

# AALTO DESIGN FACTORY

ANNUAL  
PUBLICATION



Aalto University  
Design Factory

2017/2018



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## **AALTO DESIGN FACTORY ANNUAL PUBLICATION**

Here –finally– after a year of happenings, you are about to start reading our annual publication, a compilation that unfolds a year of life at our beloved Aalto Design Factory (ADF)

Aalto Design Factory is an interdisciplinary product design and learning hub that unites students, teachers, researchers, and industry.

Here at ADF we focus on creating the best possible physical and mental working environment for product developers, researchers and game changers.

ADF started as a research project already in 2008. Since it was one of the first physical manifestations of Aalto University, we like to call it 'Aalto on a mini scale'.

We kindly invite you to check and enjoy the past academic year here at Aalto Design Factory.

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## A WORD FROM THE JANITOR

### Greetings from the Janitor's boiler room

This annual report is a rather comprehensive overview of the wide variety of activities during the past year. There is no need to list or repeat those facts in this foreword. However, this report is very special – it will be published before the 10th year anniversary of ADF! Hence, it's natural to highlight things that hopefully will never change, some that have changed, and others that will change in the near future.

ADF has one philosophy that we never want to change: **Students come first**. We can't and shouldn't do things for the students, but it's our responsibility to understand their needs and their pressure in order to support and boost their learning process. There are many and various courses taking place at ADF. It's a good sign that students keep coming to ADF proactively and on their own, not only when they have classes or guided workshops. During the past year, there has been a good number of non-curricula activities, e.g., theatre, robotics, debate, e-sports, recruitment and match making events, personal school projects and even sinfonia orchestra practices. Sometimes students are also entrepreneurs, and quite a number of Aalto startups have gotten help or helped themselves at ADF labs. It makes me so glad that the students come from all schools of Aalto. Oftentimes ADF really is the Aalto University on a small scale.

One of the greatest changes at ADF is rather new. So new that we may not even understand yet the whole importance of this change. Two of our longtime co-workers, Tua Björklund and Maria Clavert, were appointed as professors of practice in the summer 2018. This reinforces ADF muscles in research, education and guidance for doctoral studies dramatically. Maria has even the unique responsibility for making an impact in technology education nationwide!

In the global perspective, the Design Factory Global Network has not only grown to 24 members (this number might have changed already when you read this), but it has also become a strong enabler of initiatives between any of its members. Those initiatives include double degree doctoral studies, new course ideas, student exchanges, EU Knowledge Alliance funding, among many others. In addition to academic cooperation, the Design Factory concept has been applied to a co-creation pilot with the City of Wolfsburg, Volkswagen and VfL Wolfsburg, the Bundesliga soccer team – a successful experiment that has recently secured funding for the next stage.

It is amazing, how Aalto University campus in Otaniemi has developed in a really short time. There is life on campus like never before! This development will also bring changes to ADF as well. Just in a few years, ADF will return to the place where its idea was originally born. Aalto Works is the working title for some of the blocks surrounded by Väre, Undergraduate Center and A-Grid. All the knowledge and experience from the past 10 years – good and bad – is carefully collected in order to secure functional architectural designs for the renovated and partly new buildings. For builders of the new, my most important message has been: **there will be needs for changes**, the new house must develop and find its shape when the time passes.

Many happy returns to ADF! The winter is coming but I'll keep the heat on.



Kalevi "Eetu" Ekman



At Design Factory students come first. Learning can sometimes be painful and slow, but the process is accelerated at the Design Factory, and the best thing is that you're never alone. Our skillful staff is always ready to help students so that they can blossom in their own way.

All of the Design Factory courses are problem-based, and students have the opportunity to solve real-life challenges provided by the industry and the society. Students gain invaluable lessons and experiences using a learning-by-doing approach in multicultural and diverse work environments. This helps students thrive in an increasingly demanding professional environment, and helps to bridge the gap between university and the outside world. Getting your hands dirty is the DF way.

# LEARNING & EDUCATION

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YOUTH AT DESIGN FACTORY

“If you don't **try**, you will never know  
how much you could **achieve**.”

-PDP student-





pdp

PRODUCT DEVELOPMENT PROJECT

# PRODUCT DEVELOPMENT PROJECT

2017-2018

11 PARTNER UNIVERSITIES

110 STUDENTS THIS YEAR

FROM 9 COUNTRIES & 4 CONTINENTS

1,209,800 KILOMETERS TRAVELED

PDP is the largest product design course organised at Aalto Design Factory and one of the largest project-based courses at Aalto University. Problem-based learning (PBL) with multidisciplinary and international teams guarantee an unique learning experience for the students as well as for the industry partners.

The academic year-long master's level course starts with forming diverse student teams from the business, design, and engineering fields. The teams then receive an industry-related challenge from a partner company. They solve the problem by building a functional prototype, and presenting their solution at the final gala held at Aalto Design Factory. Students get support from the staff, but the decisions are still always made by the students themselves. Every group, company, problem, and solution is unique, and this diversity is what makes things more interesting, sometimes even unpredictable. PDP is not a simulation of the real world inside a school, but rather the school is brought into the real world.

The students are not expected to have a perfect solution but to provide well argued results, and ultimately learn by doing. Therefore, failure is not a disaster, but an opportunity to learn. In PDP, the end result itself is a bonus, but not the only goal.

## TEAMS THIS YEAR 2017/2018

### WASP | SAAB

Improving the workspace ergonomics and user experience in remote air traffic control center

*In collaboration with Porto Polytechnic*

### CooKit | Safera

Developing a smart kitchen solution for making cooking safer.

*In collaboration with Pace University of New York*

### Sauron's Eye | Trenox

Improving materials tracking and work safety in construction sites using drones and cranes.

*In collaboration with Jefferson University Philadelphia*

### Kovr | Valtra

Developing a secure environment for farmers to work inside and outside of a tractor.

*In collaboration with Royal Institute of Technology & University of Tartu*

### Findia | Aalto Explorer

Developing a community controlled rover (ccv) for underwater exploration.

*In collaboration with Indian school of Design and Innovation*

### WeBrew | Ericsson

Developing an all-in-one IoT homebrewing solution

*In collaboration with Pace University of New York*

### ProForce | ABB

Developing a way to place delicate vibration sensors on a industrial generator.

*In collaboration with Swinburne University of Technology*

### FutuLift | Kone

Developing a robotized elevator car installation process.

*In collaboration with Munich University of Applied Sciences*

### Unit3 | KY

Creating an inviting environment for students from different disciplines to meet.

*In collaboration with Swinburne University of Technology*

### Atarum | Murata

Developing an actively stabilizing patient transport platform.

*In collaboration with Porto Polytechnic & Warsaw University of Technology*

### FoodGuard | Orthex

Developing a smart food storage to reduce food waste.

*In collaboration with Jefferson University*

### Trident | Restel

Developing a fully automated kitchen.

*In collaboration with University of São Paulo*





# WHAT WAS SPECIAL ABOUT THIS YEAR?

**This year's projects were highly related to digitalisation and robotisation even though it was not a planned theme. Since the course is conducted in a close collaboration with companies it well reflects the trends of the industry. This is one of the reasons why half of this year's projects are planned to be continued even after the course has ended.**

## PD6 Week

Product Development in 6 hours

This year PD6 was part of a week-long event where the students from partner universities came to Finland to meet their Aalto teams.

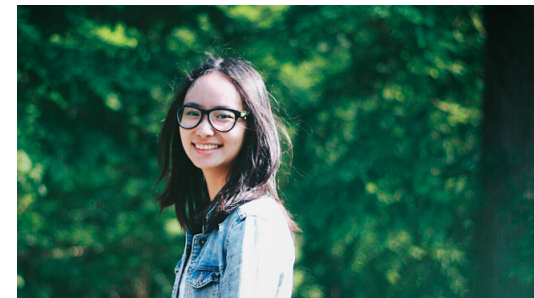
Right from the start the teams were pushed out of their comfort zone as they tackled the given problems by prototyping and building a solution in just six hours together with their sponsors. This introduced the students to problem solving and teamwork, and laid the foundation for collaborating with the partner companies.

At the end of the week-long event, all the teams worked together to build a huge chain reaction. Each team had to build a Goldberg's machine station made out of different materials such as wood, office supplies and random objects. These stations were then connected in order to allow an object to travel through the different stations that the teams had created. This encouraged students to collaborate with the other teams in addition to within their own team.

## Product Design Gala

Showcasing the Prototypes

The course ended in May with the Product Design Gala, where all the teams and their respective sponsors gathered together for the final showcase of their prototypes. This year there was a team who built a robot which automatically assembled elevator cars, but the prototype got lost in its way to Finland. So, they decided to build a new one just two days before the gala! In the end, the lost robot arrived just in time leaving them with two robots. This showcases the perseverance that the teams have after working together on the project for the whole academic year.



## STUDENT PERSPECTIVE

I remember taking the introduction lecture and seeing the previous year's projects, I thought they were amazing and never imagined I could do the same. Now here I am, managed to do something unbelievable just like them. If you don't try, you will never know how much you could achieve. PDP also gave me a chance to try out all my ideas and be responsible with them, but at the same time, be fully supported by the teaching staff and Design Factory.

*Li Yuying, PDP alumna*



## OUR PARTNERS COMMENTS

It is clear for us at Ericsson Finland that participating in PDP was a great decision: suddenly many students at Aalto are excited about an awesome company called Ericsson and we got to hear lots of new ideas and suggestions from students, some of which have greatly helped us. Furthermore, even if the WeBrew (developing an app for home beer brewing) project seems crazy and unrelated to Ericsson's business, it actually implements a potential use case of our IoT offerings: one never knows what the next big hit will be!

*Guzmán Álvarez from Ericsson*



The most valuable thing PDP had to offer was the opportunity to look into a new, unconventional area to see the feasibility of using robotics in a restaurant and kitchen environment. The students were able to explore and produce results that would not have been possible otherwise. Companies should get involved with PDP or student projects to get fresh new views and bold action to implement them - at a feasible price.

*Robert Silén from Restel*

## PDP TEAM TRIPS



Since part of the team is situated in one of the partner universities, students have to travel during the project. Other reasons for traveling was participating in technology and product design events such as CES (Consumer Electronics Show).







**ME310 Aalto is a master’s level global innovation program – and arguably one of the most intensive, yet rewarding project courses taught at Aalto University. Students of design, business and engineering come together as interdisciplinary teams to work on a year-long real-life challenge introduced by an international company.**

**The SUGAR Network - larger than ever**

The ME310 program originates from Stanford University, but has grown to be taught in over 20 universities around the world: this is now known as the SUGAR Network. At Aalto University (and its predecessor Helsinki University of Technology), ME310 has been taught since 2005.

For the duration of one academic year, the ME310 Aalto students partner up with students from the top universities in the SUGAR Network to form a global design team. This partnership adds diversity to the project teams, and students are given the opportunity to experience true global collaboration.

Throughout the course of the project, students learn, apply, and experience human-centered design through the Stanford Design Innovation Process. The process is based on need-finding, benchmarking, iterative prototyping, and user testing, to enable students to learn quickly about the field at hand and create innovative ideas. User insights are uncovered and creative solutions are developed by engaging a wide range of different design thinking tools and techniques. The end result is a detailed proof-of-concept design solution that integrates desirability, viability, and feasibility.

Traditionally, these final proof-of-concept prototypes have been displayed at the Stanford Design Fair each June at Stanford University, California. However, with the SUGAR network growing larger year by year, SUGAR network members have started organizing their own final presentations outside of Stanford Campus, yet still remaining in the heart of innovation and entrepreneurial culture, the Silicon Valley in California.

**The 50th anniversary**

The academic year of 2017-18 was special in the sense that it highlighted the long history of the course, marking the 50th anniversary of ME310 course at Stanford University.

Furthermore, the Design Factory Global Network (DFGN) was evermore present in the SUGAR Network, as all of Aalto University’s partners were members of the DFGN. In total 8 Design Factories participated in the ME310/SUGAR program this year.

**An insight into a project**

One of our projects this year came from All Nippon Airways (ANA). After identifying the aging population of Japan becoming a more and more important customer segment for the airline, they brought in a challenge for the students to redesign the airport experience for the elderly.

