

Taylor Vision

First semester 2016-2017



About us

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Edition

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History

Taylor is the study association related to the Precision and Microsystems Engineering department of the Technical University of Delft. It was founded in 1988 to enhance the study experience of the students. The Taylor Foundation, its legal form, was subsequently founded in 1992, making it an official organ in the TU Delft. During this time, the department has changed 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 into 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 reader,

It is my pleasure to present the very first Taylor Vision fabricated by the board of 2016/2017. Since winter is coming, the Christmas theme of this edition is guaranteed to spread the warmth in the cold and dark days to come. Looking back on the past four months it is safe to say it has been quite busy at the department of Precision and Microsystem Engineering. We have welcomed a fresh group of students (“feutjes”) that had made the excellent choice of starting the PME master program, cheers! We are very pleased that aside from their busy educational affairs they have found the time to enjoy our action packed program full of lunch lectures, receptions and social activities. Over the past four months we have seen them struggle with assignments, stress for the examinations and enjoy the beverages at our monthly receptions while mixing with the veterans of PME. In short; they have gotten fully accustomed to living the PME life.

While the students have been busy studying we have been busy behind the screens planning the activities and maintaining the cont(r)acts with industry all while attempting to keep up with our own study plans. Especially this last part proves to be a difficult task in comparison with the fun and exciting things we can do for Taylor. For example the numerous company visits together with Niek and the trips to the precision fare and world of science and technology and the meetings with the young instrumentation network promoting PME. A remarkable finding we have done during these events is the Dutch microsystem industry is truly a small world (got it?!). Nevertheless, it has been a wonderful three months working with such a motivated and enthusiastic team and I am looking forward to what the rest of the year brings.

This year has been full of innovation for PME; A new master coordinator, a new curriculum and a Taylor board with a new vision. All this innovation will be reflected in this Taylor Vison, creating an edition full of fresh content straight from the source. The activities covered in this release include the lunch lectures of Denso and ACE, the Comsol workshop, the introweek and the excursion to Huisman. Furthermore, stories of the Crazy Wok Night and a “study abroad” experience are shared. A true Christmas riddle will finalize this volume of our wonderful magazine.

Although many things have changed in the PME community, it brings me great pleasure that the ambiance and enthusiasm of the people involved has been as great as always. Being involved in such an exciting and passionate group of students, researchers and staff is surely what makes studying at the department of PME such a remarkable experience. Above all I hope this edition will help you relive the good memories from the previous activities and inspire you to join the next. Having said that I wish you all a very merry Christmas and a happy new year.

Truly yours,

Thijs Willem Alberts Blad



Chairman of the XXIVth Taylor board



PME news

New employees

On behalf of the Taylor board, we would like to welcome the following new employees:



Yi Zhang, he will be working as a PhD student on structural topology optimization within the SOM group. His focus will be on reduced order models under the supervision of Fred van Keulen.



Volkert van der Wijk, he will be working as a PhD student on the design of dynamically balanced robot manipulators for high speed and high precision with the MSD group. His focus will be on the theory of combining spatial kinematics with spatial inherent dynamic balance under the supervision of Just Herder.



Dirk Munro, he will be working as a Postdoc on topology optimization within the MNE group. His focus will be on accounting for stress and strains (part distortion) induced by production processes, machining and additive (layer) manufacturing.

Tutor of the year

On Monday the 5th of September our dear professor Dr. Ir. Fred van Keulen received the award of tutor of the year handed by the Rector Magnificus Karel Luyben and chairman of the Delft University fund Michael Wisbrun. In honour of this award the PME department organised a surprise party at the PME square to congratulate Fred with the award. As a token of appreciation, the PME staff made some very nice shirts to show their appreciation to Fred as a colleague. On behalf of all the student and the Taylor board we would like to congratulate Fred once more with this achievement!



Recent graduates

The following students have recently graduated from PME, congratulations to all!

