

# TAYLOR VISION



**From Summer Breeze  
to  
Autumn Leaf flexures**

**November 2023**

# About us

## BOARD

Maurita Bloembergen

Chair

Niels Dee

Secretary

Pepijn van Kampen

Treasurer

Tetsuo Martynowicz

Education

Jeroen Nieuweboer

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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,*

*It is here, the first Vision of the freshly started academic year. This one is particularly special for us as we will bid adieu as Taylor Board of 22/23, making way for the new Taylor Board! Saying goodbye is always a bit bittersweet, but it's made easier knowing that the new board started off terrifically with the first quarter loaded with interesting activities. Before we officially bid farewell, let's take a quick throwback to last year.*

*As usual we kickstarted the academic year with the introduction week! I say 'as usual' but I realize that this was actually the first 'normal' introduction week after two years of corona pandemic. Luckily corona stayed in the basement from then on and we were able to organize all the nice activities we had in mind. It was nice to see that both the educational and social events were visited with great enthusiasm. We really enjoyed the social gatherings, and we were pleased to see that the educational events, post-pandemic, had their social dimension back. Studying for exams with friends is a lot more fun than on your own.*

*Another memorable moment was the PME Christmas event, where we also joined in with our own Taylor Swift act (and yes, we are still open for bookings:)). We also won't forget the Connect Event, where HTE students got to delve into the ins and outs of the corporate*

*world. We closed the academic year with a banger, the Taylor trip to Japan! You can read all about it in this Vision.*

*What a year it has been. We truly appreciated the time spent with all of you. We will miss the 'hokdagen' at the Taylor office (we already do). But don't worry, you haven't seen the last of us. We will still be around PME for our master thesis. So, see you at PME Square and enjoy this new Vision!*

*On behalf of the (old) Taylor Board,*

**Mark Baken (Taylor 22/23)**

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# Recent graduates

7/7/2023	Tianyang Hu	Improve the Optical Neural Network structure by using Neural Architecture Search for visual classification tasks
12/7/2023	Lyubo Davidov	Measurement uncertainty analysis of a Twyman-Green interferometer for lens testing
17/7/2023	Francesco Coatto	Metastructures in a sensor-actuator configuration: the practical issues in bandgap generation
17/7/2023	Ines Molina Ramirez	Simultaneous optimization of multi-part structure topologies and connection points
20/7/2023	Gijs van der Gugten	3D-printed multifunctional microfluidic AFM cantilever
21/7/2023	Castor Verhoog	Optimal active damping performance in presence of disturbance and electronic noise source
24/7/2023	Tim Swank	Design of a Hybrid Tunable Magnet Actuator with increased dynamic capabilities
25/7/2023	Shiyu Fan	Data-based modal space control for active damping
25/7/2023	Jayesh Balaji Kottiswaran	Observations of the quasi-steady aerodynamic model of the Atalanta project for additional velocity conditions
28/7/2023	Mireia Flores Cervello	Generation of quantum emitters in hBN via strain engineering for biosensing applications

16/8/2023	Daniel Blommestein	Passive film thickness control in hydrodynamic lubrication on non-flat surfaces
18/8/2023	Menno Iedema	Mechanical amplification for sensitivity enhancement of an FBG-based sensor
21/8/2023	Aditya Natu	Overactuation for active damping in compliant positioning stage using piezoelectric transducers
21/8/2023	Asgeir Prastarson	Exploring silicon photonics to sense two dimensional membrane mechanics
21/8/2023	Deime Schoneveld	Dynamic performance evaluation of two-axis lathes
22/8/2023	Dan Hagemann	Optimized self-centering lens mounting technique for precision optomechanical mounts in supercontinuum generation
23/8/2023	Jeswin Koshy Cherian	All-wheel torque vectoring for driver-in-the-loop drifting
23/8/2023	Jasper Scheepstra	Design of a silicon photonic microphone
24/8/2023	Yannick van den Berg	Design of an origami-inspired leaf flexure as an alternative to classical 2D flexures
24/8/2023	Wenpei Guo	Finite element simulation of light and correlation propagation in tissue
24/8/2023	Jingwen Hu	Structured illumination imaging and improvements in scattering medium
28/8/2023	Chia-Yi Chung	Space application for contactless actuator
28/8/2023	Himanshu Kadel	Two-photon polymerization of 3D electrically conductive scaffolds for neuronal cell studies
28/8/2023	Yue Sun	Imaging the SAW field on suspended 2D membrane
29/8/2023	Manabendra Das	A geometric approach for controlling local overheating in topology optimization for additive manufacturing
29/8/2023	Nan Li	Time-of-flight measurements of single-layer tissue with a chip-based optical frequency comb

