

NTNU 2024



Ole Petter Wullum Trond Are Øritsland Marikken Høiseth

intro texts

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PRODUCT DESIGN

# Product design is about the cultivation of our objects that we surround ourselves with every day. Our object culture is the strongest expression of our civilization and the values on which we build it. The cultivation of technology expresses us through form. The function of the form is about being the link between the rational and the emotional - between the logical and the intuitive and between the expected and the surprising.

We understand ourselves and our predecessors through form – where our tools give a clear picture of who we are and how we live. Since the dawn of time, our objects have played an absolutely central role in our way of expressing ourselves and an important way of telling the story of ourselves. Tools, jewelery and drawings existed long before we built houses and cultivated the landscape around us.

Product design is therefore mostly about ourselves as creative people where the rational is connected to the emotional and expresses much more than just the functions and materials they are made of.

#### **DESIGNING A LAMP:**

### A discussion about form and light

In Scandinavia, where bright summers contrast with dark winters, light holds a special place in our lives. Warm light can evoke feelings of comfort and relaxation and positively influence our mood. Cool light, on the other hand, can enhance alertness and concentration. These qualities of light create diverse environments and atmospheres.

For a long time, fire was our only source of artificial lighting. With the introduction of electricity and later LED technology, we now have "unlimited" access to light and various lighting options, but we also face issues of overlit spaces. Despite these advancements, our fundamental needs remain the same as those of a family sitting around a fire a thousand years ago.

The Pinocchio pendant lamp is the result of a discussion about form and light. The piece aims to cultivate the possibilities inherent in LED technology. It showcases sculptural qualities while emphasizing light as a phenomenon. Pinocchio comes to life when the weight hanging under the lampshade is pulled downwards. As the weight is drawn further down, the light spreads across the lampshade, transitioning from a soft, warm glow to a brighter and cooler light. Thus, Pinocchio creates diverse environments and atmospheres with its distinctive character.

Einar Rosenhaug Bjørset

supervisor

Ole Petter Wullum

# PENDANT LAMP DESIGN USING EXTRUDED ALUMINUM

Aluminum is a strong, lightweight, durable, and sustainable material with great potential in future product design. With extrusion as the primary production method, I aimed to design a lamp that could be produced using existing production methods and guidelines. Important aspects in the design process included sustainability, form, transparency, function, and the fundamentals of lighting and color, primarily for use in private rooms.

The result is a pendant lamp adapted for the modern LED light source, creating directional and focused lighting by using a GU10 bulb. The concept is based on three main elements, each with its function for directing the light: from the light source in the cylinder, through the diffuser in the ring, and finally captured in a colored element. This element reflects the light intensely due to its red color composition and wavelengths on the electromagnetic spectrum. Along with the graded diffusor, it produces a beautiful illumination on the red surface. The lamp creates glare-free and pleasant lighting over the living room table, utilizing principles from PH 5, translated into a new form using modern lighting technology. With its simplicity, clean lines, and geometric shapes, this lamp is an elegant, highlighted object in any home.



ent Liv Therese Meberg Schjetlein supervisor

Jon Herman Rismoen

#### T-BOX:

A portable box-simulator for laparoscopic surgery, designed to enhance fundamental skills for aspiring surgeons

> This project is a continuation of "Design 9", where in a collaborative effort with SINTEF and NSALK "National Competence Service for Advanced Laparoscopic Surgery", Amal Koshy Abey and I developed a concept for a portable box-simulator for laparoscopic surgery aimed at aiding doctors in their specialization journey to become proficient surgeons. The goal of the simulator is to serve as a tool for improving fundamental skills, essential for laparoscopic surgery.

> For the continuation of this project, I further iterated and refined the design trying to take it from the concept phase to a functional prototype. Additionally, I designed a couple of laparoscopic training modules that are placed inside of the simulator to challenge and develop the user's laparoscopic abilities.





## DRIVING SUSTAINABLE CHANGE: Anchor buoy redesign for improved aquaculture

This thesis, in collaboration with ScaleAQ, delves into the environmental challenges present in the aquaculture industry. Currently it is estimated that 5,500 cages are utilized along the coast of Norway that together contain up to 192,000 tons of plastic, of which 16,000-29,000 tons of plastic waste is generated. This, combined with signs of a growing aquaculture industry, highlights the importance of implementing environmental considerations in the design of such equipment.