This challenge was taken on by a global interdisciplinary student team between KIT Japan and Aalto University. After vast exploration of the design space with many iterations of prototyping and user testing with the elderly, the team ended up building a new class of service products for the airline industry. With the team’s final proof-of-concept prototype, a digital companion named TOMO, the elderly could enjoy a stress-free experience going through the airport, removing some of the biggest discovered pain points of the entire experience of air travel.

**“ANA is continuously striving to create more innovative products, business models and services. However, I believe it’s often difficult to do so when the ideas are being created from within the organization where many biases interfere with the ideation process. And it’s often difficult to have a devoted team spend 9 months using a framework like design thinking to really find new insights and solutions. That’s why I thought this would be a great opportunity to see what is possible when a solid 9-month design thinking cycle is applied to a real world need within the company.”**

*Kevin Kajitani, Assistant Manager, Digital Design Lab, ANA Holdings Inc.*

The corporate sponsor ANA not only got the final prototype of course but stayed actively in contact with the students throughout the year. They were also able to tap into all the learnings and customer insights the team gathered from all their tests and interviews. This massive resource is very often seen as one of the biggest values of an ME310 project to a corporate sponsor.



# AALTONAUT

For those who are ready to  
experience Aalto

The Aaltonaut-minor in interdisciplinary product development has run now for 5 years. It has striven to make interdisciplinary Aalto visible for students during their bachelor's studies. Aaltonaut courses are based on collaborative planning, student centred teaching, and hands-on teamwork during courses. During the academic year 2017-18, Aaltonaut-minor was offered for the first time for students in Shanghai. Shanghai International College of Design and Innovation (SD&I) teaching started in 2017. Four Aaltonaut-courses were chosen for the SD&I offering for Bachelor's degree students: Two courses offered in Shanghai, and two in Aalto during summer. 15 students from Shanghai participated in Aaltonaut teaching 2017-2018.

SD&I courses required teaching development activities, which are aligned with many of the Aaltonaut-goals. Firstly, we have experimented to enable low access international experiences for the students. Secondly, we want to develop ourselves as teachers and provide development opportunities for other Aalto teachers. Thirdly, we have strived to make use of the online and digital tools in our teaching as part of our teaching development. Along with SD&I teaching development and teaching activities, we gathered experiences of four different international course concepts, our students got international experiences, and our teaching team enhanced its international teaching and course development competencies.

2017-2018  
100 STUDENTS  
9 DIFFERENT DISCIPLINES  
530 AALTONAUT CREDITS  
60 BACHELOR'S THESIS CREDITS  
140 CREDITS FROM SHANGHAI D&I  
25 WERE EXCHANGE STUDENTS

## Lessons from international teaching

How to offer a minor with four interdisciplinary, multi-teacher courses feasibly for students from Shanghai? Our solution had two basic approaches. **One:** to bring students to Aalto in the summer. **Two:** to integrate Tongji teachers in the Aaltonaut-courses in Shanghai. In all the courses, the teacher in charge of the course, the course concept, and course development leadership was from Aaltonaut. Moreover, Aalto provided online course platform, and approved course executions. Two courses in Shanghai ran on weekends during the semesters. At these courses, two Aalto teachers (per course) travelled to Shanghai for ten days to teach over two weekends. From all the courses, we learned something new.

Online teaching tools must be considered in any distant teaching. Our experiences didn't differ from others who have tried them: Face-to-Face meeting remains the golden standard in planning and teamwork. Skype, Zoom, WeChat or any other tool is not a true rival for it. However, practical experience on using these tools is certainly a valuable asset for teachers and students. Furthermore, even with handicaps, these tools enabled international teaching team communication during planning, execution, and grading of the courses. Moreover, the tools enabled flexibility for summer course scheduling in the form of guided pre-assignments for the distant teams.

Altogether, rebuilding existing courses for the new frames forced our teaching team to re-think our courses and to strengthen the alignment between learning goals, teaching methods and learning evaluation. The new frame also enabled the development of new daylong teaching concepts. Our summer teaching experiences will form the basis for the development of Aalto summer school planning for summer 2019.

## Student experiences

We focused thoroughly on how well our teamwork teaching concepts suit for the Chinese students. In spring 2018, Gero Klingler, an IDBM master student, went for exchange to Tongji University and conducted his master thesis in the mentioned field. According to preliminary findings, students experienced the teamwork as enjoyable and relaxing (compared to previous experiences). The students noticed the value of interdisciplinary teams by highlighting new perspectives and the number of ideas. They appreciated the opportunity and fact to give and receive interpersonal feedback in teamwork exercises. The majority of the students had never experienced feedback sessions before and recognized its value in facilitating teamwork and enabling personal development. What comes to student experiences during their stay at summer courses in Aalto, the feedback emphasized the helpful attitude of teachers and easy access to various tools and devices in Design Factory.

## Teacher experiences

Four Aalto teachers went to teach in Tongji for two weekends and three teachers organized the summer courses. The first one to go to Shanghai was Siru Sihvonen: **"I loved participating in the Product Sustainability course as a co-teacher last year. Being my first teaching experience, I am not sure who learned more – me or the students. I'm grateful to Aaltonaut teaching team for this unique opportunity. What a profound experience in many fronts!"** The new kind of setting gave new challenges for experienced teachers, such as Tuomas Paloposki, who got AYY's Best international teacher prize in 2011. **"It was great to have an opportunity to teach in a project course where the students were a mixture of Aalto degree students and Chinese exchange students. The achievements of the students were amazing, especially considering that the time schedule was very tight because of a number of constraints from outside. The experience also showed how important it is to have a place where people can be brought together and where they can work together; much as we have made technical progress in communication technology, the internet is still no substitute for face-to-face contacts."**

## Next steps

The next Aaltonaut course will run during spring 2019 and our whole teaching team is looking forward to this. We hope to be able to find new enthusiastic Aalto teachers to join this teaching export venture.



**During Aaltonaut courses I learnt the most about team dynamics and how to communicate openly so that a good spirit and effective work distribution will prevail. This will ensure that the best outcomes are achieved. Also, Aaltonaut offered me a chance to get to know and work with students from other disciplines. This kind of experience is not offered in other programs.**

Aaltonaut has ongoing development projects to build an internationally attractive summer school program. This year students from China's co-operation center, Tongji, are coming for summer courses. The assistant position was a good fit for me considering that I'm fluent in Chinese. I'm looking forward to developing better learning experiences and content for Aaltonaut, because while my own experience was very positive, there is always room for improvement.

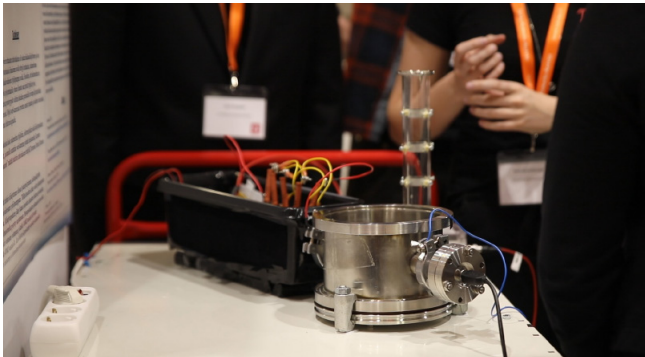
*Jukka Song,  
course assistant and Aaltonaut minor alumni*





Who would have thought as a youngster that university could be more than just dusty books and boring lectures? Here at Aalto Design Factory we want challenge that stereotype and do our bit to change this old-fashioned university image.

This year we had the pleasure to welcome many young people, be it a youth science competition or young interns getting to know the working life for the first time. These visits are often brief, but we believe that they have long-lasting effects. When deciding on where to study, you might remember the good times you had during your TET-training, learning how to use the 3D-printer or diving into the secrets of coding. Without experimenting and exploring there's no way to find out what would be the right thing for you. Today's youngsters have incredibly difficult decisions ahead of them deciding on what and where to study, and what could be a better way to find out than hands-on learning experiences? After visiting a satellite laboratory, doing their own research and creating their own startup, we successfully shattered the boring university stereotype for all our trainees. Dusty books are so last season - at least in Aalto!



### TUKOKE

On the 5th and 6th of April 2018 you could hear the joy and laughter of children everywhere in the Design Factory. The final of a youth science competition, Tutki-Kokeile-Kehitä, had brought over a hundred young students of all ages interested in technology and science to present their projects at Design Factory. The competition, meant to encourage young people to creativity and interdisciplinary learning had dozens of startling projects from a fish research to a self-made particle accelerator. The competition was full of exciting moments and the students seemed to enjoy the opportunity to showcase their projects. **"I think it's really great that I get to show what I've learned and maybe get other people interested in this area as well"**, commented one of the students whose project was awarded a shared first place in the third category.

Tutki-Kokeile-Kehitä final will be held once again at Design Factory in April 2019.

### TET trainees

**TRAINEES: 14**  
**PROJECTS: 8**  
**SCHOOLS INVOLVED: 9**

TET-training is a part of the Finnish curriculum for 8th and 9th graders, where they gain work experience in companies for a week or two. It is a great way to get a first impression of working life and get good experiences - or, in some cases, learn what you absolutely do not want to work with when you grow up.

The Aalto Design Factory welcomed a total of 14 TET-trainees during this semester. Most of the time they came in pairs, so they wouldn't get too lonely and so they have someone to ideate with.

All of the teamed-up trainees had one bigger project to work on. Tours around the facilities, 3D-printing and laser-cutting workshops, photographing and video editing tasks, and participating to events like Tuesday's breakfast and the staff's weekly meeting were little tasks that gave insight into university life. The coffee machine became very popular for the free and delicious cocoa that the trainees would sip while finalising their projects, which always turned out to be incredibly interesting.

An app to keep yourself moving and fit, solutions to how to stop procrastinating, researches on space food, crickets, and a survey, which almost a hundred secondary schoolers answered, giving clear answers to why engineering studies weren't appealing, and what could be done to change that all.

The project outcomes were the result of hard work and dedication, but the best part was that all this happened by giving a lot of freedom for creativity and experimentation, and only giving support when necessary. This was also the first positive thing mentioned in feedback session at the end of the training.

We are already waiting for many new TET-trainees for the fall 2018 at Design Factory, hoping to provide more and more eye-opening experiences that might wake up an interest for certain areas of studies, or at least, make good memories.

**"Our two weeks went past flying. We made a project about crickets and we even got to taste them. Tuesday's breakfast and Dipoli's food were great and people were so nice. We're going to miss them and this place. Thank you!"**

*Matias "Matti" & Ina TET-trainees*

### Teknoloikka

**NUMBER OF INTERNS**  
**OVER THE YEARS: 3**  
**WORKING HOURS: 1812**

For the third year in a row Aalto Design Factory took part in Teknoloikka, a program organised by Technology Academy Finland for high-school graduates. Teknoloikka provides a 4-month internship in a technology company or organization resulting in much needed work experience and opportunities that you can't put a price on.

### Anna Rekola's journey

*This year, I, a high school graduate from Järvenpää, who (at first) didn't have the faintest idea of what to do with her gap year, started an internship at Design Factory through Teknoloikka.*

*Going through my old notes it's easy to get back to the first day's feelings. Everything was new, different and exciting. I had gone through DF's web page, to get an idea of where I was heading to, but to be honest, the web page didn't really do justice to what I faced on my first days and weeks. It felt like I had come to a completely different world. Anything was possible! Prince Daniel could walk through the doors and even the craziest projects could become true at DF. I went home telling my siblings about the TVs in Kafis from which you could call the other Design Factories around the world and talk with them while having breakfast, and the millions of grasshoppers that hid in some mysterious boxes in the backyard. There were bicycles outside that you could hop on whenever, a 3D-printer made by our own student, and our talented staff always kept the spirit in the skies.*

*Dazzled by all this, I started working with the TET-trainees, to give them support during their internship period. It turned out to be fun and rewarding, and week after week I started to understand more of what DF was about and get into more projects. I learned how to use various programs and print out stickers with our amazing graphic wizard Joel. I got insights of photography and video recording with our technology master George. I learned about PdP, ME310 and what design thinking meant. After a while I could give DF tours, and gained more confidence. At the end of my 4-month internship it was sure: I really wanted to study in Aalto University.*

*My internship at DF taught me more than I could have ever imagined. It completely shaped the way I saw universities and it exposed me to so many inspiring ideas and people that supported me on my way to realise my dream. In May I received the news - I was accepted to study Business in Aalto University. While I'm studying, I'll get to continue at Design Factory working with communications and events. Without Teknoloikka and Design Factory none of this would be possible, and my story is just one proof of why youth work is so extremely important. It truly creates amazing opportunities and shapes futures.*



**"I actually think that the DF Family doesn't really know how cool they and this place are anymore because they are surrounded by coolness every day so some kind of a coolness-overload happens."**

*Anna Rekola  
in the beginning of Teknoloikka internship.*





Research enables us to envision further than just the next iterative step to take. At Design Factory, we have an open-minded group of researchers who are willing to cross the boundaries between different fields to provide answers to real problems. Most of the research we conduct at the Design Factory is explorative, helping us to arrive at the right questions to ask when developing our teaching and operations.