29/8/2023	Marc Sinck	A mass optimization study of the Lunar Zebro Chassis
29/8/2023	Xinshuo Zhang	Photonic micro-mechanical acoustic emission ultrasonic non-destructive testing
30/8/2023	Dhanush Chitluri	Constant torque mechanism for gravity balancing in wrist support application
30/8/2023	Yixuan Liu	Automated reset controller design with a novel structure for improved performance of an industrial motion stage
30/8/2023	Santiago Mendoza Silva	Identification of bacteria with AI
30/8/2023	Rahul Puthukattil	POI position and force control in industrial wire bonders
31/8/2023	Ana Arrieta Rodriguez	Modelling of Laser Powder Bed Fusion processes in non-convex geometries with a semi-analytical approach
31/8/2023	Rick Burghoorn	The influence of porosity on the dynamic characteristics of porous air bearings
31/8/2023	Haotian Hu	Characterization of biosensing with integrated photonic microchips for wearable photonics in health monitoring
31/8/2023	Eli Weisz	Enhancing the Q factor of diamagnetically levitating resonators by segmentation

# Congratulations!

**16** NOVEMBER

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**PRECISION FAIR**

**21** NOVEMBER

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**LUNCH LECTURE**

**22** NOVEMBER

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**Sinterklaas Drinks**

**29** NOVEMBER

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**TAYLOR WINE BINGO**

**30** NOVEMBER

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**PM COMPANY VISIT**

**TAYLOR**





**06** DECEMBER

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**ASML** LUNCH LECTURE

**08** DECEMBER

---



*Taylor Gala*



**09** JANUARY

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**COMPANY VISIT**

**11** JANUARY

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**LUNCH LECTURE**

**11** JANUARY

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**TAYLOR DRINKS**

**ACTIVITIES**

# Meet the Board

**Maurita (Chair)**



**Jeroen (External affairs)**



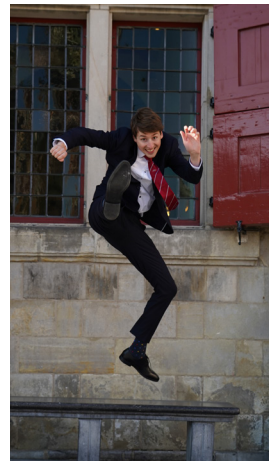
**Tetsuo (Education)**



**Niels (Secretary)**



**Pepijn (Treasurer)**



# Maurita

Hi! My name is Maurita and I am the chair of Taylor this year. As chair, my task is not strictly defined but it is my responsibility to keep a general overview and make sure everything is running smoothly. In addition to Taylor I started working on my thesis in October and I also play Lacrosse, though I'm not very good yet. In my free time I enjoy going to the movies or concerts.

My favourite food has to be a nice homemade lasagna and a fun fact about me is that I play trumpet and trombone. My guilty pleasure is spending too much money on speciality coffee!



# Niels

Hey everyone, my name is Niels and I am the face behind all the spam in your email and whatsapp groups! As the secretary of Taylor I am mainly responsible for the communication between Taylor, the department and the students. Besides that I play in the Taylor football team on Mondays and I will organise some bike rides in the spring!

My favourite food is, I think, Roti Kip (made by my dad), but after the Taylor trip to Japan I have also developed a big appreciation for Japanese cuisine. In general I really like cooking, which brings me to a fun fact about me. In my free time I make TikToks about my recipes, so make sure to check that out ;) @nothingniels

My guiltiest guilty pleasure is that I actually often listen to Taylor Swift, opposed to the other 'fake' Taylor fans within this board.



# Pepijn

Hi reader! I'm Pepijn, and I'll be serving as Taylor's treasurer this year. My role involves managing both the association's finances and our precious cookie supply. If you're in the mood for a delightful Brinky to accompany your coffee, I'm the person to see! Apart from crunching numbers, I enjoy climbing and bouldering.

Watching minecraft videos on YouTube is definitely a guilty pleasure and when it comes to food, my favorite is an Italian beef stew with self-made tagliatelle, but that is a lot of work! When I don't feel like cooking at all my favorite dish is a biryani curry at Bombay Corner, can highly recommend! A fun fact about me is that I have a subscription on Blijdorp Zoo in Rotterdam, and my favourite animal is the Slender Loris.



# Tetsuo

Hee, I am Tetsuo and I will be your commissioner of education this academic year. I will mainly focus on improving the quality of our education and representing our students in the Education Committee Mechanical Engineering. So please participate in the course evaluations because without your input I am nothing!

I am a collector of hobby's but my main passions are rugby and music. I started playing during my bachelor at SRC Thor and I have been hooked ever since. I actually broke my collar bone in my first ever match but I think that made me love the sport even more! I also love listening to (live) music and I play a liiittle bit of guitar. My guilty pleasure is singing "Careless Whisper" on a karaoke night.

My mother is Japanese so naturally my favorite food is Japanese food.



# Jeroen

Hi there! For those I have not met before at the introduction week or one of our Taylor events: My name is Jeroen Nieuweboer, and I will be responsible for the External Affairs of Taylor this academic year. Currently, I am in my second year of High-Tech Engineering and work part-time at a technical consultancy firm. In my free time; I like going out for some drinks, do sports at the gym and travel.

My guilty pleasure was enjoying Sia songs while driving, now it is all Taylor Swift obviously. Unfortunately, I do not really have a favourite dish, you can convince me with your recipe mail to: [extern-taylor@tudelft.nl](mailto:extern-taylor@tudelft.nl). Hopefully, I will meet you at one of our (company) events or at our beloved office, "het Hok", for free coffee!