Therefore, the question "How can one redesign the APB-2200 mooring buoy to keep desired function as well as optimizing its impact on the environment, throughout the majority of the value chain, including end-of-life treatment?" arised.

The project aims to achieve a longer lifespan of the product, more circular usage of plastics, and a simplified recycling process. Based on insights gathered, problematic aspects in current design are attempted to be solved, such as reducing main wear areas, reducing number of materials and ensuring easier handling. However, aquaculture is a complex field surrounded by numerous regulations, hence the newly conceptualized product of this thesis functions mainly as inspiration for future equipment. Whereas such a product needs thorough testing to become feasible.

Janne Fagerli Isaksen

supervisors

Jon Herman Rismoen Boks

Casper

#### DESIGN RESEARCH AND CONCEPT DEVELOPMENT FOR SILENT ALARMS

On ships, alarms are used to alert for emergency situations. When moving to a remote operating center, there are more people working in the same space with responsibility for different systems and vessels. In this context, alarms become noisy and difficult to manage for operators. So, non-auditory communication could be used instead. For example, it can be used for operators who must be alerted without generating sound waves or other detectable or disturbing signals. To solve these, alternative solutions can be used to create new alerting devices, e.g. haptic feedback such as vibration or temperature.

This project aimed to develop a wearable silent alarm system based on these alternative solutions, e.g. a wristband or a belt. The project also involved testing different parameters and stimuli, such as intensity, frequency, duration, and location, to convey different alerts, such as urgency, priority, or category.

The proposed solution is a belt using vibrational motors to alarm the operator. The alarms are placed across the belt so that during an alarm only the motor in the direction of the faulted system is triggered. This way the operator spends less time locating the source of the alarm.

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Ådne student Meland

supervisor

Erik Veitch

# CREATING A MORE SUSTAINABLE DESIGN METHOD FOR ROLLATORS: A Case Study

Currently, implementation of sustainability is still a challenge to many practitioners of design and a true understanding of a product's environmental impact often arrives too late in the development process. For the current market of rollators and wheelchair products, sustainable design practices are mostly approached from a usability and longevity perspective. Product support throughout its lifetime is often available for users too. However, the resulting carbon footprint of these products still leaves room for improvement and could be reduced through strategic design interventions. Sustainable strategic design is an important approach in merging sustainability with company business. Together with company Rollz International B.V. from the Netherlands, the development of their rollator products was investigated to identify how design can help them to become even more sustainable.

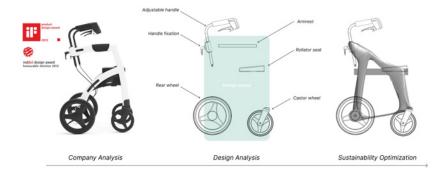
Important elements of this project were analyzing their internal design processes and methodologies, looking at the impact of their products to identifying solution areas and investigating market competitors and new possibilities with modern technologies. Once the current situation was mapped out, design solutions were prototyped to explore how maximal CO2 reduction can be achieved. The overall project output was a sustainability framework for future product development of Rollz.

rollz

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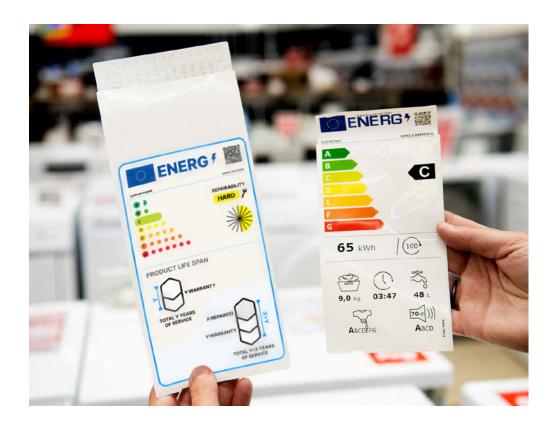
### EXPOSING PLANNED OBSOLESCENCE AND CHANGING CONSUMER BEHAVIOR:

An investigation into obsolescence in products and possible avenues

> Consumption and behavioral change involving the individual consumers are often presented as the ultimate answer to the question about how society can reduce consumption and reduce greenhouse gas emissions. It is an established notion that increased consumption is tied to an increased pollution, but also a reduction in available raw materials and resources, especially the nonrenewable. Two key factors are presented in this thesis: products and their characteristics that can influence consumers to keep products longer rather than replace them. Secondly, external forces that have facilitated planned obsolescence and failures in technical infrastructure of products, and to inform about these and current measures aimed at counteracting these.

> This thesis presents findings from the literature study where the key findings were categorizing not one, but several types of obsolescence (planned, incompatibility, indirect, style) and ways of addressing these either through postponing or resisting obsolescence, where a common denominator are maintenance acts.

> Not only did the discovery of an au courant theory bring shrouded concepts to the discussion, it helped me locate a design intervention, where the outcome was the development of a label similar to EU's energy label - with focus on repairability and product lifespan helping customers making informed purchases.



Daniel Fremming

supervisor

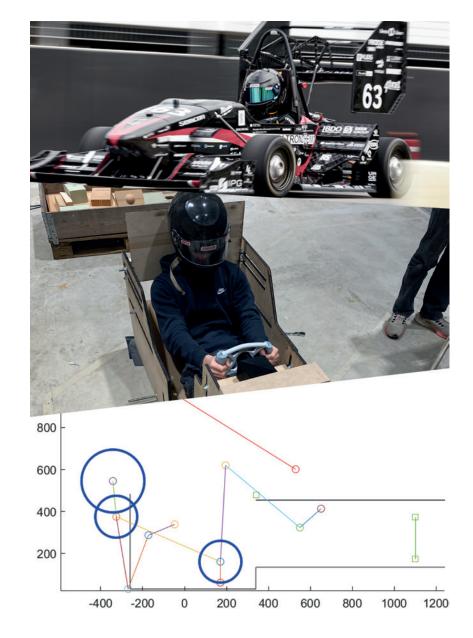
Trond Are Øritsland

# IMPLEMENTATION OF A DATA-DRIVEN COCKPIT DESIGN PROCESS IN A FORMULA STUDENT TEAM

The scope of this project was to through a double diamond process, research, define, develop and implement a process for the design of a Formula Student race car cockpit.

Each year new drivers are admitted into the team, but the design of the cockpit and ergonomics has started before their needs are known. To improve this disconnect between drivers and designers, a process that uses empirical data to generate suitable seating positions was investigated. Through physical testing in an adjustable jig, parameters for comfort were established. The results were then implemented in a genetic algorithm.

When run, the script iterates through many seating configurations, evaluating against the known angles from the physical testing, but also the technical performance targets. This results in a proposed seating position that is comfortable to the driver, has the racing physics considered and is quick to test in the adjustable jig if desired.



#### INFINITE PLAY:

Designing Physical Play Features for Diverse LEGO Experiences with Children

> A global survey by LEGO reveals a conspicuous imbalance; 76% of parents encourage their sons to play with LEGO, while only 24% do the same for their daughters (Treisman, 2021). This master's thesis explores the impact of gender roles and stereotypes on children's play experiences with LEGO toys, focusing on children aged 6 to 12. Through qualitative research methods including literature reviews, content analysis, interviews with educators, focus groups, participant observations, and market research, the study looks at how societal expectations and marketing strategies shape children's toy preferences and perceptions of gender.

> The research highlights gaps between genders in various arenas, revealing how societal expectations influence children's choices and opportunities. Insights from interviews with primary school teachers and observations of children's play behaviors underscore the need to challenge traditional gender norms through innovative toy design.

Analyzing LEGO's marketing strategies, particularly with LEGO Friends, reveals persistent gender biases. By exploring alternatives like Mattel's gender-neutral dolls and LEGO DREAMZzz, the study suggests ways to create more inclusive sets.

