is fine, just make sure they aren't completely burned.

3. Take the beef/veggies out, put in the beer and some veggie stock and scrape the bottom of the pan. This process is called deglazing and it is a great way to add flavour to the dish. Then add the beef back in and the slices of ontbijtkoek, which are slathered on both sides with mustard. This may seem weird but it is to bind the stew. If you have beef, put it back in and let simmer for 2 hrs minimum.

4. Cut the mushrooms into quarters and fry them in butter until golden brown. Mushrooms take a while to cook and release quite some water, so pay attention. Add the mushrooms and veggies in 30 minutes before serving.

5. Serve the stew with your choice of potato dish, fries are perfect for this, roasted or mashed potatoes too. Goes great with Belgian beer or red wine. Enjoy!

By Tim Kok

Physical Copy of the Vision

A physical copy of the first Vision of the academic year is always sent out to all the first years, in addition to a digital copy via email. If you would like to continue recieving physical copies, please let us know by scanning the QR-code and filling in the form.

If you would like to contribute to the Vision by writing a piece on a lunch lecture, excursion, or just something you think would interest the Vision readers, that is possible! Send us an email to taylor-me@tudelft.nl with your idea and we will come in contact with you.

Puzzle

Sudoku

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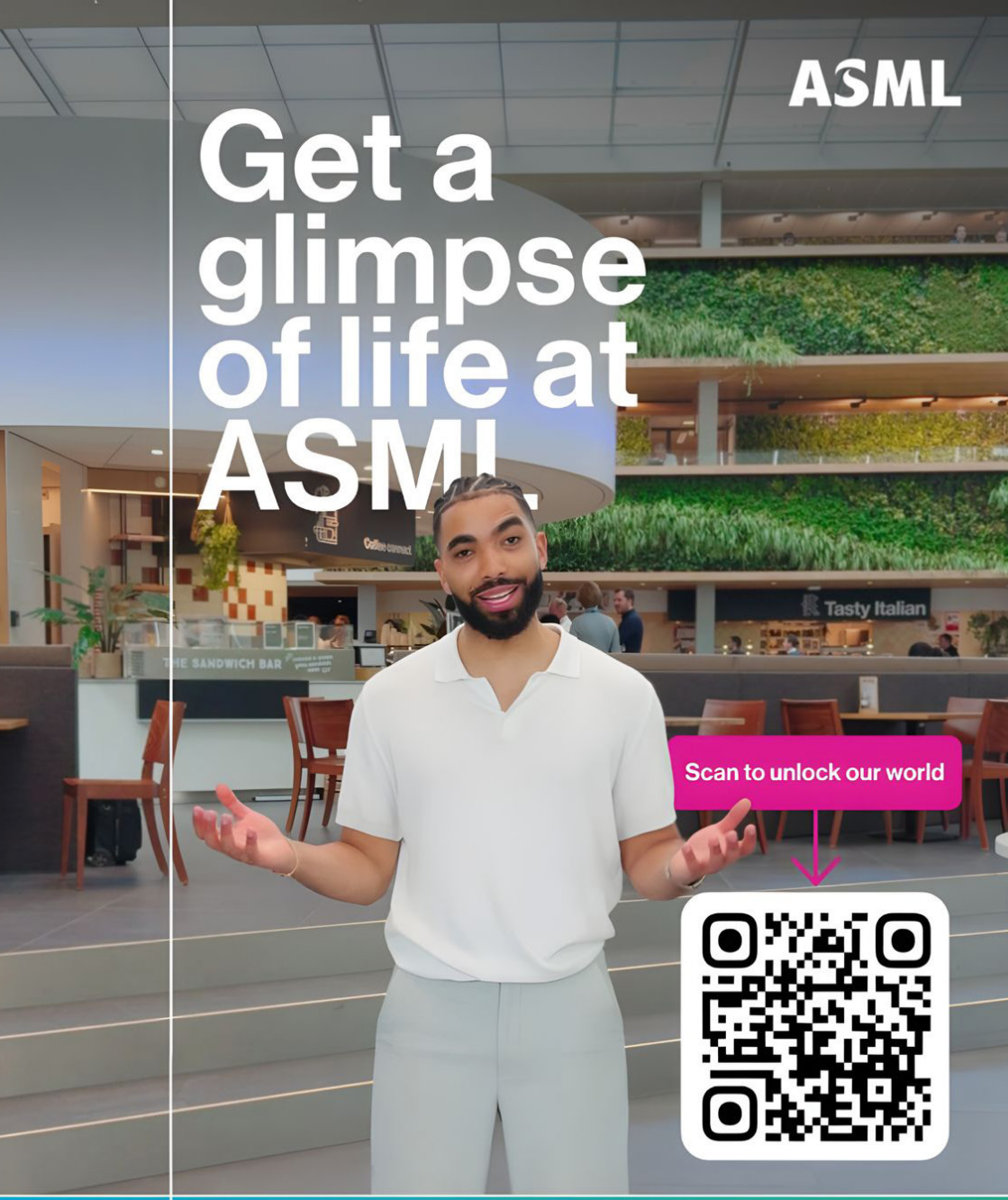

Hop on a VR tour of our campus and discover how we work, play and thrive.

MEMEchanics

Want to share your creativity by making a meme? Submit yours to taylor-me@tudelft.nl, and it might be featured in the next Vision!