# Taylor Football

***Taylor Football is on a winning streak!***

Since the beginning of the new academic year the Taylor Football Team has been shining on the pitch every Monday! After a long summer break and a hectic transfer period the team needed some time to get back into the rhythm and find the chemistry. However, during the match against FC Goaldiggers, the Taylor team finally showed it's real class! With three points in the pocket they celebrated their first win with some well-deserved beers. The week after the athletes showed that it was not just luck, because again, with a tactical plan and some exceptional team work, they secured another win! The team ends Q1 with an impressive place on the top of het rechterrijtje!

*By Niels Dee*



# Taylor Gala



As you may have noticed from the posters in the department or announcements during Taylor Drinks, the Taylor Gala will take place on the 8th of December! This event is open for both students and staff. Although not mandatory you can also bring a date or friend along. It will truly be a royal evening including a dinner and party at an elegant location. Dress up in your most Casino Royale style outfit, and enjoy the open bar that is included in your ticket.

**Dress Code:**

Poker chips (White, Red, Blue, Green and Black)

**Date:**

Friday the 8th of December 2023

**Time:**

Dinner: 18:30 - 22:00 (doors close at 19:00)

Party: 22:00 - 00:00

The Gala Committee is proud to announce that already *80 tickets* have been sold, but luckily there are still a some tickets left. So scan the QR code and secure your ticket. We hope to see you there!

# Intro week

## *Welcoming our newest High-Tech Engineering master students!*

The introduction week kicked off with a presentation about the HTE Track, the PME department and of course Taylor. After a short break the program continued with an exciting treasure hunt through the streets of Delft. The promised prize was a good motivation for the students to be very competitive, which resulted in many creative pictures. The first day ended with the iconic Taylor Drinks to unwind.

Throughout the week, the students gathered at the Arts Center in Delft, where they got introduced to all the PME departments by many different professors, enjoyed delicious lunches, and shared more delightful moments over drinks. On Wednesday the students got challenged by an interesting case study from VDL, the perfect opportunity to experience what being a High-Tech Engineering student is like. In the morning of the final day at the Arts Center the students worked on their study program, followed by various experiments by the PME research groups.



To conclude the introduction week, we unleashed the competitive spirit with a sports day. From basketball, volleybal and football to tug-of-war and circus acts, the students were challenged in many disciplines. A well deserved lunch concluded the day and it was great to see the enthusiasm of our new students!

*By Niels Dee*



# Taylor Drinks

## *First Taylor Drinks*

The first Taylor Drinks of the year couldn't have asked for better weather! Under the late summer sun, students and staff enjoyed delicious drinks and snacks outdoors behind the PME department. The attendance was so impressive that we managed to empty Taylor's entire beer supply. Thanks to everyone who joined and we hope to see you again at the next Taylor Drinks!



## *Spebibo*

The second Taylor Drinks of the year was moved indoors due to the weather. This change in venue didn't dampen the fun however as students and staff gathered to enjoy craft beers along with cheese and mustard or slices of cucumber. At some tables a structured beer tasting was hosted, starting with lighter options like blondes and IPAs and progressing to doubles and triples. At other tables, attendees explored a more spontaneous approach, sampling whatever piqued their interest. Regardless of the method, the event was widely considered a success. Anticipation is building for the next gathering scheduled for November 22 as rumors are circulating that Sinterklaas might pay a visit to PME square this year...