Drawing from gender schema theory and sociological perspectives on gender construction, the study concludes with practical recommendations for LEGO, exemplified by a veterinary set for LEGO City.



student

Sofie Krigsvoll supervisors

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#### LEGO HANDS-ON ADVENTURES:

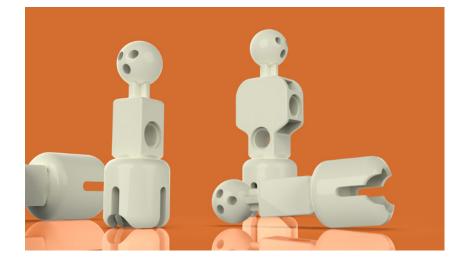
Boosting interaction and creativity for young builders

Lego is the pinnacle of creative play experiences, but how is it that they are able to constantly renew themselves according to the new markets and trends while maintaining the style and DNA that is well known across different generations? And what does it take as a designer to contribute to this constant evolution of create and play experiences?

I have explored how it is possible to take what has been so successful for Lego, while adding a new fresh feature, that could take the build and play experience to the next level.

This has been achieved through considerable insight work and an opportunistic and explorative approach as a designer. The fundamental goal has been to uncover potential areas in which to further develop and improve the experience and possibilities with the Lego brick.

The result is a new kind of brick that adds a function to the Lego technic system, while still fitting within the Lego universe and form language and can be seamlessly integrated with other existing parts. The brick allows for taking interactive play to the next level and make the kids a part of their own story and play experience.





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#### LEGO - ENHANCING PLAY EXPERIENCES:

Designing new play functionalities to simplify complex movement mechanisms for younger children

> It has been decades since LEGO turned into a favorite play tool for kids and adults alike. LEGO has consistently provided innovative tools to help people dive into the sea of explorations and improve their creativity. Often some of the exclusive functionalities required for enhanced play are only possible using the advanced sets.

Deriving insights from primary and secondary research showed that kids are always enthusiastic about building stuff that surprise others and gain confidence from these experiences and build stuff that they can be proud of. It was found that some of the functionality that younger children wanted to build was too complex for them to figure out and often required support from adults, this experience made them lose interest in the build or solely rely on the adults to complete the builds.

The project focuses on designing new mechanisms that simplify complex movements. The newly designed play function has been developed fully adhering to the LEGO system and play and can be used as a plug and play module across different sets to facilitate new movements and thereby making the play more fun for younger children and providing new areas to explore and apply creativity.



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# DESIGNING PRODUCTS THAT PASS THE EVERYDAY TEST

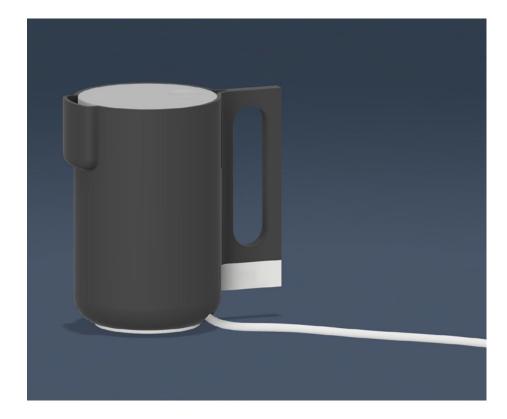
"Super Normal" is a design exhibition curated by Jasper Morrison and Naoto Fukasawa. It displayed 204 objects, trying to expose the secret behind well-designed everyday objects.

Among the products were three different ashtrays, but no electric kettle.

There is something cumbersome about most electric kettle designs. The necessary parts and functions often join together in an unsightly amalgamation of plastic moulded parts, a sheet metal body and switches with lights. My attempt relies on "finding a shape that can include all the necessary functions" rather than adding another shape for each additional function.

The main body and handle can be interpreted as one single sheet wrapped around a cylinder. The sheet meets flat against itself in the handle, where a cut-out is added – the simplest version of a handle. The on switch is also a part of this same geometry – separated only with one simple cut, given an accent color and an axis to move around.