Then how do we go about transforming universities into even better hubs of learning and development? What should we be taking into consideration? Other studies help to validate the effectiveness of something we've seen working in one context, providing a solid basis for teaching. Our research is directed to support the development efforts of those we study already during the process, while publishing our work helps to spread the lessons learned. The Design Factory is filled with great problems to study!

# RESEARCH

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“If I’m searching it for the first time,  
why is it called **RE-SEARCH**?”

-Confused DF researcher-



# IMPACT

**Infiltrating communities to spread the love for passion-based co-creation**



**Maria Clavert**

**Tua Björklund**

## PROFESSORS OF PRACTICE

**This year, Design Factory got to add two Professors of Practice to our repertoire of courageous faculty. Maria and Tua act as bridge builders across disciplinary boundaries and bring theory and practice closer to each other.**

### Professor Tua Björklund

As one of the co-founders of the Design Factory, I've had the privilege of seeing Aalto University become a reality and the needs of the stakeholders served by Design Factory evolve throughout the years. Returning from my stay at Stanford University, 2017-2018 has seen many of our new initiatives starting to take form.

At the beginning of the academic year, we launched three new research projects enabling us to bring in wonderful new researchers to our community. We track design and change initiatives, investigating what successful transformation looks like in practice - more on that on the next page! We've also been working to bring our colleagues from the Design Factory Global Network closer to us. Neither oceans nor time differences can keep us apart in co-creating new ways of doing collaborative research.

In March, I was honored to be invited to join the editorial board of the Journal of Engineering Education, the number one research journal in engineering education (ranked on the level jufo 2 in the Finnish classification system). The editorial board comprises leading engineering educators around the globe, dedicated towards understanding how we can help our students become effective, innovative and wise professionals.

In what I take as an acknowledgment of all of the great work that has been done by the entire Design Factory community, a new professor of practice position was created and I'm now the first professor of practice of the Design Factory itself. The mission is to bring in the human element into engineering, developing new ways of co-creation to update universities to the 21st century. My goal is to create more fluid boundaries - both between disciplines and between our students, staff, industry and society. The challenges we face today are too complex to be solved in siloes.

### Professor Maria Clavert

It is fair to say that the academic year 2017–2018 was probably the most exciting time during my Design Factory career. One of the highlights was the public examination of my doctoral dissertation. The research process had started already in 2009 with a focus on engineering educators' experiences of developing as a teacher. The context of Aalto University provided a new perspective for my research. Between the years of 2011 and 2013, I focused on the engineering educators' experiences of developing teaching and learning practices for the newly established university. The resulting longitudinal study demonstrated that it is the ability of departments and research groups to support collaborative development that defines the extent to which higher education can be transformed in practice. The dissertation was accepted at the University of Helsinki in February 2018, and I obtained a doctoral degree in Educational Sciences. But the excitement was not over yet.

After completing my doctoral degree, I was appointed Professor of Practice at the Aalto University Design Factory in June 2018. For the next five years, my new role is to promote technology education from basic education to university level and teacher education. As a part of this role, I will raise awareness of Aalto University's expertise in technology education and make the possibilities of new technologies visible already in comprehensive schools and upper secondary schools. In addition, I will strengthen the multidisciplinary collaboration between Finnish and international experts in the field. In order to excel in these tasks and impact the society, I will harness my previous experience and my contact networks in the field of engineering education. I'm looking forward to another exciting academic year at the Design Factory!



# ONGOING PROJECTS

2017-2018 was a busy year in starting new research initiatives at the Design Factory. From tech companies to food entrepreneurs, hospitals to universities, there are lessons waiting to be learned on developing things!



## DESIGN+

Design+ is a two-year research project on how organizations can increase their use of design and design thinking. Funded by the Finnish Work Environment Fund, Aalto and companies, the project started in September 2017, and we've been tracking design initiatives in four organizations, with over 100 interviews conducted to date in nine countries across the globe. The project is managed by Tuija, and the advisory board of the project consists of professors Eetu, Eero Vaara (Aalto BIZ), Sarah Soule (Stanford's business school) and Larry Leifer (Stanford's engineering school).

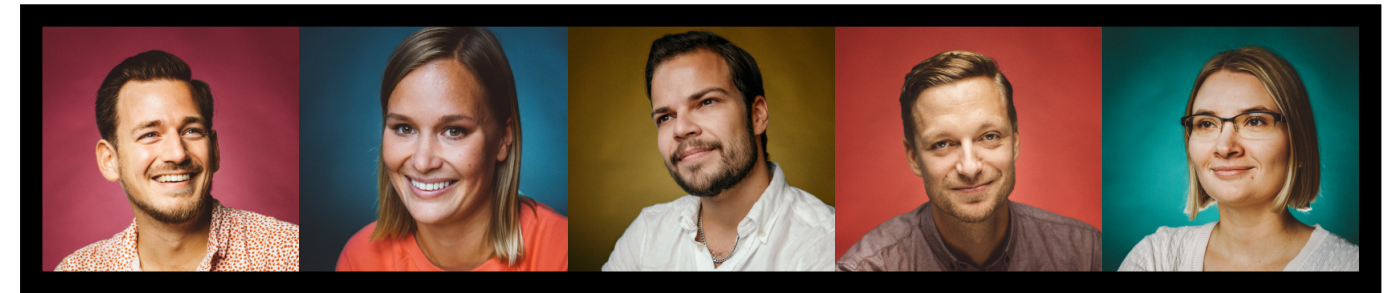
**Floris**  
**Hanna Maula (Aalto BIZ)**  
**Martyna**  
**Matilda**  
**Tuija**  
**Satu Rekonen (Aalto SCI)**

## D.START

D.start is a one-year research project that started in January 2018, exploring how internationalizing Finnish food and drink startups experiment and use design in their development efforts. During the spring 2018, we've done a first round of interviews in 13 companies, and preliminary results can be checked out on the ADF website. Our goal is not only to better understand co-creation processes, but to help create more effective education for the future game changers and entrepreneurs of Aalto. The project is funded by the Wihuri Foundation and managed by Tuija.

**Maria M.**  
**Tuija**  
**Ville**

## MEET SOME OF THE GANG



## AND THERE ARE MORE AT THE AQUARIUM...

### HUS Testbed project

A pilot project in the newly formed HUS Testbed organized together with the Helsinki University Central Hospital and corporate partners in an effort to form a new long term collaboration for innovations in the hospital. During the pilot year, we focused on usability and other user driven issues in the operating room.

**Antti**  
**Katja**

### Neuroimaging of Empathy in Engineering and Design

An Experience Platform seed funding project, started by Katja Hölttä-Otto in collaboration with Prof. Mikko Sams from Neuroscience and Biomedical Engineering, School of Science. The aim is to combine knowledge on empathy from psychology, neuroscience and design-thinking to enable novel means to measure empathy.

**Alvaro**  
**Katja**  
**Mikko Sams (AaltoSCI)**

### PDP alumni insights

During 2017-18 we reached out to PDP alumni to investigate learning outcomes in the long term. We received survey and interview responses from 272 alumni, representing by far the largest alumni inquiry into the 21-years-old course. Multidisciplinary and multicultural teamwork, understanding the development process and learning the needed courage, initiative and optimism for development were highlighted as the most significant learnings from the course in hindsight. We also learned that most of the alumni end up in development and design related positions, one in five alumni had a managerial position and over one in seven became an entrepreneur.

### Most important development skills PDP alumni need at their work

- 69%** attitudes like confidence, curiosity, and persistence
- 34%** user-centered design, prototyping and defining problems
- 33%** multidisciplinary and multicultural teamwork
- 25%** communication and networking
- 16%** managing people, projects and tasks



# THESES

Every year, a variety of theses result from research activities at DF. These are some of the theses directly linked either to development of the design Factory concept itself or related to ongoing research projects.

## MASTER THESES

**Maiju Sairanen:**  
Development of the university students’ working life skills during Bachelor’s level studies

**Gero Klingler**  
Analyzing Chinese Bachelor’s students’ experiences of teamwork on a Sino-Finnish product development course.

**Hanna Aarnio**  
Engineering students’ experiences of learning entrepreneurial competencies during studies at Aalto University

NUMBER OF BACHELOR’S THESES  
SUPERVISED/INSTRUCTED: 10

NUMBER OF MASTER’S THESES  
SUPERVISED/INSTRUCTED: 26

**Matilda Akkola**  
Selling design and design-thinking issues in big corporations

During the past years, companies have started to invest more and more into design. This kind of transformation can be considered to be a big cultural change that needs to be conducted, as the companies need to acquire a certain mindset and adopt user-centric ways of working. However, to succeed in it, a lot of work is required on all levels of the organisation and as part of the transformation. As a part of the Design+ research project, I studied how nine mid-level design managers working in different countries engaged in “issue selling”: what kind of arguments they were using, who were they targeting in their attempts and how they strategized. Turns out much issue selling is needed on a horizontal level across the organization, rather than just typical advocating upwards to top management.

**Martyna Kosmala**  
Becoming a design-driven large organization: Challenges faced and support efforts needed to implement design thinking

Neither scholars nor practitioners have a clear agreement on what design and design thinking are. There’s a wide array of practices and attitudes associated with design thinking approaches. As a part of the Design+ project, I investigated how designers working in different type of positions and units in the same case organization understood design thinking, what kind of activities they emphasized, and the types of support and challenges they reported. There was much variation, even though everyone was working for the same company! Lone UX designers struggled with limited resources and focused on the practices of user-centered design, unit-embedded design team managers combined methods and mindsets to adjust organizational processes, and global-level designers emphasized creating a culture conducive for design.



**Antti Surma-aho**  
Manifestations of Perspective Taking in Student Design Thinking Projects

I studied how engineers and designers empathize with the people they are designing for and how they use empathic understanding to create innovative solutions. In practice, I observed students during design projects, focusing on how they considered the perspectives of others in their work.

What is my work about? What does it mean?

As professionals in our own specific fields, we tend to design solutions for people very unlike ourselves. This requires us to develop an understanding of the other’s perspective, be they an elderly person, an operating room nurse, or a paper machine operator in South America. In my thesis, I studied how engineers and designers generate and use this empathic understanding of users in projects.

Key findings: What can this actually change?

I demonstrated two novel aspects of designer empathy. First, I statistically showed that student designers develop empathic skills during a user-centered design course, and not only as designers and engineers but also as human beings. Second, the most successful design teams allowed people to test mock-up solutions in a realistic environment and later connected the users’ experiences to concept design features. These results systematically support the significant role of empathy in design.

Where is this field of going? What is the bigger picture?

In a world where concepts like AI are changing how we work, we are left with assuring that technologies serve the best interests of people. Thus, empathically understanding others will be an important aspect of engineering and design, not as a replacement to technical know-how but alongside it.

My future plans: What will I do next? Is there any business potential for my work? Will I continue my research?

I want to improve the tools used to generate and share user understanding, and for that I need to study professionals and explore more rigorous connections between empathy, design methods, and project success. Starting this fall, I will continue my research at Massachusetts Institute of Technology (MIT).