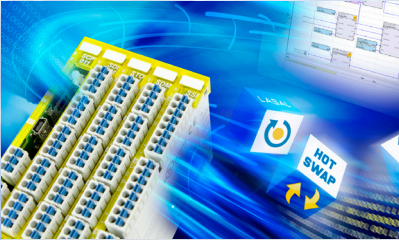


*By Pepijn van Kampen*



# SIGMATEK

SIGMATEK



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SWAPPEN TIJDENS RUNTIME**



**SAFETY OVER WIRELESS**



**COMFORTABEL  
PROGRAMMEREN MET LASAL**

## SUPERCOM

### MULTI-AS SERVOS





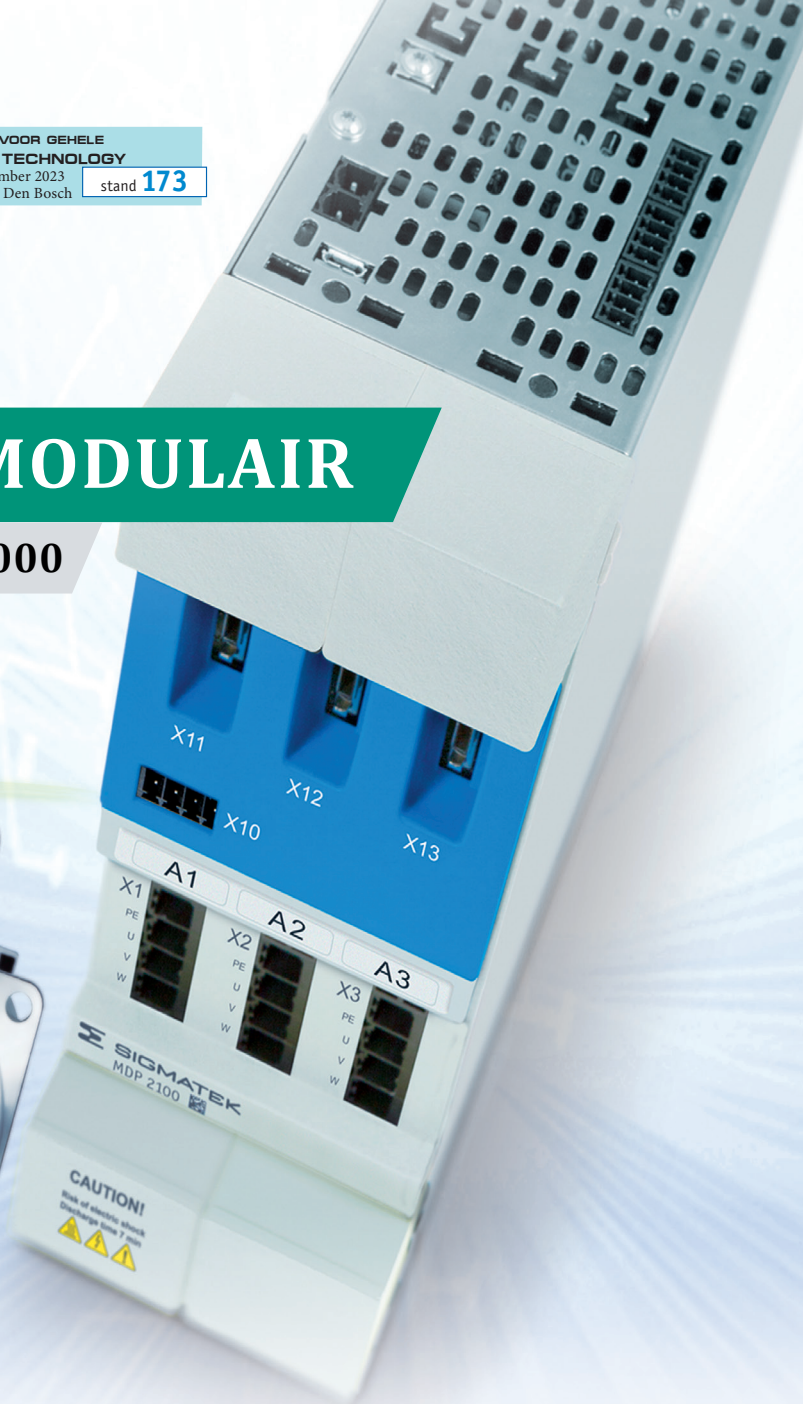
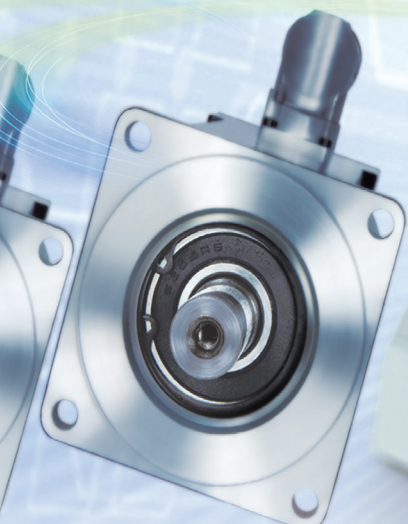
Precisie  
beurs

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PRECISIE TECHNOLOGY  
15 en 16 november 2023  
Brabanthallen Den Bosch

stand 173

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# TAYLOR TRIP

On July 31st, we kissed the tulips goodbye in Amsterdam and hopped on a plane, setting our sights on the enchanting land of Japan. With a quick pitstop in Warsaw, we embarked on our flight across time zones and continents, bound for Tokyo.

After a never-ending flight, we touched down at Narita Airport, where we got our hands on the holy grail of Japanese travel, the Japan Rail Passes. While waiting for our tickets, we charged up our Suica cards and enjoyed our very first of many Onigiri's, also known as triangles. Proudly wearing our Taylor trip bucket hats, we hopped on a train and rocketed into the largest city of the world, Tokyo. Over the next five days, this place would be our playground.



Our journey started with a visit to the magnificent Sensoji Temple, a bastion of history and serenity in the heart of Tokyo. In the warm sun we changed our shorts and slippers for long pants, shirts and ties, because Tokyo University opened its doors to us, providing a glimpse into the world of Japanese higher education. As the sun dipped below the horizon, we ventured to Akihabara, where our senses were tantalized at a conveyor belt sushi restaurant. It was our first authentic taste of Japanese cuisine, setting the tone for a culinary adventure.

The days whirred by in a blur of discovery. We embarked on a train journey to Hitachi, where the enigmatic High-Tech department of the company awaited. The tour and presentation by the company's CTO was nothing short of fascinating, leaving us all adorned with distinctive Hitachi caps. A return to Tokyo found us dining in the shadow of Tokyo Tower, often likened to the Japanese Eiffel Tower.