The power cord is embraced as an equally important visual element. It swoops down at a 45 degree angle – to meet the table. The subtle articulation of the spout mirrors the rounding of the base.



student

Anders Myklebust supervisor

Ole Petter Wullum

#### DESIGN OF INTERCHANGEABLE CROCHET HOOK

Did you know that crocheting can have positive effects on the cognitive part of your brain? Crocheting can improve both your memory and attention abilities. The crochet hook is the most central tool in a crochet process. Through a design methodology with three main phases, this project addresses the development of a concept of an interchangeable crochet hook with an ergonomic handle and a user-friendly solution. The crochet hook is adapted for crochet hook sizes between 2 and 12 cm. The handle is made of silicone and designed with a physical stopper at the end and a tactile shape at the front for a comfortable grip and good friction. The attachment to the crochet hook is based on a bayonet fitting, combined with a screw at the bottom that locks vertically.

To attach and change the hook on the crochet hook, insert the extruded shape of the hook into the bayonet slot. Once at the bottom, you turn the hook 180 degrees and the hook snaps into place with the help of the resistance in the gasket. On the way round, the bayonet groove becomes narrower and narrower to brace the hook. To secure and stiffen the hook further, tighten the end-stop properly. To loosen the hook, do this procedure in reverse, pushing the hook down slightly and then turning it back, up and out.



### SORTE FÅR:

Value creation from worthless wool

Norway is a wool country. We are taught to dress in wool next to our skin, often in multiple layers, and we spend billions on yarn. Yet, approximately 80% of Norwegian wool is sorted out and exported out of the country. This project is a study of wool as a material, its history, and its possibilities, and an attempt to better utilize an important resource.

I have explored the properties of wool and its perceived materiality in relation to sound in the kindergarten setting. The result is a collection of soft blankets that can be attached together or used individually. The shape of the blankets utilizes unique wool production methods and is based on principles of sound absorption, open-ended play, and tactile experiences.



#### DESIGN OF A NEW NORWEGIAN WOOL PRODUCT

The primary goal of my project was to design an innovative product utilizing Norwegian wool, a resource forgotten about despite its historical significance and sustainable potential.

The challenge was to explore the potential of Norwegian wool and create a wool-based product designed for active use, where the product and user interact physically. Through the project, I investigated various properties of wool and considered multiple pathways for product development. The research involved mapping wool characteristics, conducting relevant insight work, selecting a product domain, and engaging in concept development. This was followed by a prototyping and designing phase.

The project resulted in the creation of a tablet cover made from Norwegian wool and wood. This product represents a mix of traditional materials and modern utility, embodying the goal of sustainable and innovative use of local resources. The tablet cover serves as a biodegradable practical accessory for people to use in their daily life. This thesis aims to showcase the potential of designing with a sustainable material in mind rather than mass production and profits. The project might represent a small step towards a wider use of Norwegian wool in products in the future.



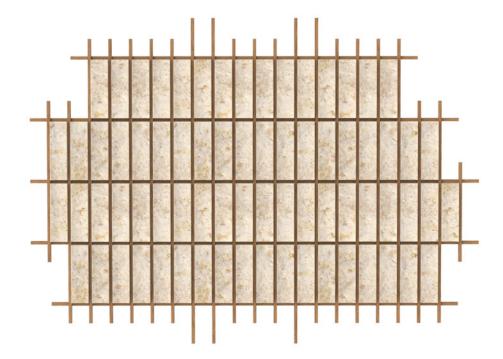


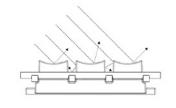
### DESIGN OF SOUND ABSORBING PANELS IN MUSHROOM MATERIALS:

Parametric optimization of topology and surfaces

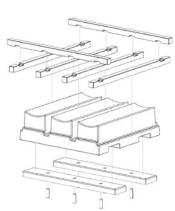
This thesis presents computationally optimized acoustic panels, designed to accommodate the material qualities of fungal materials. The project emphasizes the aesthetic continuity between tiles and their acoustic performance. The work includes an exploratory catalogue that evaluates a variety of tile designs. The diffusive performance of selected candidates has been simulated, and the data is compared in a computational catalogue.

The Ternary tiling concept exemplifies how mycelium materials can gain perceived quality by benefiting from a sense of rhythm and repetition, combined with the use of established cognitive associations with ceramic tiling. This system exclusively contains biodegradable components, maintaining the sustainable material qualities of mycelium. The design details are optimized either for acoustic performance or for ease of the growing and drying process during tile production.