# PUBLICATIONS

## JOURNAL PUBLICATIONS

### 25 PUBLICATIONS 2017-2018

#### CONTENT TAGS/ CATEGORIES:

- Engineering education
- Design thinking
- △ Innovation and design
- \* Co-creation

□ Clavert, M., Löfström, E., Niemi H. & Nevgi, A. 2018. Change agency as a way of promoting pedagogical development in academic communities: a longitudinal study. Teaching in Higher Education,1–18. DOI: 10.1080/13562517.2018.1451321.

△ Hassi, L. and Rekonen, S. (2018). How individual characteristics promote experimentation in innovation. International Journal of Innovation Management, 22(4), 1850038-1 - 1850038-30.

△ Hölttä-Otto, K., Otto, K., Song, C., Luo, J., Li, T., Seepersad, C. C., & Seering, W. (2018). The Characteristics of Innovative, Mechanical Products—10 Years Later. Journal of Mechanical Design, 140(8), 084501.

△ Mendez, AR, Tan, TY, Low, HY, Hölttä-Otto, K, Tan, H, Khoo, X (2018) Micro-textured Films for Reducing Microbial Colonization in a Clinical Setting, Journal of Hospital Infection, January 2018, (98)1, 83–89.

○ Rekonen, S. and Hassi, L. (2018) Impediments for experimentation in novice design teams. International Journal of Design Creativity and Innovation, 6(3-4), 235-255.

△ Mäkinen, S., Hyysalo, S. & Johnson, M. (2018): Ecologies of user knowledge: linking user insight in organisations to specific projects, Technology Analysis & Strategic Management, DOI: 10.1080/09537325.2018.1502874



## CONFERENCE PUBLICATIONS

△○ Björklund, T.A., Akkola, M. & Maula, H. (2018). Constructing the future of design: How design professionals perceive their changing role. Academic Design Management Conference ADMC18, DMI Design Management Institute.

△○ Björklund, T.A., Hannukainen, P. & Manninen, T. (2018). Measuring the impact of design, service design and design thinking in organizations on different maturity levels. ServDes 2018, Service Design & Innovation Conference.

△ Hölttä-Otto, K., Niutanen, V., Eppinger, S., Browning, T. R., Stowe, H. M., Lampinen, R. & A. Rahardjo, 2018. Design Sprint For complex system Architecture analysis, ASME International Design Engineering Technical Conferences and Computers and Information in Engineering Conference, IDETC2018, August 26-29, 2018, Quebec City, Quebec, Canada

□△ Klenk, M., Björklund, T.A., Gilmartin, S. & Sheppard, S. (2018). Early-career engineers at the workplace: Meaningful highs, lows, and innovative work efforts. ASEE 2018, American Society for Engineering Education.

△ Lappalainen, N. & Hölttä-Otto, K. 2018 Evidence of Lead Users in Past Innovations, NordDesgin 2018, Linköping, Sweden. August 2018.

△ Maula, H., Björklund, T.A. & Mikkonen, M. (2018). Artist, explorer or co-creator? A narrative analysis of designers' career stories. EGOS 2018, European Group for Organizational Studies.

□ Mikkonen, M., Tuulos, T. & Björklund, T.A. (2018). Perceived long term value of industry project-based design courses: Alumni reflections from two decades of the Product Development Project. NordDesign 2018.

△ Raviselvam, S., Anderson, D., Hölttä-Otto, K. & K. L. Wood. 2018 Systematic Framework to Apply Extraordinary User Perspective to Capture Latent Needs among Ordinary Users, ASME International Design Engineering Technical Conferences and Computers and Information in Engineering Conference, IDETC2018, August 26-29, 2018, Quebec City, Quebec, Canada.

□○ Surma-aho, A., Björklund, T.A. & Hölttä-Otto, K. (2018). Assessing the development of empathy and innovation attitudes in a project-based engineering design course. ASEE 2018, American Society for Engineering Education.

□○ Surma-aho, A., Björklund, T. & Hölttä-Otto, K. (2018). An analysis of designer empathy in the early phases of design projects. Nord Design, Linköping, Sweden, August 2018.

□△ von Unold, B., Böhmer, A.I., Ledl, N., Lindemann, U., Björklund, T.A., Toye, G., & Sheppard, S. (2018). Implications of contextual empathic design for engineering education. ASEE 2018, American Society for Engineering Education.

Wiggins, C., Arruza Cruz, M., von Unold, B., Björklund, T.A., Gilmartin, S. & Sheppard, S. (2018).

\* Coding for culture, diversity, gender, and identity: the potential for automation in research. ASEE 2018, American Society for Engineering Education.

## OTHER PUBLICATIONS

\* **Björklund, T.A., Laakso M., Kirjavainen, S. & Ekman, K. (eds.) (2017). Passion-based co-creation. Aalto University, Helsinki. ISBN 978-952-60-3740-0. 251 p.**

△○ Björklund, T.A. (2017). Small wins as footholds for co-creation. In Björklund, T.A., Laakso M., Kirjavainen, S. & Ekman, K. (eds.) (2017). Passion-based co-creation. Aalto University, Helsinki. ISBN 978-952-60-3740-0, pp. 80-89.

□ Clavert, M. (2018). Academics' transformative learning at the interfaces of pedagogical and discipline-specific communities. Doctoral thesis. Helsinki Studies in Education 20, Helsinki: University of Helsinki.

□ \* Clavert, M. 2017. Learning laboratories as tools for changing the organizational learning culture. In Björklund, T., Laakso M., Kirjavainen, S. & Ekman, K. (Eds.) Passion-based co- creation. Aalto University, Helsinki. ISBN 978-952-60-3740-0, pp. 192–200.

△ \* Hassi, L. & Rekonen, S. (2017). Working in uncertainty: Managing experimentation-driven projects. In Björklund, T.A., Laakso M., Kirjavainen, S. & Ekman, K. (eds.) (2017). Passion-based co-creation. Aalto University, Helsinki. ISBN 978-952-60-3740-0, pp. 178-191.

\* Laakso, M. (2017). Orchestrating for collective creativity: Learning from the professionally creative to support moments of collaborative insight. In Björklund, T.A., Laakso M., Kirjavainen, S. & Ekman, K. (eds.) (2017). Passion-based co-creation. Aalto University, Helsinki. ISBN 978-952-60-3740-0, pp. XX-XX.

\* Rekonen, S. (2017). Unlocking the potential of interdisciplinary teams. In Björklund, T.A., Laakso M., Kirjavainen, S. & Ekman, K. (eds.) (2017). Passion-based co-creation. Aalto University, Helsinki. ISBN 978-952-60-3740-0, pp. 90-101.

△ She, J., Seepersad, C. C., Holttä-Otto, K., & MacDonald, E. F. (2018). Priming Designers Leads to Prime Designs. In Design Thinking Research (pp. 251-273). Springer, Cham.

□ Entrepreneurship Education Ecosystems in Engineering and Technology (E4T)  
Author(s): Varano, Mirko; Kähkönen, Elina; Aarnio, Hanna; Clavert, Maria; Kaulio, Matti; Thorén, Kent; Haenen, Chrisje; van Petegem, Wim; Colombelli, Alessandra; Sansone, Giuliano; Paolucci, Emilio; Scharnagl, Esther; Mendes, Rui; Caldas de Oliveira, Luis; Fergus, Stuart; Brennan, Ross





# DF BOOK



Co-creation, simply put, is people coming together to create something new. On a practical level, however, this is often easier said than done. How do you motivate people to work for an issue and with one another, and how can you smooth this process... The book is based on contributions from scholars from around the DFGN sharing insights based on research in product design, organizational psychology, creativity, management and beyond.

After a year of writing sandwiched between equal incubation periods, Passion-based co-creation saw daylight. We brought the book fresh from print to the International Design Factory week Seoul in November 2017, and celebrated it in Aalto in December. As we believe in open access and spreading the love, you can download the book for free (see the QR code on the right!).

Check out the book for more insights to help you create the future. You can read it from cover to cover, or jump around to find the topics that are most relevant for you. After going over the basics of what passion-based co-creation is, we dig in deeper to concretization and prototyping, motivation, facilities and organizational ingredients.

### Did you know that...

- **Sense of progress is the number one motivator for development?**
- **Brainstorming is bad for actually producing creative ideas but good for kickstarting projects?**
- **Grit counts for more than intelligence for success?**



SCAN TO SEE MORE...

## BIG THANKS TO THE CONTRIBUTORS!





# RESEARCH DESSERTS

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## Bringing research to the people

In addition to the ADF blog posts and physical walls over the years, research has been infiltrating the live scene at the Design Factory. On alternate weeks, we've been gathering in the Kafis (the kitchen) for a short presentation and discussion on the latest results by the community members. The purpose is to keep it nice and informal so you can stop by and join the discussion even if you're not an academic expert, while at the same time we get extra feedback for ongoing work. For example, we've shared manuscripts in progress on how newly graduated engineers engage in innovation, organizations adopt design thinking practices and project-based courses cultivate empathy.

We've also had another bi-weekly research dessert at the Research Plaza to discuss the basics of the research process - literature reviews, framing, coding data - amongst the research community, with professors Katja and Tua sharing their experiences with those working on their theses and dissertations. There's certainly more than one right way to proceed, and this has been a nice opportunity to reflect on our work and get some support from peers!







The Design Factory community consists of students, partner companies, teaching faculty, the research department, visitors, DF-enthusiasts and staff. You could think of this as the body of Design Factory, every individual part of it is necessary to make a functioning whole. On the other hand the community also stems from the way daily life is practiced here at DF. These practices could be thought of as the heart of DF: talk with strangers, be helpful, YES-attitude, lead by example, flexibility and just-do-it-attitude.

At DF we believe that behaviour is contagious. By creating this place where you are surrounded with people who do and think in different kinds of ways, you get a fresh point of view and get to truly improve yourself. The environment supports you in whatever you want to do. With this we hope to encourage the people who walk through the front door to start fulfilling their dreams.

# COMMUNITY

## TABLE OF CONTENTS:

HIGHLIGHTS

TUOTE

PARTNER PLAZA

CHANGES IN THE SPACE

THE NEIGHBOURHOOD

NETWORK MOBILITY

“Behaviour is **CONTAGIOUS**”

-Random person at DF-



# H I G H L I G H T S

# 2 0 1 7

## AUGUST

### TedxOtaniemi

Is a yearly organized independent "Ted Talks" - event at Otaniemi. This year's theme was "Constructing kindness".

### Aalto Climate KIC

Climate KIC is Europe's largest summer school for climate innovation and entrepreneurship where students get to innovate sustainable business ideas. Aalto and Design Factory is one of the 26 locations where the summer school is held.

-----

- Visitors**
- Three tours for Korean EMBA Program
  - Tour for Aalto Summer school
  - German industry visitors
  - Tsinghua University students
  - Thomas Bata University delegation
  - Japanese visitor group
  - Chinese student visitors
  - KAOSPILOT participant tour
  - Henan University teachers group
  - FM Delegation
  - Nordic Networks Delegation
  - Korean Institute of Science and Technology
  - Tour for engineering students from Texas
  - Tour for Korean TV-Crew
  - East-African delegation
  - Tour for Japanese students
  - Visitors from KAIST
  - Delegation from Taiwan
  - 3 delegates from China
  - Design Professors visit (ELEC)
  - Game industry delegation from Hangzhou
  - Tours for 500 Aalto arts students
  - Vietnamese delegation
  - Vistors from ESA & NASA
  - Delegation of NGOs
  - Tour for Innotech Hong Kong
  - Visitors from University of Applied Arts in Vienna
  - Visitors from Mannheim University of Applied Sciences
  - Tour for Nordic Network of Business Schools
  - USN Delegation
  - Tour for Teknoloikka participants

## SEPTEMBER

### Teknoloikka Kick -off

Teknoloikka is an internship for young adults where they get acquainted with the technology field through work.

### DSM conference

The 18th DSM (Dependency and Structure Modelling) conference, an international industry academic conference on complex system design, was held here at Aalto DF in co-operation with Steven Eppinger from Massachusetts Institute of Technology. This year a design sprint was pioneered to make learning more active and hands-on.