The following morning, we boarded an early train to Nirasaki. Our destination: Tokyo Electron. With a series of non-disclosure agreements and our camera phone lenses covered, we were guided into a world of lithographic technology. A delicious Bento box awaited us at lunchtime, fueling our spirits for the journey ahead. A private bus ferried us to Kawaguchiko Lake, offering an impressive view of the majestic Mount Fuji. Here, we sipped locally brewed Mount Fuji beers and captured the breathtaking landscape in countless photographs.

Our final day in Tokyo unfolded as a whirlwind of cultural immersion. We paid our respects at the Meiji Jingu Shrine, ventured through the vibrant Takeshita Street in Harajuku, and marveled at the world's busiest pedestrian crossing in Shibuya. With a quick refresh at our hostel, we made our way back to Shibuya for a night of Tokyo's dynamic nightlife. The pulsating beats of a techno nightclub filled our ears, and we danced into the early hours before catching the first morning train back to our accommodations.

The next leg of our journey carried us to Osaka aboard the high-speed Shinkansen bullet train. We checked into comfortable hotel rooms and indulged in the flavors of culinary Osaka with a delicious Okonomiyaki dinner. The following day, our quest for knowledge led us to the halls of the Osaka Institute

# 2023: JAPAN

of Technology. A delightful ramen lunch, a local student favorite, provided a taste of everyday life in Osaka. The afternoon was dedicated to the majestic Osaka Castle and its serene gardens. Our journey then led us to Nara, a day filled with enchantment. Nara Park played host to the Todai-Ji Temple, home to the world's largest bronze Buddha statue. Playful deer roamed freely, eager to share our company and a bite to eat. As the day waned, we were treated to a mesmerizing lantern show and a bustling food market featuring an array of typical Japanese street food.

A brief train ride transported us to Kyoto, where history seemed to come alive. We visited the Ninja Museum, where we were not only treated to a tour but also learned the art of shuriken-throwing and transformed into Samurai. The next day was dedicated to Shimadzu, where we delved into the family's inventive legacy through a museum tour and engaging presentations at the Shimadzu company building. The afternoon unfurled with a visit to the famous Fushimi Inari pathway, a labyrinth of vibrant torii gates, and a serene visit to the Yasaka Shrine. Our adventure then led us to the Arashiyama Bamboo Grove, the tranquil Tenryu-ji Temple, and the lively Iwatayama Monkey Park, where we encountered a host of playful primates. Our day concluded with relaxation at a local Japanese onsen.



As we left Kyoto for our final day in Tokyo, the exhaustion of our trip began to catch up with us. Many used the long train ride to catch up on some sleep. Our day was spent wandering around the Tokyo Skytree, Japan's tallest building, and ended in a night of karaoke and clubbing to make the most of our remaining hours in the city. The morning thereafter, we gathered for breakfast at the hotel, where some Taylor trippers went directly from the nightclub to the breakfast table.

On our last day, we cherished our remaining hours in Tokyo before embarking on the return journey to the airport in the late afternoon. The memories, friendships, and cultural experiences we gathered along the way were the true treasures of our journey.

*By Niels Dee*



# engineering your career



Hilde

“  
The basic principle is that you learn  
the most by doing things yourself”.



Read Hilde's  
story here.

## A traineeship for life

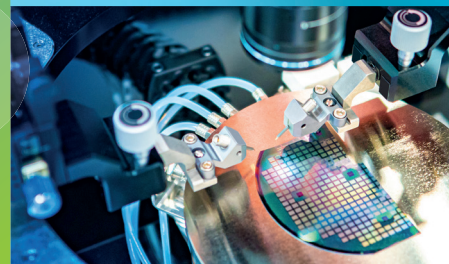
Enjoying your job gives you energy and make you feel good about yourself. That is why we challenge you to get the best out of yourself. Our unique VIRO Academy enables you to continue to develop your own talents and abilities and define your own path.



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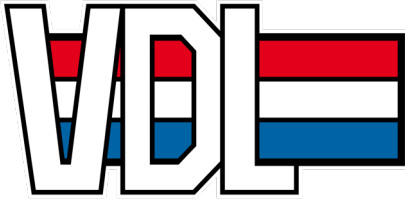
# Lunch Lecture

***Interested in a flat work culture and a focus on innovation? Check out Prodrive!***

Job from Prodrive gave an inspiring presentation about the company's focus, work culture and other facets. During his talk we also learned about the types of projects they take on. An example of one of their longer ongoing projects, MULTI, an elevator driven by linear motors, sparked many questions from the students after the presentation. An impressive aspect about Prodrive is that they do practically everything internally, from design to manufacturing. Another interesting statistic is that 40% of their work force is research and development, showing they have a high focus on innovation. Thanks Prodrive for a great first lunch lecture!