A.G.P.I. Scheerhoorn, specialisation:
MSD

Kasmira Jadhao, specialisation: MSD

Active vibration control of smart structures using fractional-order control

Design of a linear guide for an optical fiber used in pressure sensitive spectroscopy

Wouter Schinkel, specialisation: AUT

R.V. de Greeuw, specialisation: EM

Ride comfort assessment using an extended Nonlinear modal parameter identification in electromagnetic active suspension model tification in monopile-soil interaction by means of experimental data

L. Marinangeli, specialisation: MSD

Active vibration control of smart structures using fractional-order control



Wouter van Schinkel receiving the official Taylor port after his graduation as a token of appreciation for his work done in the Taylor Board 20152016.

Picture by Paul van Woerkom

Get to know EVELINE

What is it that your job is exactly?

My job is to support the master students in the best way that I can. This means answering all questions concerning procedures, study programme, internships, graduation projects and any other question concerning the master. Also, when students are stuck in their study progress they can come to me so we can review their programme and adjust if needed such that the student can get back on track.

My goal is to help students complete the master phase successfully. In order to achieve this I monitor the progress of all students and raise the alarm when needed. Besides this I also have consultations with other master coordinators about the curriculum and other practical affairs.

Besides master students I also coordinate bachelor students in their final BEP project together with Ivan Buijnsters. These days the bachelor students choose a department where they want to do their project and then get divided over the available projects.

What is the best thing about your job as a master coordinator?

The contact with the students is the best part about the job, it is nice to see so many different types of students. Some you never hear or see while others run by daily. The contact with students is also very positive, whenever I approach a student with a question like ‘hey I see that you are slacking a bit, do you want me to think with you?’, it is usually received very well and they gladly come by my office to talk about it. Whenever I am approached by a student it is always in a very neat way which given me a positive feeling and more energy.

What are your talents besides work?

I am very musical, I love to sing and play the violin. Besides that, I am also a social person and love friends, family and sociability, this is all very important to me. However, I am absolutely no kitchen princess, but fortunately my husband is.

What things in the morning cause that you'll be late for work?

Very cliché, but my kids. In general, it is fine. But when it is a hectic morning that is when it get difficult. But usually I am reasonably punctual so I don't have many troubles with it.

We now have Neve points, but when can collect students 'Eve' points?

Never, it will continue to be Neve points. It has been initiated by Jan. He always thought it was very important that students attend each other's presentations and learn from each other. It is his legacy so I will not touch it.

What can we wake you up for in the middle of the night?

Travelling tickets, I love to travel and would start packing my suitcases in the middle of the night.

If you would choose the Taylor Trip destination, where would you go?

USA! America is great fun. New York would be great or maybe California or Florida would be fun too. Might be able to combine this with one of those rollercoaster theme parks.

What is your top 3 favourite Christmas songs?

1. Justin Bieber - Mistletoe (I know... it is very wrong)
2. Mariah Carey - All I want for Christmas
3. Wham! - Last Christmas

What do you drink the most?

I love red wine but that's a bit boring. A good Pina colada with a bit of rum would do the trick as well, but this has to be on the boulevard in Curacao at the Pontjesbrug on the handelskade with a clear blue sky. That is the best combination. Curacao is my second home, I have lived there for 4 years and still have family over there. I still go there on a yearly basis and then stay for a couple of weeks.

To whom of the PME department would you entrust your kids as a nanny and why?

Birgit, she is really my buddy. She has kids herself as well which gives me some confidence. On the other hand, it would be nice to see the Taylor board go after my kids for once. That would be a lot of fun for them. I have two sons, 10 and 11 years old. They can play Mario kart on the Wii U or FIFA on the Xbox with you guys. My oldest participated in the Lego league last year so he has lots of Lego to play, I'm sure you guys can build something nice together.



Introweek

After a well-deserved, way too short, holiday, it was time for us, the students, to start acting serious again. For most of the people the introduction week was the first acquaintance with the new professors, lectures and most of all their fellow students.

The introweek started on Tuesday with a general story about PME and studying. Something that stuck with me was the warning from Hans Goosen to the foreign students: we Dutch people are not really as rude as we seem! No everybody, we are not rude, we are just honest, but you will find out soon enough. After this we got some easy introductions for the new courses, followed by a lab tour to see some of the capabilities that the TU provides. The day closed with drinks and more drinks.

Wednesday, we have got lectured more introductions on courses (always hard after a holiday...) and some lab tours to show that studying is not just reading about things smart people have invented. Then finally the moment came we all have been waiting for; a BBQ with of course, drinks.