-----

- Visitors**
- Ambassador of South-Korea delegation
  - Visitors from Sweden
  - Tour for TEM
  - Two tours for visitors from KOPO
  - Tours for NTNU faculty
  - AccorHotels Tour
  - Delegation from Korean Standards Association, South Korea
  - Guests from Singapore Institute of Technology
  - Visitors Han-seo University Students, South Korea
  - City of Shanghai Delegation
  - Tour for Japanese visitor group
  - Tour for Espoo Rotary Club
  - Tour for Mondragon Team Academy students
  - DF introduction to new IDBM students
  - Chinese Industry delegation
  - German University delegation
  - Visitors from Tekes
  - DF intro for Aalto BIZ students
  - Delegation from Salo
  - Tour for City Mayor of Osan
  - Tour for Aalto faculty
  - Tour for study group from Switzerland
  - Tour for Mari Futazami
  - Visitors from Orthex
  - Visitors from Laurentian University
  - HRH Prince Michael of Kent visiting DF

## OCTOBER

### Dash Hackathon

Europe's largest design hackathon Dash is about problem solving using design thinking.

-----

- Visitors**
- Tour for AaltoEE and Stora Enso Accelerator program
  - Tour for Japanese industry visitors
  - Three DF introductions for new masterclasses
  - Japanese student group tour
  - Visitors from University of Southern Denmark
  - Tour for Kirsi Polvinen and her visitors
  - South-Korean visitor group
  - Tour for DTU delegation
  - Tour for Spanish studentgroup
  - Visitors from Helsinki Business College
  - Visitors from Active Life Lab
  - Tours for Polish High School groups
  - DF Intro for Aalto student class
  - Tour for Sanoma Oy
  - Short presentation of DF at the Stage
  - TEC de Monterrey visitors
  - Tour for Polish media representatives
  - Tour for visitors of Urban Mill
  - Korean Researcher visting DF

## NOVEMBER

#### Visitors

- Tour for Vietnam executive training program for civil servants of Ministry of Education & Ministry of Science & Technology
- Tour for international reporter group
- Twor tours Finland Swedish students visiting
- Visitors from Parsons New School, NY
- Tour for spontaneus visitors
- Tour for London city council
- Tour for visitors from the embassy of the People's Republic of China
- Visitors from Realia
- Tour for study coordinators from Kymenlaakso
- Tour for DTU stakeholder manager delegation
- Tour for Meyer of Turku
- Tour for visitors of EIG
- Tour for University of Melbourne professors
- Group from FDF visitors
- Tour for University of Tallinn visitors
- Visitors of ME310 course from Ideo
- US visitors
- Delegation from IITG
- Visitors from TU Eindhoven
- Tour for Luc FABRE, Head of the Pole Europe for Science and Cultural cooperation at the Ministry of Foreign Affairs in France
- 
- Tour for the visitors from the UPC
- Tour for Glenn Gassen & German startups
- Korea Pre-Slush
- Delegation from Montpellier, France
- Tour for representatives of Volkswagen
- Tokyo Tech delegation
- Prince Daniel of Sweden visiting DF
- SAIS-delegation
- Tour for Ambassadors of Entrepreneurship Challenge
- Aalto Service Leader visitors

## DECEMBER

#### Visitors:

- Tour for Shanghai Lingang Group
- EMS webinar guests tour
- Tour for Copenhagen Business School students
- Visitors from Pyhäjoen lukio
- Tour for Temple University of Philadelphia
- Chines education delegation hosted by the Dean
- Tour for Hijikata / Katzuaki Inab
- Tour VIP visitors of Aalto
- Tour for Rektor of Tongji University
- Bulgarian Ministry delegation visiting DF
- MINIMAX VIKING GROUP vistors

**A QUICK PEEK INTO WHAT HAPPENED AT DESIGN FACTORY OVER THE ACADEMIC YEAR 2017-2018, SHOWCASING WHAT EVENTS TOOK PLACE AT DF AND A GLIMPSE OF THE TOURS HOSTED AT OUR FACILITIES**

# 2 0 1 8

## JANUARY

### Lyon MBA

Is a two-day workshop for MBA students from EMLYON Business School

-----

- Visitors:**
- Visitors from Villa Villekulla 433
  - Visitors from Mondragon Team Academy
  - Tour Megical startup
  - Tour for Korea Institute for Advancement of Technology (KIAT)
  - Visitors Australia University delegation
  - Tour for Töölön Yhteiskoulu students
  - Tour for Team Academy Barcelona
  - Visitors From Metropolia UAS
  - Tour for spontaneous Japanese visitors
  - Tour for Spanish student group
  - Visitors from National broadcasting channel of Finland
  - MIT D-lab visitors
  - Ministry of Singapore delegation
  - Tour for Art of Hosting organizers

## FEBRUARY

#### Visitors

- Visitor group from TU Delft & Emma Nkonoki
- Members of European Parliament delegation tour
- Tours for PDP halfway show visitors
- Visitors from Toshiba Design Center
- South Korean visitors group
- Tour for TAF Millenium Award committee
- Visitors from Pukyong National University
- Tour for student group visiting DF
- Russian business delegation tour
- Tour for VTT researchers
- Tour for Slovakian professors
- Tour for Tatiana Minav & Radhakantha Rana
- Tour for NTNU visitor group
- Tour Christian Haase + visitors
- Junhe Lian visit to DF
- Norwegian Delegation visting DF
- Tour for UOF participant visitors
- Tour for EM Lyon workshop participants
- Tour for Team Academy San Sebastian

## MARCH

#### Visitors:

- Tatsuo Horikawa from Toyota Gazoo Racing Team visiting DF
- Visitors of EIG at DF
- Tour for Espoo City visitors
- IMGNE Visit to Aalto Design Factory
- Tour for Mr.Yusuke Takasaka
- Visitors City of Shenzhen
- Tour for New K Block community
- Tour for Safera partners
- Finnish media visit
- Tour for Team Academy Bilbao
- Tour for AI seniors participants
- Japanese Industry delegation
- Tour for Indian student group visiting DF

## APRIL

### DF Bootcamp

Is a week-long intensive hands-on experience of the "Design Factory" concept. It gives participants the opportunity to experience Aalto Design Factory, and learn the ins and outs of the interdisciplinary platform. The whole ADF community is involved in sharing their expertise, and the week is filled with workshops that help kick-start the planning of one's own experiment.

### TuKoKe Final Gala

TuKoKe is a science and technology related competition for the ages from six to twenty. One can participate with a project, research, innovation or anything that's related to science and technology.

-----

- Visitors:**
- Visitors from ICF Canada
  - Tour for Home & Shopping Korea ltd
  - Aalto ARTS Visitors
  - TMA Thai industry visitors
  - Visitors from Korea Institute for Advancement of Technology
  - Tour for KARVI
  - Tour for IBITP visitors
  - Savilathi initiative visitors
  - Uudenmaan StarT-aluefestivaali Tour
  - Tour Shigetoshi Noto & crew
  - Visitor group from the Embassy of Germany
  - Tours for thr DFGN Bootcamp participants
  - Tour for visitors from Omnia
  - Tour for French visitor group

## MAY

### Aalto Festival

Is a two-week event that presents the know-how of Aalto's students, graduates, teachers and researchers in the form of smaller events. A handful of the events were held at DF, like Blockchain Afternoon, PDP Gala & Design Thinking Demo Day.

-----

- Visitors:**
- Tour for Metropolia students
  - Tour for participants of Sitra Showroom Workshop
  - Paris Seine University delegation
  - Tripster app visit
  - Tour for Latin universities
  - Tour for Californian student group
  - Zambian Delegation
  - Visitors from Tilburg University (Bijan)
  - Tour for DFGN teaching staff guests
  - Tartu development organisations delegation
  - Tour for visitors from University of texas, San Antonio
  - Tour for Aalto Management support services
  - VW delegation
  - Tour for Espoo City + Chinese media
  - Two tours for students from North Carolina University
  - Tour for WIRED magazine Japan
  - EO delegation from Japan
  - Tour for Science Corner of UOH
  - European industry delegation
  - Tour for MFA KEO-90 Visitors
  - Guests from EUREKA
  - Visitors from Walailak University
  - Minister of Education in France visiting DF
  - Team SRKay visit
  - Hong Kong Young Industrialists Council
  - MacGregor delegation
  - Tour for Heikki Lindfors Crew
  - Tour for Kate Jurva delegation
  - John Wood - ATTRACT Advisory Board
  - Thousands of visitors coming to Product Design Gala 2018
  - Tour for Tallinn University of Technology visitors
  - Visitors from the world bank
  - Visitors from the London Business School
  - Iceland's First Lady visiting DF





# TUOTE

**TUOTE is an association for Aalto University students interested in product development. Our mission is to unite students from various backgrounds and elicit the possibilities to study interdisciplinary product development in Aalto. Our activities vary from organising workshops and networking event to community get-togethers.**



## Mystery eve

An evening where the students were surprised with the task of creating a chain reaction machine (AKA Rube Goldberg machine) while getting the supplies they needed through a treasure hunt. In this event each team started with just a table, a question, and a clue. Once the game started they needed to solve the consecutive questions in order to source their supplies and build their machine. The treasure hunt was designed in a way that it would show the students the different facilities in design factory while also teaching them how to best take advantage of what Design factory has to offer. After getting the supplies the students could start building the machine. The machine had to pass the "energy" from one team's table to another. After a couple of hours, building time was over and Eetu started the machine by rolling the first ball. Within a few minutes, and some intervention, the energy went through all the tables and the chain reaction came to an end.

This event was received with overwhelming positive reaction! At the end, everybody had bonded at a different level, were exhausted from running around, explored Design Factory, and had a new found respect for teamwork, prototyping, and testing.

## Sumo SUDS

Tuote organized SUDS for the ME310 students. The evening included delicious food, mingling and prototyping based activities. In the prototyping activity the teams had to design sumo suit from packing material for their warriors. After the suits were designed and constructed, the warriors competed with each other in a semi authentic sumo arena constructed in Puuhamaa in the Design Factory. The suit designs ranged from shock absorbing full body armor to a more psychological approach with scary looking masks.

## ATTRACT Young hackaton

In April 2018 Tuote selected four students from Aalto to participate in the Attract Young hackathon in Trieste Italy, where they worked on identifying and solving global societal issues of the future. The event is part of the larger EU funded Attract initiative, which aims to accelerate development of detection and imaging technologies to market together with European research institutes, industry and universities.

## Halfway Show after party

The Halfway show is a part of the Product Development Project course organized in Design Factory and during the event the participating students present their concepts and ideas midway through their project completion. This year TUOTE organized an after party event on the 2 of February in Urban Mill. During the happening students from all over Aalto University attended and were able to mingle, get to know each other, and gather some more strength for the completion of their projects.

## Pizza and project management (PPM)

To complement the DF courses and assist students in peer to peer learning, TUOTE organizes Pizza and Project Management evening. In these events guest speakers are invited to talk about leadership and project management, sometimes there are workshops held, and there is always pizza! On average, there are 30 participants with a maximum record of 120, and they consist of students, alumni, and professionals.

In the past academic year, 5 PPMs were held:

**October 10th:** Tiina Tuulos "Tools of Project Management"  
**November 14th:** Vesa Koskela and Ville Kukko-iedes "Tools of Ideation"  
**January 9th:** Aape Pohjavirta "Presenting it"  
**February 20th:** Marc Dillon "Life as a Leader"  
**March 13th:** Visa Parviainen "How not to Suck"







One of the fundamentals of Design Factory is co-creation with industry. Aalto Design Factory is a platform where we support companies in embracing the potential of cooperation with Aalto University.

## 17 PARTNER COMPANIES DURING 2017-2018

### Not just a space

We have in-house partner companies who are enriching the ecosystem diversity and participating to daily activities. We support companies in their early stage to become the new success stories under our loving care and attention. Depending on the contract the companies may use ADF's premises, materials and machinery. All of the companies in Partner Plaza have a connection with Aalto University – whether it is with a student project, hiring students, by being alumni or collaborating otherwise. Becoming a partner means becoming a part of the community. There are different kinds of contracts: some of the partner companies have virtual contracts with postal address at ADF and may use the common spaces, others share the spaces physically in Partner Plaza.