#### **CLOTHES IN LIMBO:**

Designing a storage solution for clothes in use

What to do with garments that are neither completely clean nor dirty enough to wash? This is a common challenge that most of us can relate to daily. Often they end up on a chair (chairdrobe), on the floor (floordrobe), or end up in the laundry prematurely when tidying.

The project started with a thorough research phase investigating topics like people's relationship with laundry, clothing storage, body odour and the meaning of clean clothes in our society. I found that storing clothes is a complex system of rules, routines and categories, and that there are few existing products to help solve this problem.

In the second phase of the project I developed a clothes rack especially adapted for clothing in limbo. During the process I built numerous small-scale models, one full-scale prototype and the final model. The product is made from solid birch wood to ensure a high-quality product that can withstand use for a long time. The shape is mainly determined by function. User testing shows that the product is interesting and appealing, and can help reduce clutter and laundry by giving clothes in limbo a dedicated space adapted to user needs.

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student Ella Sofia Roll-Lund supervisor

Casper Boks

## MATERIAL EXPLORATION AND UTILIZATION OF NORWEGIAN BIRCH

"Laminate is the shape wood didn't know it wanted to have" - Frank Gehry.

This project is an exploration of the possibilities of Norwegian birch wood. Birch is strong and flexible, and easily recognizable by its light, fine grained texture. It is very suitable for bending and lamination, which allows it to be effectively utilized in forms that are liberated from the natural geometry of the tree.

This chair is designed to highlight these qualities. The lightweight, open structure is made possible by the strength and flexibility of the birch, and the relaxed, down-to-earth seating position puts the user in direct contact with the material. The frame is composed of six laminated profiles and two solid wood parts, tied together by the woven paper cord seat. The materials, the construction and the manufacturing techniques are all visible in the final form.



### PRACTICAL AND AESTHETIC EXPLORATION OF NORWEGIAN BIRCH

What do you think of when I say birch? Maybe the beautiful trees with their characteristic white and black trunks? Or Nordic design classics like Alvar Aalto's iconic birch furniture?

If so, you're not wrong. Birch has a high regard as ornamental trees, the wood is a sought-after material, and countries like Finland have been using it to make popular furniture for over a hundred years.

But in Norway, the reality is that 94% of the birch felled is simply used as firewood. Norwegian birch needs a marketing boost!

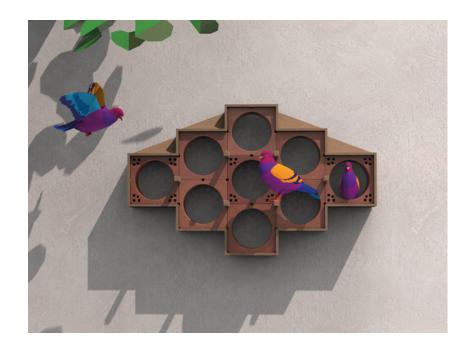
This project explores birch as a material for interior objects, showcasing some of its underutilized potential in both old and new ways. I approached my exploration of designing with birch from four different starting points, each with its own result:

- Good existing use of birch 01. A steam-bent stool inspired by Alvar Aalto's STOOL 60
- Today's use of Norwegian birch 02. Three small stools/tables made from Norwegian birch firewood
- 03. Unusual use of birch A Rummy set and a stove knob
- 04. Possible future use of birch A birch lounge chair with woven birch seat and backrest

# DESIGN FOR URBAN PIGEONS, FOCUSING ON FACILITATION AND COEXISTENCE

This project explores the use of design to improve the life quality of urban pigeons and better their coexistence with humans. Contrary to other measures directed at pigeons, the goal is to create a space for them to stay, and thereby reduce closeness to humans. It serves as a resting place that provides them with an overview during the day, and shelter during the night.