On Thursday everybody got the opportunity to complete their study program and determine the course of their lives in about two hours. The introduction week closed with a sports and games day, which I think everybody enjoyed a lot. After the introweek I spoke to a foreign student and I asked him if he liked studying in Delft so far. He answered my question with: Yeah I like it so much in Delft! The people are so nice here, the weather is nice (we had 2 weeks of 30 degrees Celsius), the courses are easy and everywhere is free lunch and drinks. I laughed and thought: just wait. Life at the university is going to be a bit harder then the introweek, but the answer of my fellow student confirmed that the introweek was a success.

Aaron Alkemade



Crazy wok night

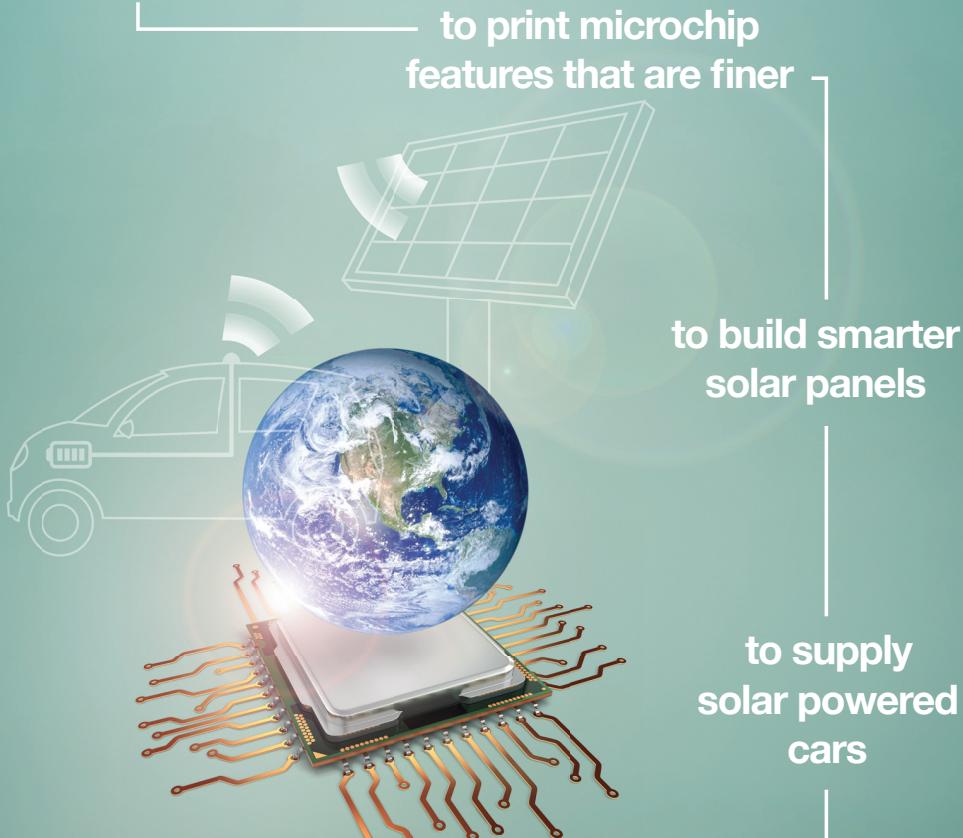
Activities

On Tuesday the 4th of October Taylor organized the ‘Crazy Wok Night’. After some intense first weeks of lectures it was time for the PME students to sit down and relax. About twenty PME students, a nice mix of freshman’s and 2nd years showed up to the Wok Palace in Delft to engage in a true feast. A long single table was reserved for the PME group so that everyone could sit together and catch up. After about 10 minutes of chatting and waiting for everyone to get settled, it was time to hit the buffet and get the most out of that all-you-can-eat and all-you-can-drink arrangement. The vast buffet offered a wide variety of food, from cold salads to sushi and Chinese food. There were also two chefs present that would grill or wok anything you wanted. At some point it seemed that the chefs could no longer handle the shear amount of hungry PME students as the line was growing in length, it was as if some had not eaten in three days. Luckily the PME student’s appetite soon subsided and it was time for deserts and some coffee. After the delicious freshly ground coffee the PME crew sat for another half hour having some drinks and chatting along. At this point the crazy wok night sadly was over, however some of the students decided it wasn’t time to go home yet. About half of the group went to the Delft city center to hit the bar. All in all, it sure was a crazy-wok-night.