“Design Factory offers flexible workspace with good workshops and specialists who can help when needed. Extremely important part of the Design Factory is the community and culture that encourages for collaboration. Because Design Factory is located in Aalto campus area we have been able to recruit multiple part-time workers from Aalto university.”

*Pasi Karppinen, ProtoRhino*

## HERE ARE THE COMPANIES THAT LEFT AALTO DESIGN FACTORY DURING 2017-2018

The in-house companies at Partner Plaza usually have a maximum of two years of contract at Aalto Design Factory before moving on to different spaces.

**Arctic Crickets Oy**  
**Pexray Oy**  
**LeeLuu Labs Oy**

## LIST OF PARTNER PLAZA COMPANIES AT ADF IN 2017-2018

### Blueleaf Lab Oy

Blueleaf Lab is a start-up that brings together people with technical, business and design backgrounds. We have a strong focus in clean, renewable energy.

### Consair Oy

Consair Oy is professional in construction site dust management. Our CAMU 1200 clean air management unit catches 99% of dust in plaster mixing and makes mixing safe and effective.

### Kuori Oy

Kuori is a Finnish hardware startup that manufactures the Yetitablet, the most intuitive and versatile giant tablet. The Yetitablet enables its users to turn individual tasks into group activities so they can learn, play, communicate and collaborate more efficiently.

### Omuis Oy

OMUUS offers the full range of production design, including industrial design, CMF, strategy, material technology development, and trend forecasting.

### Onnivation Oy

Onnivation® Ltd arranges visit and training programs in Finland for international groups of students, educators, educational policy makers and parents. With a blend of education, innovation, culture and nature each visit can be tailored to perfectly suit your learning requirements.

### Riichi Consulting Oy

The core expertise is in practices and approaches that bring creativity, user involvement, collaboration and experimentation to development work. The essence of our work is combining academic knowledge with practical experience and a hands-on approach.

### Teraloop Oy

Teraloop is developing a breakthrough in utility scale storage to unlock the integration of renewable energy.

### Trick Technologies Oy

Throwable microphones for audience engagement

### EntoCube Oy

EntoCube is a Nordic leader in insect farming solutions and cricket food products.

### Sensible4 Oy

We make vehicle automation systems for harsh Nordic winter conditions and extreme environments. Our approach, algorithms and software take self-driving where no autonomous vehicles have gone before. Our SAE level 4 solution is based on integration of artificial intelligence and sensor fusion.

### Tietokonekauppa VihreäOmena Oy

Finland's largest selection of used Apple products.

### ProtoRhino Oy

ProtoRhino is a company that designs and builds measurement and testing devices. Currently they are focused in developing IoT applications where new measurement capabilities will change how different industries work.

### Trenox Oy

Trenox is the biggest tower crane operator company in Finland and now It is expanding to become a technology company. If You see a tower crane just outside DF, it is probably ours. And if you see a tower crane moving around without an operator, well, that's probably our stuff also!

### Korento Bikes Oy

Korento Bikes Oy is a Finnish startup that develops electric light vehicles for urban environment. By integrating personal mobility and mass transit, our products make commuting easier, faster and fun.





# CHANGES IN THE SPACE

Being the hub of product development in Aalto University, Design Factory doesn't just teach Design Thinking, but also employs it in the day-to-day operations and planning. The use of space is observed, problems are identified, solutions are ideated, tested, improved and integrated into the whole. The core of the interior spaces is that they can be modified according to the needs of different individuals, tasks or phases of work. By observing how the facilities are used, we are able to recognize current and future needs that support the DF user experience.

## Flexibility and adaptability of the spaces is essential at DF.

Just this past year, one, of the biggest spaces in DF - the Stage was used for various purposes such as prototyping, presentations, science fairs TuKoKe, TUOTE Mystery eve Treasure hunt, Orchestra rehearsals, test trials, and many others.

### Lobby wall

The Lobby wall is often the second thing that visitors notice after the smiling person on lobbyshift. Therefore, it should be welcoming, tell the story of DF, be functional, and attractive. The new redesigned Lobby wall tells the story of DF and invites the viewer to interact with it. Illustrated under **"This is how we roll"** is the underlying culture of DF and it helping visitors to quickly and efficiently get familiar with it.

The newly created Hugging point, Hug menu, and the Hug-o-Meter create a fun interaction point for the DF users, while embodying one of the basic values of DF: Love. One can select a specific hug like Deluxe or Desperado from the menu, try it out, and press the button of the Hug-o-Meter to add that memorable hug to the count.

One of the major pillars of DF that often goes by unnoticed, is the research conducted in-house. To make it more visible and attractive to DF users, the new Lobby wall has a dedicated space for publications such as the DF book and allows them to be displayed in a way that lures the viewer to interact with them.

The new wall, in all its glory, also serves many functions such as:

- Display and storage for pamphlets and publications
- Storage and a dedicated space for catering and its equipment
- Visual guide to the spaces in DF Display of the awesome DF coffee mugs

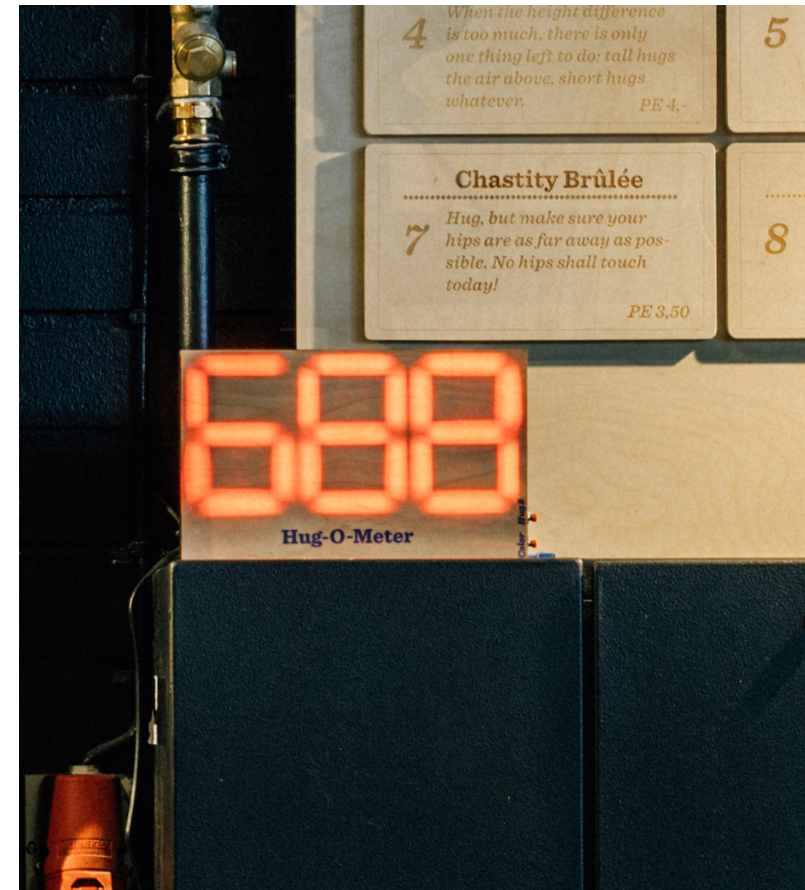
The wall was made using the in-house tools and expertise such as the new laser cutter, stencil cutter, and Electroshop's mastery to accurately count hugs!

### Visual communication spatial additions

You're walking from Kafis to Lobby with a freshly brewed hot cup of coffee when suddenly a door opens out of nowhere and you spill the coffee that you haven't even sipped yet! How frustrating is that?! Coffee spilled, clothes ruined, and now you have to mop the floor in front of all the visitors from Thailand. That would not have happened if you had any indication that the bathroom doors can suddenly open. But, don't worry! The new dotted line stickers on the floor in front of the bathroom show exactly how the bathroom door would open. So from now on say goodbye to spilled coffees and embarrassment, because you are reminded of how the doors open! A simple yet effective form of visual communication.

## Any problem is an opportunity for improvement.

By being open to feedback, suggestions, and collaborations across disciplines, DF is able to make spatial changes, acquire new machinery and improve the conditions in-house and beyond.



Apart from recognizing the needs of the DF users for the past year, we also have new toys which provide us with new opportunities, possibilities, and means of prototyping.

### New family member in Print shop - LaLa

The Print Shop's newest member LaLa (Laser cutter) has already proven its value for the 5 months that it has been in use. The advanced laser cutter/engraver can effortlessly cut and engrave most materials making quick prototyping even quicker. Awesome!

### Advanced milling machine

Super-Speed Vertical Machining Center, HAAS VF-2SS, has been working non stop since it has arrived. It has helped and supported students, staff, and occasionally external parties interested in creating molds, prototypes, products, and parts. It's capable of cutting different materials such as aluminum, wood, stainless steel etc.

### Silkscreen

Silkscreen printing, or also known as serigraphy, is a technique that has been around since 1000 AD. It is a sophisticated surface printing method that DF has just come to embrace! Silk screening allows students, staff members, and other enthusiasts to create their own designs on fabric bags, shirts, and other absorbent materials. To test this method, goodie bags for the PdP opening Gala were printed.



# THE NEIGHBOURHOOD

## AVP

Co-creative Entrepreneurship Education

AVP (Aalto Ventures Program) organises courses, minors, workshops and networking opportunities for the students here at Aalto. Their goal is to help students build scalable businesses providing them with the inspiration, the capability and the network.

Where? **Maarintie 17**

Website <http://avp.aalto.fi>

## ESPOO INNOVATION GARDEN

Innovation hub

Espoo Innovation Garden is the largest Innovation Hub in the Nordic countries, covering the areas of Otaniemi, Keilaniemi and Tapiola. It is not a physical building but a community of people from different facets who all work on innovations in a way or another. In this area there are more than 5 000 researchers, 25 research and development units, and around 16 000 students, together with a growing start-up community. The aim is to bring together the various operators in the area encouraging for cooperation and enhancing the sense on community.

Where? **02150 Espoo**

Website <https://www.espooinnovationgarden.fi>

During these past years our neighbourhood, Otaniemi, has become the incubation center for the like-minded beings just like us who want to participate in community and support innovation. Here people are brought together by their passion to create and make stuff happen. In this map, you will find a brief description of what each one of these places has to offer.

## A GRID 2.0

Startup Hub

As one of Europe's largest center for growth companies, A Grid provides a vibrant space for a variety of startups, accelerators, such as the European Space Agency, and Aalto Start-Up Center, as well as partners and established companies, like Fortum.

Where: **Otakaari 5 A**

Website: <http://agrid.fi>

## URBAN MILL

Co-working and Co-creation Platform Prototype for Urban Innovations

Urban Mill provides a flexible office, event and prototyping space for cultivating new urban innovations to create a better urban life. One can find international people, entrepreneurs and developers solving problems in Finland as well as Globally through urban development.

Where: **Betonimiehenkuja 3 E**

Website: <http://urbanmill.fi>

## AALTO DESIGN FACTORY

interdisciplinary product design and learning hub uniting students, teachers, researchers, and industry.

Where **Betonimiehenkuja 5 C**

Website <http://aaltodesignfactory.fi>

## STARTUP SAUNA

Enterprise accelerator

Since the year 2010 Startup Sauna has been accelerating founders and providing growth hacks, practical tips and tricks for early-stage related problems through their more experienced entrepreneurs. They have Europe's most experienced coaches with a Net Promoter Score of 9.4, just look how their alumnis are doing.

Where **Betonimiehenkuja 3 D**

Website <http://startupsauna.com>



# NETWORK MOBILITY



Lennart Hielkema

**Design Factory's expanding network makes different skills and expertise as well as cultural diversity more accessible. In the last year, the Aalto Design Factory welcomed an intern from the Frisian Design Factory: Lennart Hielkema. Meanwhile, down in southern Europe, Porto Design Factory welcomed Rutger Oldenhuis, another intern from the Frisian Design Factory.**

During the weekly chats they had, these two interns came up with the idea of promoting the global mobility of students and staff alike within the Design Factories. They found that the Design Factories, although similar in ideology, had quite some differences in workflow, work ethics, and skills and expertise. They also noticed that the people at the Design Factories were eager to make use of the new skills they brought in, such as visuals or photography. These were not already very present in other parts of the global network. So why didn't we make use of that already?