*by Maurita Bloembergen*





# Lunch Lecture

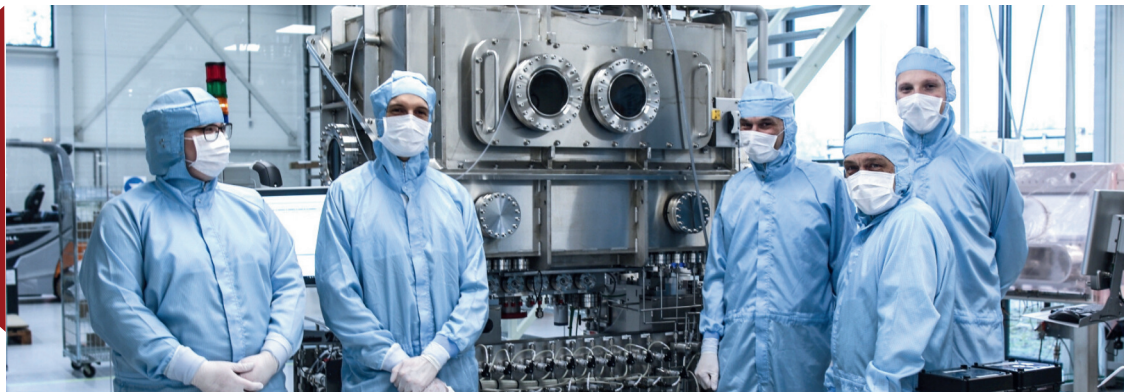
***Interesting lunch lecture with free stroopwafers!***

On the 9th of October VDL Enabling Technologies Group hosted an interesting lunch lecture for our High-Tech Engineering students. The presentation included a substantial amount of the company's confidential details regarding the design and development of their wafer positioning machine, offering valuable insights into the experience of working at VDL. We extend our appreciation to VDL for sharing this valuable glimpse into their operations.

*by Niels Dee*







“Your personal development is our priority.”

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to work @STTLS



WHERE PHYSICS, MECHATRONICS & CLEANLINESS MEET

# Interview

with **Farbod Alijani**

*Associate professor*

## **What did you want to become as a kid?**

A teacher. Well, maybe I can say that I really love teaching. I mean, if you ask kids what they want to become when they're grown up at first they say for example: doctor. So I said I would like to become a doctor too but teaching was something that I really enjoyed a lot also from an early age. When I was a little kid, I was so amazed when someone was teaching something and I found that very beautiful.

## **Could you describe the place and the environment in which you grew up?**

Yes, so I grew up in in Tehran which is the capital city of Iran. I'm an only child and what I remember from the time that I grew up was the war between Iran and Iraq. So those are the things that I remember pretty well, at least of the first few years which were difficult to grasp as a kid but then the rest was normal. My family was kind of wealthy. We always had good times, and I used to travel a lot with my mom who was an air hostess and my father was a pretty well established businessman in Iran. So my life was was pretty good apart from the war.

## **Have you always lived in the same place?**

During the the war, because of the bombings, my parents decided that it was better to go to the northern part of Iran, the same place that Hassan comes from actually. So I lived there for nearly four or five months and when the war ended we moved back to Tehran where I spent the rest of my childhood.

**Are you usually late or early?**

Very early

**What is your favourite animal?**

Cat

**Favourite food?**

Kebab



## **Why did you pursue a career in engineering?**

That's a good question. So my father as I said was a pretty well-established businessman and owned a company that was working on manufacturing cement bunkers. His company was one of the first that built these cement bunkers in Iran and also the compressors for offloading the cement. And at some point the company had, I don't know, maybe a hundred employees and I was always thinking that one day I would become the owner of that company. So that was one of the main reasons that when I was in high school, I decided that okay, I'll go on with mechanical engineering and learn more about this. Other than mechanical engineering I was always thinking of something related to business as well because I was seeing myself running my father's business in a few years. But then things flipped and at one point my father decided to just get rid of the company and I stuck with engineering without becoming the CEO of the company in the end.

***So if you had an interest in business as well, why did you eventually decide to pursue a career in academia and not in the industry?***

Over the years I'm not sure if many of the decisions that I made were consciously. Some of the decisions were definitely taken consciously but sometimes, like when you're in high school or the first years of your bachelor program, you don't often see people who really know what their future is going to be like. I mean they have interests in certain topics, but it could be likely that they just go with the flow. And for me it was also like this. I thought that one day I would become the CEO of my father's company so I had to learn about it, right? But my real interest was more on the engineering side.

***Did you do both your bachelor and masters in Iran?***

Yes, and my PhD was partially in Iran and partially in Canada.

***How was your time in Canada?***

I was in Canada for five years and in the beginning it was difficult when I arrived in Canada since it was winter time and it was very cold. And I struggled a lot at the beginning to show myself to the supervisor with whom I was working. But it went okay and I also worked very hard in that period.

***If you had unlimited resources (time and money) what specific topic would you do more research on?***

Well, I would still continue doing research on non-linear dynamics. That is something that really makes me happy and it's a topic that I really enjoy working on. I also really enjoy teaching it and actually it has an interesting story. My master's was more on the mathematical modeling side and I became very competent in math and continuum mechanics. Then I was thinking of doing a PhD on something similar but more on the dynamics side. So I started to look, into okay, what are the different topics? And



then I realized that there is something called non-linear dynamics and chaos which is very interesting. I was watching different lectures and talked to different people and I said, wow, that is a very good opportunity. And that's how I became familiar with the topic and then I tried to master it.