A very dedicated PME student



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Be part of progress

Almost three weeks after the start of the academic year it was time to have the first Lunch Lecture of the academic year. We were honored by a visit of Denso, a leading supplier of advanced automotive technology, systems and components for the world's major car makers.

First, Sjoerd Dijkstra gave us an introduction about Denso. With a \$40.2 billion annual revenue and 151,000 employees Denso is one of the key players in the global automotive industry. Although Denso is bigger than some well-known car manufacturers, most students had never heard of Denso! As Sjoerd clearly explained: "Unlike computers with 'Intel inside' stickers, cars usually don't have stickers on them which state 'Denso Inside'. So you don't know who makes these parts!".

After the introduction, it was time to learn what an engineer might do at Denso. Ertion Axha came al the way from Aachen (Germany) to tell us about the graduate program IGNITE. During this two year graduate program he was given three assignments in different locations. One of the locations was Japan, where the Denso headquarters is based. Ertion's stories about his daily work at Denso and his personal experiences while working abroad gave a great insight in what it is like work at Denso.

Thank you Sjoerd and Ertion for this informative lunch lecture!

Niek van Hoek



Activities

ACE lunch lecture

ACE is a company that specializes in analyzing, developing, designing and realizing certain systems. This is realized with a fully transparent design process with the customer.

During the lunch lecture the value of master's degree was discussed. This resulted in the following valuable lesson:

If you don't be self-assertive and wait for someone to assign you to a project, you will get stuck with projects in your comfort zone. This will eventually result in the stagnation of your own development. So reach out! When a project comes by where you can think you can learn something, don't hesitate and apply for that project.

This valuable lesson will help students, or more specific the graduated students, to keep developing themselves and keep growing to become the best engineer they can be.

Maarten de Jager



Comsol workshop

Activities

The evening workshop of COMSOL started with an introduction of the company itself and an explanation of the software. Different aspects of it were illustrated, of which were the user interface, the implementation of a model and the subsequent simulation of diverse physical properties of interest. Because that's what COMSOL is, a modelling and simulation software packet.

A demonstration was given about simulating the heating of a micro-chip and the necessary cooling through cooling-fins. Dinner and beverages were kindly provided by the Taylor Board and after we had finished our meals it was time for the participants to engage with the software.

The goal was to simulate a two-inlet single-outlet flow system with different inlet flow speeds and temperature, and PID control of such a system. The software is able to create clear visualisations of the physics involved and naturally the option exists of also presenting the data in graphical form. Not only can it provide a snap-shot of the simulation, but is also able to show time-dependency in the form of an animation.

Near the end of the workshop another demonstration was given about a live link between MATLAB and COMSOL, which allows one to exchange information between the two programs in real time.

My personal thoughts on this software are very positive, in the sense that the software can elucidate physical phenomena involved in mechanical design, such as (electro)magnetics and different kinds of flow. This is beneficial to the education of a mechanical engineer and the software can therefore help with identifying potential flaws with your design.



Within the master-tracks of PME are several courses which require the modelling of designs made by the student, and an accurate simulation of mechanical properties is required. The user friendly environment of COMSOL can quickly provide these simulations and aid the student in (re)design choices. Using COMSOL for your research either for your master thesis or perhaps even Ph.D might then be beneficial.

Overall the workshop was a good way to get to know the software, within the pleasant atmosphere of fellow master-students, while enjoying a delicious dinner.

Rober Kramer

Study abroad

Germany

The aircraft manufacturer Airbus gave me the opportunity to do my internship in Hamburg, Germany. The city with more than 100 clubs and music venues, the largest model railway in the world, and the place where the term hamburger originally derives from. Where else would you go?

At the 31st of August I drove off to Hamburg with my grandfather's car. As soon as I crossed the border, already the first positive thing showed up: I was allowed to drive a bit faster.