Within a few weeks, they came up with a plan to swap places for a period of time. Lennart would go to Porto, and Rutger would go to Aalto. Due to their schedules, they could not manage to plan a longer exchange than thirteen days in total, but it would be enough for a first pilot, to find out what challenges would be faced.

The first three days were overlapping. This gave Lennart the opportunity to introduce Rutger to the Aalto Design Factory and get him used to the work he did to make the transition feel seamless. Rutger could also easily tell Lennart about his work at the Porto Design Factory, and tell him about the city and how to get around.

The last three days would be overlapping as well, giving the opportunity to reflect on their findings and experience.

Aside from practical challenges such as housing and public transport (which were easy to overcome), there were some bumps in the road regarding the planning and timing. Rutger joined the Aalto Design Factory during a very busy period, three days before the PDP Gala. Meanwhile Lennart joined the Porto Design Factory at a relatively quiet time. Then there was also the issue of the staff. Aalto Design Factory had way more staff than the Porto Design Factory. Both interns found that this resulted in a different impact on each of the receiving institutions. These and other points were discussed to address in the future. But altogether, this exchange was a valuable experience for both the interns and the staff in desperate need of their skills at the Design Factories. Even within this short time, Rutger and Lennart found that they had definitely learned from the differences in the Design Factories. They think a longer period and better planning would definitely allow for valuable and exciting exchanges. Now it is up to them to continue this and develop it further. Hopefully, this will lead to some interesting community interactions in the future.



So what happened? Well, in February I left the Netherlands for Porto, Portugal, to start my internship at PDF (Porto Design Factory), where my main project was to help with the organisation of International Design Factory Week, and Rapid Action Week. I was also the main photographer and videographer for the events. There were many other tasks I did which are a bit harder to put into words, but let's just say I did almost everything they needed help with. During this time, Lennart was interning at Aalto, and the video connectivity between these DFs enabled us to talk to each other, and jokingly wondered if people would notice if we switched places. We turned this joke into a side project in which we switched for 10 days, Me at ADF, Lennart at PDF. This was a very interesting project with a lot of good lessons. With IDFW and RAW almost starting, I got a rapid-fire workload that had a lot for me to work on and which was also very fun. The week itself was even cooler. Experiencing the Global Network in Porto was a lot of fun. Seeing the personalities brought from every DF and the way they are welcomed is very warming to see.

As far as experiences go I have had a wonderful time, learned a lot of versatile skills, and had a place I could be myself. I felt like I could make contact relatively easily, and was received great. Within the design factories you really feel that it is a family because of the way communication and interaction happens.

Rutger Oldenhuis

**"I felt like I could make contact relatively easily, and was received great. Within the design factories you really feel that it is a family because of the way communication and interaction happens"**





Design Factory works in the local community as well as in the global scene. We strive to be the best in the world in teaching product development and design. To achieve this goal, international collaboration is vital. The global activities at Aalto Design Factory don't just allow knowledge transfer between the parties, but also acts as a support network for different facets that have a common goal: developing interdisciplinary teaching and taking the university education to the next level.

# GLOBAL ACTIVITIES

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DIGITAL DREAMS OF POPUP MARKTHALLE

“Sharing the **PASSION** for doing”

-DFGN-



# DFGN



## Design Factory Global Network (DFGN) is a network of interdisciplinary platforms in universities and research organizations in five continents of the world.

DFGN is on a mission to create change in the world of learning and research through passion-based culture and effective problem solving. Design Factory is first and foremost an understanding of how to spark and support creativity and innovation. Shared understanding and common ways of working enable Design Factories in the network to collaborate efficiently across cultures, time zones and organizational boundaries fostering creativity in organizations.

## UNPRECEDENTED GROWTH AND NEW PROJECTS FOR DFGN

The past year has been a year of both rapid growth and consolidation for the Design Factory Global Network. During the calendar year 2017, a total of 8 new Design Factories joined the network, and during the first half of 2018 another 3 have joined. At the start end of the academic year 2017-18 the network consists of 24 Design Factories in 21 countries and 5 different continents. The growth of the network stems from the increasing interest to develop interdisciplinary learning environments and create platforms for industry collaboration and problem-based learning in universities around the world.

The growth has also lead to increase in opportunities for collaboration in the network. New experiments and collaborative projects have been developed within the DFGN, and existing ones, such as the Rat Relay, are going on for new iterations. In addition to some of the projects you get to read about on the following pages, new pedagogical experiments have started.

For example SQUAD is a course done in triangles of three Design Factories, focusing on digital products and solutions. The first SQUAD was carried out between Porto, Warsaw and New York City Design Factories. The introduction of SQUAD was based on the needs arising from the industry. As the world is becoming more and more digital, a need was seen to create an international program specifically focusing on digital solutions.

Year 2018 has also been a year of transformation for DFGN as the growth has taken us from a small family to a mature network. DFGN has taken strategic steps in formalising the structure enough to ensure the continuation of the network, yet little enough to continue to operate as the home for like-minded individuals who are driven by the passion to put the students and learning first. DFGN has transformed become a network, where the members have the most influence. As we like to say, the DFGN is what the DFGN makes it into.

The 10th anniversary of Aalto Design Factory has been a moment for reflection also for the network, and, considerations what the future of the Design Factory-concept could be have started. "Universities of the Future", a three-year EU Erasmus+ Knowledge Alliance project together with Porto, Aalto & Warsaw Design Factories is exploring how universities should meet the needs of industry 4.0. During the past year the DF ways of working were put to test within a public-private partnership in Wolfsburg, Germany, in a collaboration between the city of Wolfsburg, Volkswagen Group, and VfL Wolfsburg, the local Wolfsburg football team. These, in addition to other experiments and interactions create inspiration for future work. In this way DFGN can provide interesting insights, not only for the DFGN itself but also for ADF for the next 10 years.

## A WORD FROM A NEW MEMBER



*Kirstin Kohler,  
Coordinator, inno.space  
Design Factory Mannheim*

**When we found out about the Design Factory Global Network, 4 years ago, we never have dreamed that in the near future we would be part of such a community. Encouraged by some chats with people from the DF network and after seeing their passion we wanted to learn more about the necessary prerequisites. It was the perfect timing for us to join the network because we could adapt the space and programs we had in place and at the same make profit from the network to help us on growing more in the future.**

**Becoming a member was going along with two hopes and expectations: the first one was to learn more about project-based learning in interdisciplinary setting from partners like Aalto that have an amazing experience on it. We strongly believe that this educational approach is an important part of the future of education, and we want to enforce it at our university. The second one was to give us the opportunity to enlarge the offers for our students by further courses in international interdisciplinary setups with other Design Factories in the network. As we are part of the ME310/Sugar network since 2014 we were looking for additional, more lightweight possibilities to engage more students in similar experiences.**

**Our first International Design Factory Week (IDFW) in June 2018, overexcited all our expectations. We were deeply impressed by the energy of the DFGN community, its spirit of openness and creativity that unfolds on the teaching team level in the similar manner as it does for our students when being in international cooperation. The week left us with many new resources, opportunities for courses and joined events. It opened our mind again and for sure this will multiply with our students in the future.**





# THE DESIGN FACTORY BOOTCAMP

Design Factory Bootcamp is a week-long intensive hands-on experience of the DF concept. It has been developed as a solution to the interest among universities and other organizations around the world to get familiar with the concept. Organized for the first time in 2014, it takes place every spring at Aalto Design Factory. The program of the DF Bootcamp consists of different kinds of expert lectures, workshops and community events in which Design Factory experts and community uncover different parts of the DF concept. These topics include, among others, DF history, ways of working, pedagogical philosophy, and industry collaboration. During the Bootcamp, the participants already start planning for their own Design Factory-related experiments.

Design Factory Bootcamp 2018 was the fifth Design Factory Bootcamp organized at Aalto Design Factory. It brought together 7 new participants from three different institutes. Tecnologico de Monterrey in Mexico and St. John's University in New York were attending the Bootcamp for the first time, and Design Factory New Zealand sent new staff members to be familiarized with the DF ways of working.



## SWEAT

The Super Wicked Extraordinarily Awesome Team (SWEAT) was initiated as part of the DF Bootcamp 2018 to represent the students of DF. The SWEAT consists of exemplary students of DF who are active, know the culture of DF, and can share their own stories. These super wicked awesome students are mostly students of PdP, ME310, and Aaltonaut.

SWEAT's roots go back to 2016, when the first student team was established for the DF Bootcamp under the name of SWAT, as in a specialized rapid deployment task force, but also standing for Super Wicked Awesome Team. The team was made because students are at the center of DF, so it would make sense to have a workshop about DF where the participants also get a chance to meet the real users and see for themselves how students can benefit from a place like DF. At the end of Bootcamp 2016, the team got an overwhelmingly positive feedback from the participants so it became a permanent fixture for DF Bootcamp. As part of SWEAT, the students participate in events, such as PD4 and PBL workshops, help around with the events, and help the participants satisfy their curiosity about DF. The SWEATers are told to be themselves and show the participants the place of students in DF. In return the students meet faculty and professors from foreign institutions, get 1 ECTS, and will be the first ones to hear about opportunities in Aalto and other DFs.



Bijan Bayat Mokhtari  
Co Master of the SWEAT team



Paula Saratljeva  
DF Staff member  
Co Master of the SWEAT team



# INTERNATIONAL DESIGN FACTORY WEEK

IDFW2018 was hosted by Porto Design Factory during June 18th to 22nd 2018, and brought together 54 people from 21 different Design Factories. IDFW is hosted in turns by the different Design Factories, and the opportunity to host the week is offered in the order the different Design Factories have been launched.



## Porto took over this time

IDFW as the annual meeting of the network has two specific goals. Firstly, as DFGN is a network built around the collaboration that takes place between the different Design Factories, planning for collaboration is the main one. During IDFW2018, a total of 25 project initiatives were introduced and worked on during the week. Secondly, the week is an opportunity for the host to take advantage of the network presence by engaging with their own stakeholders and ecosystem by organizing part of the weeks program. From the network perspective, it also works the other way around : by engaging with the hosting DF's ecosystem, it helps everyone to better understand in order to collaborate with the hosting DF. The week is also the opportunity for the network to develop the network itself and its activities.