***What is a problem or a challenge in your field that you hope to have solved in the coming five years?***

Yeah, good question, there are many different things. So what requires some more thought is how non-linearity and noise come to play together. Because sometimes non-linearities have the same features as noise and sometimes noise can make non-linearities even more complex. So how the combination of those two could provide new phenomena and how the combination of the two could be used to solve certain problems is something that would be very interesting in my point of view. And that is a topic where I think there could be a lot of new things happening, at least in the non-linear dynamics field. But there is also applications of non-linear dynamics like in atomic force microscopy for instance and in material science. All these things are interesting topics to pursue but on the fundamental side, at least to me, I think a combination of noise and non-linearities is something that is not really well understood. But what could come out of it still requires some more thought.

***You talked about the application side of things. I noticed you started a company with a group of people named SoundCell. Could you tell something about the company?***

Yeah, so that was actually a curiosity driven thing that we started. I think it was 2018 when I had just started a project on non-linear dynamics of 2D materials. I went to a conference to present our work and then there was this gentleman who was saying something about using micro- and nano systems to measure biological signals of micro-organisms. And he was talking about using cantilevers as microsystems to measure the biological motion of micro-organisms. And since I was

working with these 2D materials and they're pretty tiny and atomically thin, I thought they could be viewed as an alternative. We started to work and see if this is really possible but we were not able to do tests on biological samples in our lab. So I approached Cees Dekker who is a professor in bio- & nanoscience. I had a chat with him and he put me in contact with his postdoc and I put one of my PhD students in the loop and then things started rolling. So we first measured one single bacterium. Then we tested antibiotics and we validated it on different type of bacteria. We improved the measurement system and published a very nice article afterwards and then we launched the company. This was all done here at TU Delft. So it was a process that started late 2018 and last year April we published our article in Nature Nanotechnology and in July last year we founded the company. So the company is already one year old and now it is led by my former PhD and former postdoc who are the CEO and CTO, and Peter Steeneken and I act as advisors to the team. It is all very exciting and I'm happy for my former PhD and postdoc.

***At the beginning you mentioned your passion for teaching and over the years you have received three awards for your teaching which is very impressive. What is your teaching philosophy?***

For me actually teaching is one thing that I enjoy very much. Something that I try to do is to make sure that students are really motivated about the topic that I'm teaching because that motivation is going to help them also to better grasp the concepts that are being taught. That is a part that I spend a lot of time on during my classes, to make sure that at least students feel that they are learning something cool, right? Because if I can convey that feeling that they can do cool things with what they learn, then they automatically start to think about it and they can learn much better.

***You played the piano and sang a few songs during last year's Christmas event, what role does music play in your life?***

Well, it has a very important role. It's an interesting thing because my mother was the kind of person who wanted me to do my best in many things and I am so much in love with her that if she tells me, you have to do this then I just do it. And this was something that was happening during my childhood. So she was so much in love with piano that she wanted me to learn piano and then I learned and of course at the beginning it was very difficult. But at some stage I had a very good teacher who really motivated me and that was a point where I also progressed a lot. And before having kids and before being pretty much occupied with work I used to play a lot. So yeah, unless there is something like a Christmas event where people like Eveline or Hassan or Alejandro ask me to play, I do not touch the piano much. I mean, I still try because my kids, both of them, are trying to play the piano. And if I'm in the mood I just play something myself. But it's not like five or six years ago when I played much more.

***So if you're not making much music anymore, do you still like to listen to music?***

Yes I listen to music, but I if you ask me "what is your taste in music?" I like everything so it really depends. It's not like I listen to rock or rap or whatever. It really depends on the type of music that grabs my attention and on the moment. If it grabs my attention then I really like it and I continue listening to it. If I'm in the mood for Persian music, I listen to Persian music and if I am in the mood for listening to piano I listen to piano and if I'm in the mood for techno then I listen to techno. It's really song specific.

***When are you in the mood for techno?***

Well, if I maybe have a couple of drinks first then yeah, maybe I'm in the mood for techno.

***Do you have any other passions?***

Recently I bought a new house and now I have a big garden. Every week by the end of the

week it's a mess and the garden is full of leaves, especially in autumn. It requires cleaning and if I don't clean it, my wife is not going to do anything and my kids, of course, they don't know how and that actually recently made me try to do something in the garden. So of course, I don't know much because in Iran it was not like we had houses with a garden right? It was more like an apartment and there was a gardener who came from time to time. But now I have to do it. I just cut the branches or clean up the garden or plant some flowers. These types of small things I do and it makes me happy.

*by Tetsuo Martynowicz*





# Ladies night

***First HTE ladies night of the year was a succes!***

Early October we had our first ladies night of the new academic year. This was a great opportunity to catch up, hear stories about the Taylor Trip, Taylor Swift, mongolian throat singing... whilst enjoying some fresh pizza. It was clear we had missed each other but it was also really nice to see some new faces. After our pizza catch up party, some of us headed over to De Ruif where we had some drinks and played dutch dice games. *Was it dertigen or één-en-dertigen?* In any case it was fun. If you're reading this as a fellow HTE lady and feel like you missed out, scan the QR code to join our chat and find out about our next activities! These nights are a great way to meet other HTE ladies and spend some time together outside of your academic life.