With only one year of German lessons at high school (ca 10 years ago) in my pocket, I was relieved when I found out that everyone from my department is able to speak English. Since Airbus is an international company, the people have to collaborate with people from France and England a lot.



Around 16,000 people are working at the site in Hamburg. Every day, most of these people have to cross the river 'Elbe' by ferry to get to work. It can be amazing to watch the sun rise, a bit scary when you can't see anything due to fog or freezing because of the cold and strong wind that is coming from the Baltic Sea. By working in teams of twelve people, the company can feel really small. Struggles about supporting HSV (Hamburger Sport Verein) or Werder Bremen are part of the deal.

The 24th of November was a special day: the first flight of the A350-1000 took place in France. Many people were involved in the development of this aircraft. Hence, everybody was excited and gathered in the hallway to watch the take-off live from a 24 inch screen. The successful flight was of course followed by a loud applause and cheering.

For me, this internship has been a great experience. I learned about the physics of an aircraft, how to program in Python and what it is like to work in a huge company. Even my German has improved a bit! Tschüss!

Lili Maxime Hauzer

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Huisman excursion

Activities

On the 6th of December 2016, a group of PME students went on an excursion to Huisman in Schiedam, one of the biggest offshore companies in the Netherlands, with multiple establishments all around the world. Although the bus left very early in the morning, everyone was excited to go. When we arrived at Huisman, we saw that the student association ‘Leonardo Da Vinci’ from Aerospace Engineering (AE) also brought a group of students to join the excursion. There was a short reception with coffee and tea, after which the program started. The first part of the program was a presentation about the company and its activities. The presenter also explained some more technical details behind their products, which was very interesting. After the presentation everyone needed to ‘work-suit up’ so we could go on a tour around the workplace. The students were split up in 6 groups, mixing up the PME and AE students. The guides showed us the big cranes, the piles for offshore wind turbines and the hall in which parts for new cranes were made. This was an impressive experience. Although the activities of Huisman look more like macro- than micro-engineering, there were still some surprisingly precise features they had to take into account. For example one of the cranes, that needed to stand in an 89.5 degree angle instead of a 90 degree angle, due to patenting rights of another company.

When we finished the tour we headed back to the meeting room where two employees of Huisman were waiting for us with a presentation about arctic drilling and two cases on this subject. In the presentation the details needed for the cases were explained and after the presentation the groups that were made earlier had to start with the assignments. The first part was a financial case, in which the groups had to calculate the break-even price of one barrel of arctic oil to see if arctic drilling is profitable at the moment. During the second part the groups had to design and present their own arctic drilling station as if it had to be sold to a customer. Finally the two employees showed us their own design and it was remarkably similar to the design of many of the groups.



After a nice bottle of Taylor port and Da Vinci wine was given to the organizer of the trip, it was time to go home, just in time for the intro lab sessions.

Gijs van der
Velden

Activities

Taylor trip revival

As you could read in the last Vision, last summer was enlightened by a Taylor trip to Canada. Because the trip was one to remember, we decided to organise a Taylor Trip reunion at September 27th. The reunion was mostly to recall the fun nights out after visiting companies and that could be done best by inviting the Taylor trippers to the ‘Bierfabriek’! The Bierfabriek provided us with a beer tap and a lot of chicken on one plate and us Taylor trippers were there to talk, eat and drink. The topics of the night included Maartens good singing, Stijn Koppen going to a male stripper bar and the noisy’ but ‘good working’ machine. Once again we proved to be very good at drinking much and blether around.

Miranda Looman

Upcoming events

11-01-2017 - Python workshop

22-02-2017 - Lunchlecture PM-Bearings

03-05-2017 - Lunchlecture ASML

18-05-2017 - Excursion to ASML

08-06-2017 - Excursion to PM-Bearings

Riddle

The riddle of this edition of the Vision is a crossword puzzle. The letters in the Taylor red squares will form a word (the sequence is not correct).

What does this word have to do with the best track of mechanical engineering?