## RAW

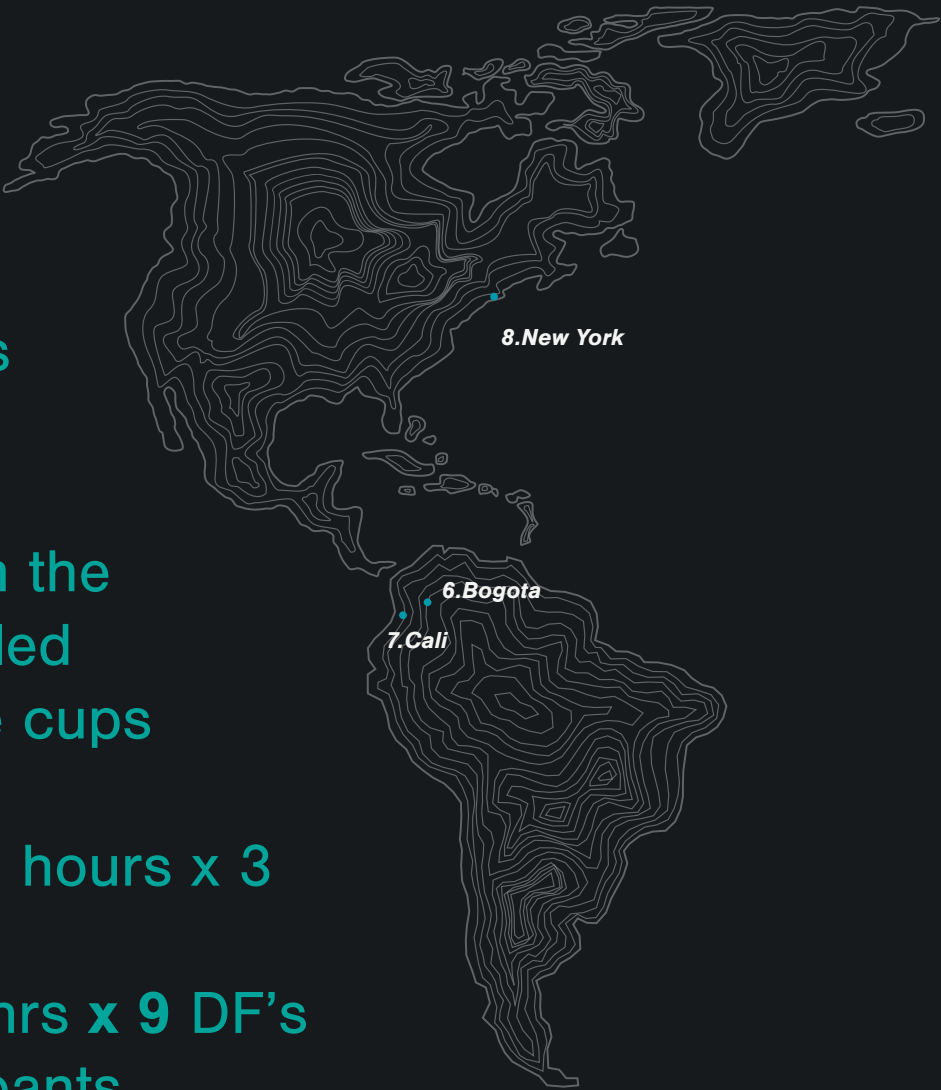
In June, I had the opportunity to attend the 1st DFGN Students Summit, denominated Rapid Action Week (RAW), a parallel activity to the International Design Factory Week (IDFW), hosted in Porto. The idea behind the RAW was to bring one student from each Design factory to re-imagine the future Design Factory in 10 years' time. The RAW gave me the chance to experience an exciting week together with students from different backgrounds and cultures yet with the same mindset, dream DF all over again. It was amazing how a group of 14 students from all corners of the world, that never met before, got together for a full week to work and envision the DF of the future. During the week, as a team we pushed our creativity, open-mindedness and optimism to the limits: we had the brightest morning boosters ever; we brainstormed and ideated the most crazy ideas; we forecasted the future together with the IDFW people; we designed, prepared and gave inspiring workshops where both DF students and staff got to know each other and their wishes for the future of education; and, last but not the least, we had the best time together, learning with and from each other. It was truly inspiring. The 1st DFGN Students Summit, made me realise that, despite what happened in the past 10 years of DF, it's the future that still excites our community and that still drives students, teachers, researchers and industry practitioners every single day at each Design Factory



André Santos  
PDP student 2017-18



28 Coaches  
8 Countries  
9 Cities  
337 513 km the  
ideas travelled  
233+ coffee cups  
consumed  
324 worked hours x 3  
days  
6 slots x 6 hrs x 9 DF's  
155 participants



# RAT RELAY

Organized for the fourth time, the Rat Relay for Global Good brings together Design Factories from around the world together - nine partner organizations, some 160 students and 30 Design Factory coaches this time around. Design briefs travel from country to country, landing back home with insights from multiple cultures and contexts. Organized in six 6hr slots according to the design thinking process of empathizing, reframing, ideating, prototyping, testing, and finally pulling it all together to pitch back to the organization bringing the challenge.

Nordic Ocean Watch - from campaign glory to lasting change. With plastic reefs the size of countries floating around in our oceans, the timely challenge aimed to reduce disposable plastic for cleaner oceans, for good. On the other hand, our local teams at Aalto got to figure how to prevent Colombian youth joining gangs, millennials disconnect online to connect live, help employers make better job adverts while making the job search easier for job seekers on the autism spectrum, and more. **The fifth Rat Relay is organized in fall 2018.**



## PARTNER COMPANIES

Below you will find the Design Factories and their respective briefs

- 1. Aalto Design Factory \_\_\_\_\_ Nordic Ocean Watch (NOW)
- 2. Warsaw Design Factory \_\_\_\_\_ City of Warsaw
- 3. Frisian Design Factory \_\_\_\_\_ Rode Kruis
- 4. Ghent Design Factory \_\_\_\_\_ In house brief
- 5. Porto Design Factory \_\_\_\_\_ Frulact
- 6. Design Factory Javeriana \_\_\_\_\_ CMM Colombia
- 7. Cali Design Factory \_\_\_\_\_ In house brief
- 8. NYC Design Factory \_\_\_\_\_ Tech kids Unlimited
- 9. Design Factory Melbourne \_ Imagine Intelligent materials

## BRIEF TRAVEL

The order of the numbers below showcases the brief's journey from country to country.

- 1 – 8 – 6 – 7 – 9 – 3 – 1
- 2 – 6 – 5 – 4 – 3 – 7 – 2
- 3 – 6 – 8 – 2 – 5 – 4 – 3
- 4 – 1 – 3 – 6 – 7 – 2 – 4
- 5 – 4 – 6 – 7 – 3 – 9 – 5
- 6 – 9 – 2 – 5 – 4 – 3 – 6
- 7 – 4 – 3 – 1 – 9 – 6 – 7
- 8 – 2 – 9 – 6 – 7 – 1 – 8
- 5 – 1 – 9 – 6 – 7 – 3





# DF JUNIOR SCHOOL

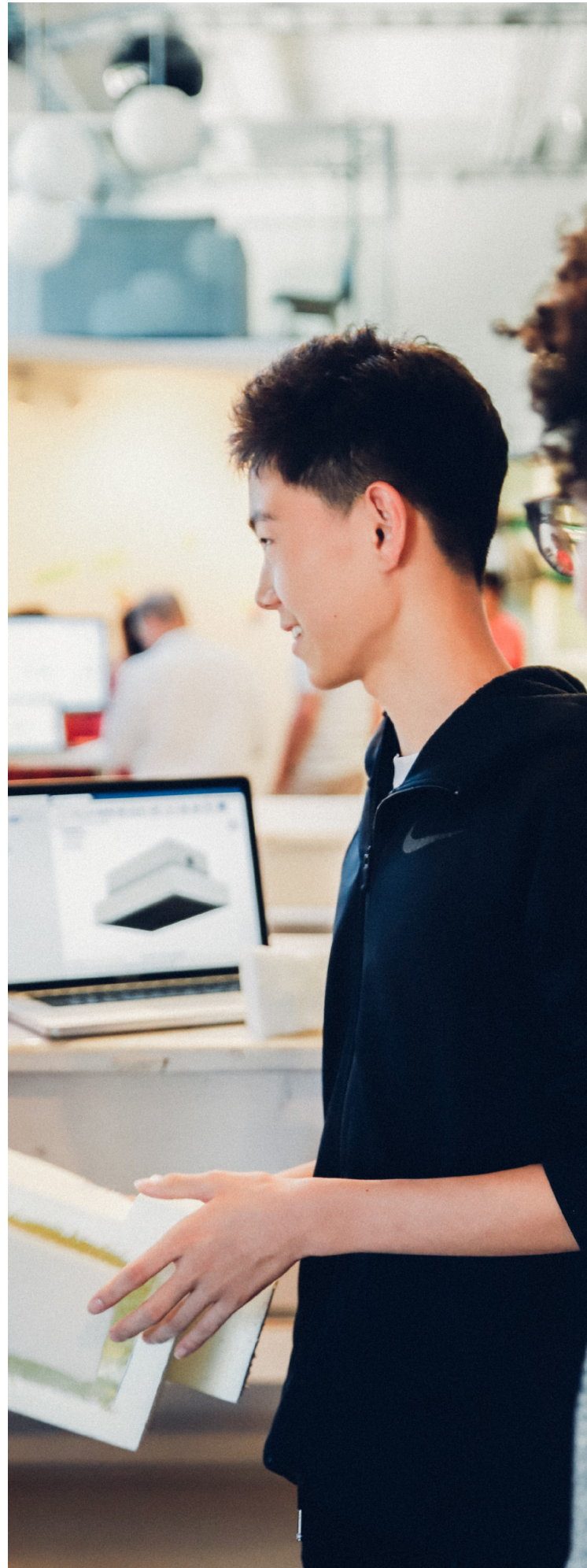
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Design Factory Junior is an experiment to introduce the Design Factory ways of working to high school students in China. The DFJ program consists of three phases: idea competition to identify and propose solutions under the theme of the competition, a local kick-off workshop, and a week-long summer course taking place at Aalto Design Factory. The theme for Design Factory Junior in 2018 was Design For 3D-printing - how could 3D help in creating solutions to everyday problems the participants face.

Design Factory Junior pilot is done in collaboration with ANYEI (Association of Nordic Youth Education & Innovation) and Beijing Strong Feeling Youth International. Altogether 89 students and 19 teams from Shanghai & Beijing applied to the Design Factory Junior program, out of which three teams were selected for the final phase in Finland. The finalist teams come from Shanghai Tongji-Huangpu School of Design and Innovation, Beijing Foreign Languages School, and Beijing Shi Da High School. The finalist teams were tackling issues related to the harmful fumes when erasing chalk from blackboards, the accurate placing of eye drops to eyes, and spilling coffee. During the final phase of the program, the week in ADF, the teams get to develop their ideas to a tangible level, with the help of ADF community.

**I together with my team members applied for the Design Factory Junior. The kick-off day in Shanghai was a hands-on workshop aiming to help us further develop our DFJ project in about six hours. There wasn't much talking but quite a lot of working. However, the atmosphere was not tense at all. Thanks to the help of the coaches and our efforts, we managed to work out a better solution of our product at the end of the day. We benefit a lot from this experience, and hopefully this will help us not only in this year's DFJ competition, but also in all of our projects that we will be working on in the future.**

*Wang Xiao  
Shanghai Tongji-Huangpu  
School of Design and Innovation*





# DIGITAL DREAMS OF POPU M ARKTHALLE



*Anniina Leggat  
Designer  
BA of Design, PdP, Aaltonaut and CBI Alumna  
former ADF staff member  
Forever-the-design-unicorn*

## Digital Dreams of PopUp Markthalle Wolfsburg, Germany

During the spring of 2018, the old abandoned market hall in the city center of Wolfsburg, Germany, became alive after years of solitude. The hall was busy with events, workshops and art. PopUp Markthalle, as the the space was now called, was the experimental popup phase of the initiative to create an co-creation platform in the heart of the city. Markthalle is collaboration project between the car manufacturer Volkswagen, the City of Wolfsburg and the VfL Wolfsburg football club. Aalto Design Factory has been involved in the project since its beginning by facilitating the cooperation and sharing the knowledge on building Design Factory-like co-creation platforms.

Markthalle is one of the leading projects in the Wolfsburg Digital initiative, where the citizens of Wolfsburg together with the local industry are experimenting and developing the digital cities of the future. The PopUp Markthalle was open for three months with jam-packed programme: open talks, app-development workshops, football fan club meetings and other events kept the the cite busy. ADF staff member Andreas Benker, doctoral candidate at Aalto BIZ and IDBM alumnus, worked on site alongside with the people of Markthalle to facilitate the collaboration and development. Andreas and Päivi Oinonen, manager of DFGN ran a series of 6 co-creation workshops to help support the development of the permanent Markthalle to be re-launched in 2019 after a thorough renovation.

## Digital Dreams

Aalto Design Factory also took part in the production of the new media exhibition Digital Dreams, that was open at PopUp Markthalle from 7th until 28th of March. Digital Dreams exhibitions was a student project done by the design students from The Braunschweig University of Art: Martin Fischer, Farina Hamann and Matthias Hüttmann and Anniina Leggat from the Aalto ARTS. The exhibition explored the digital phenomena of the modern day and the future: digital isolation, the transformation of social interaction and the altered experience of reality. The exhibition consisted of six exhibit stations, each delving into a certain digital experience. Most of the stations utilized virtual or augmented reality technologies, whilst in few the chosen method was analog production to accentuate the distortion in reality caused by digitalizations.



The exhibition opening was held on 7th of March with an open event and guests from all the stakeholder partners of Markthalle.



The Annual publication team wants to thank the awesome Design Factory community who have helped and manifested their passion and love, by helping with the writing of the articles, proofreading, advising, and support in the production of this publication.

**With Love**  
On behalf of The Team  
Anu & Joel

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Annual publication  
2017-2018

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Printed By Bookcover  
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