*by Maurita Bloembergen*



# Excursion

## *These engineers don't Settel(s) for less!*

After being picked up the bus driver, our journey to Eindhoven, where Settels Savenije's office is located, finally began. For the Taylor board, the 1.5 hours of travel time flew by due to changing of outfits and indulging in the occasional Brinky, a cookie with the ability to lighten the mood of anyone who devours it. Time may not have passed as swiftly for the other travelers on the bus, but time is certainly relative, so who is to tell?

Upon our arrival at Settels' office, we were swiftly guided in to view a presentation led by none other than the company's founder, John Settels! Instead of boasting about Settels Savenije himself, John opted to let the employees speak for the company through a video presented in an interview format. No expenses were spared, evident in the high-definition video showcasing the employees' satisfaction with their job, workplace, the firm's mentality, and most importantly, their colleagues. After the presentation, Ralf and Ivo guided the students in groups on tours of the faculty in different directions. Here the students got to see the production, assembly and shipment of High-Tech projects which they have learned so much about.

Before indulging in meaty snacks and cold ale, a short yet powerful case study was conducted in the presentation room. Here, students were challenged with designing a 4 Degree of Freedom system (one translation and three free rotations) using only paperclips, elastic bands, pushpins, business cards, and blocks of cork. Creativity flowed as the students tackled the challenge before them. Two groups arrived at a similar design, utilizing two non-parallel paperclips as wire flexures, enforcing two constraints. This design displayed potential as



it served as the foundation for a real design challenge that the Settels team had faced and solved with a similar solution. Of course, the actual design Settels used to position a mirror with micrometer accuracy was far more complex than the cork and paperclip models. The other groups, were less successful, some having trouble with the problem description. The takeaway message from this case study was clear: ask questions!

Finally, before returning to the beautiful city of Delft, the students refreshed themselves with a cold drink and enjoyed 'bitterballen' in the cosy canteen of Settels Savenije.

*by Pepijn van Kampen*

# Quooker®

## Excursion

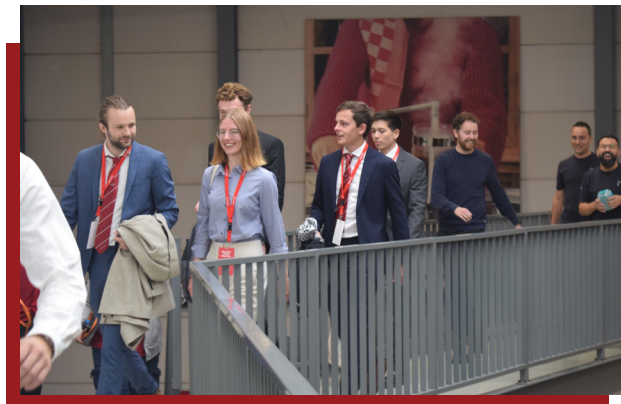
### *The tap that does it all*

On Thursday the 12th of October we visited Quooker in Rotterdam, arguably the most ingenious tap manufacturer in the Netherlands.

Upon arrival, we were warmly welcomed by Laurence and her colleagues who all happened to be alumni of the Mechanical Engineering Master at TU Delft. They gave an interesting presentation on the history of Quooker and what excites them about working at the company. Following up, we received a tour of their production facilities where it became clear why Quooker stands out from other tap manufacturers from an engineering perspective. They produce almost all parts for the Quooker in-house using a production line that they mostly engineered themselves. Also, in preparation for their planned expansion in a few years, they were testing the use of autonomous pallet trucks in their warehouses which was quite a sight.

The last section of our visit included a case study on designing the next generation Quooker with a focus on e.g. sustainability, manufacturing or cost. After the explanation, every team had one hour to come up with an idea which they had to pitch to the group and a jury. It took the jury some time to decide on the best of five very interesting pitches but eventually a sharp-eyed group that came up with a great suggestion on how to improve the manufacturing process won their well-deserved prize!

*by Tetsuo Martynowicz*







# Network Drinks

## *Engineering and table football*

After a successful network-drinks of last year, we hosted a drinks with TWD again. Luckily, this year we were able to enjoy the story of TWD, their projects and beers in t'Lagerhuysch instead of the faculty bar of Civil Engineering. Two enthusiastic former TU Delft students, Joost and Jelmer, shared their experience and possibilities at TWD. Their projects were enormous in size, contained complex mechanisms and were challenging to manufacture. With all the engineering out of the way, the drinks started and old stories from studying in Delft were exchanged. Eventually, the drinks escalated in a table football tournament, and was concluded with a little bak. Informative and pleasant network drinks, best of both worlds.

*by Jeroen Nieuweboer*



# 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 receiving 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-3me@tudelft.nl](mailto:taylor-3me@tudelft.nl) with your idea and we will come in contact with you.





**TAYLOR**  
**TRIP**  
2023

Destination:

# JAPAN

5 GREAT MOMENTS

By: Camila Fuentes Rueda :)