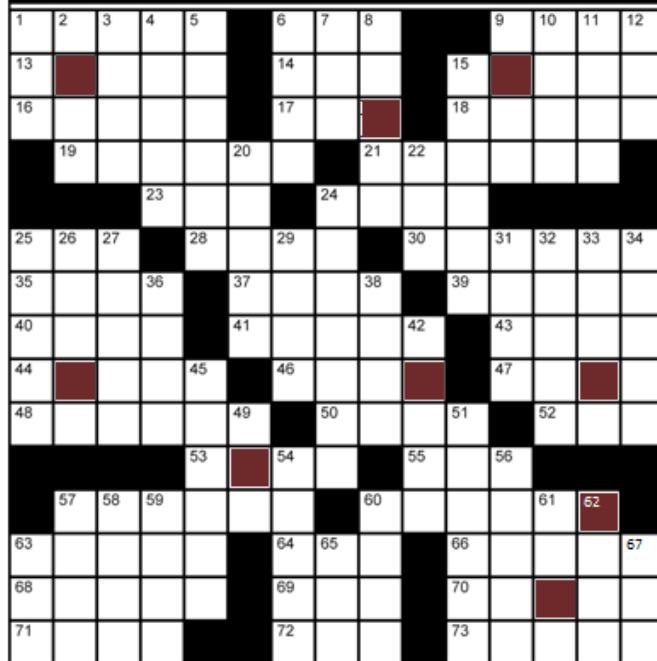
Send your answer of the puzzle and the question above to 3me-taylor@tudelft.nl. The first with the correct answer will win a very nice price!

ACROSS

1. Make fit for something else
6. Chitchat
9. m in F = ma
13. Robin Hood's companion Tuck, e.g.
14. 2nd largest bird
15. *Yo-Yo's instrument
16. The A in AV
17. Sea in Spain
18. Kitchen tear-jerker
19. "Dueling ____"
21. What lawyers often do
23. Pine juice
24. It's been called 'a good walk spoiled'
25. Piping material
28. Wine country
30. Card carrier
35. Birdbrain
37. Type of poker
39. _____ 66
40. _____-de-camp
41. Chased up a tree
43. Chills and fever
44. Frown with anger or disapproval
46. *Type of vest used by marching band drummer
47. Skidded
48. Non-physical aspect of a sport
50. St. _____ patron saint of Norway
52. Female suffix
53. *Black Eyed ____
55. Roman three
57. *Popular instrument of modern heros
60. Heavy windbreaker
63. Explorer who served Kublai Khan
64. Take more than one's share
66. *Singer-songwriter Kravitz
68. Famous fabulist
69. "You ____ what you eat"
70. *Not mainstream
71. Architectural drawing
72. Recently deceased Kennedy
73. Bird homes



CROSSWORD



DOWN

1. School for cadets
2. Beat thoroughly
3. *Verdi's famous opus
4. No gains without these
5. USC player
6. Diamonds and rubies, e.g.
7. American Medical Association
8. Donkey in Mexico
9. Carte du jour
10. Alight, past tense
11. ____ gin fz
12. Daughter's brother
15. Valuables storage?
20. Abstractionism using optical illusion
22. Freddy's scary street
24. Shade providers
25. Colorless watery fluid of blood
26. *Human instrument
27. DNA strand of bases
29. Actor's role

31. Extinct flightless birds of New Zealand

32. *"Revelle" Instrument
33. Ladies' pocketbooks
34. *Woodwind mouthpieces
36. Salamander
38. Ardor
42. Sink hole
45. As opposed to desktop
49. Unit of length of yarn
51. *Stradivari's Instrument
54. Buddhist In state of nirvana
56. *"What A Feeling" singer Cara
57. Celt
58. Sky bear
59. Desktop picture
60. Matured, as in wine or cheese
61. No ifs or buts either
62. Make with needles
63. Traveler's helper
65. Metal-bearing rock
67. "Oui" in English

Get involved

Quotes

We would love to receive funny, motivational, wisdom or any other quotes from our PME staff to make a nice section with quotes in the Vision. Please send them to us together with a little bit of context.

Vision

We are always looking for new stories for the Vision which is why we would like to invite you to send your story. This can range from articles or your PhD work to internship experiences. Do not hesitate to contact us and who knows you might be in the next Vision!

Taylor

If you have any comments ideas or questions about Taylor and its activities, feel free to contact us.

You can contact us at:

Taylor-3me@tudelft.nl

Check out the website for more information!

www.dispuuttaylor.nl