The concept consists of clay modules framed in wood. For the solution to be wanted and accepted by humans it focuses on aesthetics and simplicity. The number of modules can be optimised to the needs of each specific location, and the shape can be reorganised into different constellations. To be appealing to the pigeons, it's functional and focused on their preferences. The design is inspired by the dovecotes of ancient civilizations in the Middle-East, and the material is chosen based on the natural habitat of their predecessor, the rock dove. To be as versatile as possible, it can be hung on the facade of an existing building, bricked into a new building or mounted on a metal frame.





#### **HEALTHY SPACES:**

Well-being in children with long-term illness through sensory environments in hospitals

> «It was so unpleasant, it looked like a hospital!" How do we expect children to heal in an environment used as an insult when describing other spaces? How do we expect them to fight for their lives, if life itself is just white walls and beeping alarms? I have explored how environments affect children in the extreme situation of being long-term ill. In Norway we are lucky to have incredible healthcare, but better treatments and survival rates have also resulted in children spending long periods of time in hospitals. The effects these stays have on children, and how the hospital spaces contribute to their mental and physical well-being, has been my focus of research.

New hospital buildings are rarely built, and the journey from plan to finished product can span multiple decades. Healthcare budgets are tight, and typically prioritize medical treatment. I saw it as a design opportunity to explore what powers we have to change and manipulate existing hospital spaces, with much lower budgets and shorter time spans than renovation. By showing that we can create beautiful, healing spaces with a bit of creativity, I hope to encourage innovation in hospitals to help our children towards happier, healthier lives.

student Anine Hallén supervisor

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#### THE USE OF KEEP-WORTHINESS PRINCIPLES IN PRODUCT DESIGN

Keep-worthiness is a newly developed design principle. What it contains, as well as how designers can benefit from its use, is currently vaguely defined. The goal of keep-worthiness is to identify what makes products worthy of keeping in the eyes of the user. Factors crucial for our understanding of worth can be highly individual while others are actionable for designers, who want to create product longevity and reusability.

This thesis explores the literature on developing the keepworthiness concept, and related literature, in order to better define a taxonomy. Keep-worthiness principles are then tested in the analysis and ideation phases of a design process, to investigate their usefulness for designers. The goal is to present a method to apply keep-worthiness thinking into a design process.

I have identified four working principles: augmentation, material change, interaction, and symbolism. Applying these principles in a design process should increase the keep-worthiness of a product. An application of which is based on the core values of the product category and user group. To help with this application I propose a design tool matching the keep-worthiness principles with how we find products valuable.

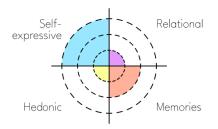
# 4 Principles of Keep-worthiness

# The things that make us want to keep our products

# **Augmentation**

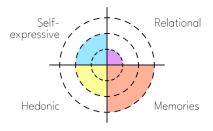
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Your refurbished sofa is treasured because it is unique, personalized to you, and reflects your identity.



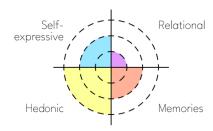
# Material change

Your old leather jacket is treasured because the scuffs and glossy patina triggers shared memories.



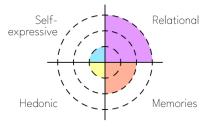
## Interaction

Your fishing pole is treasured because its feel and use are an enjoyable experience.



# **Symbolism**

Your wedding ring is treasured because it symbolises the relationship with your partner.



student Rein Helle Mårdalen

supervisor

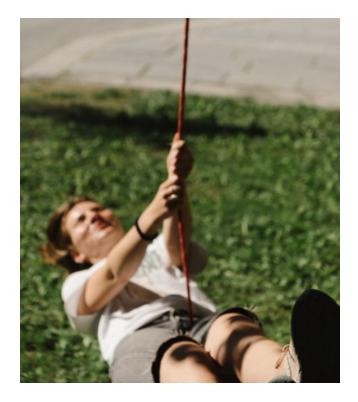
Trond Are Øritsland

## **EXPLORING CLOSE RELATIONSHIPS** THROUGH SHAPE

When we were kids

We handpainted strawberries on a swing Every moment was so precious Then I'm still kicking I'm daydreaming on a strawberry swing The entire Earth is fighting All the world is at its end Just in case an atom bomb Comes falling on my lawn I should say and you should hear I've loved I've loved the good times here I've loved our good times here

Say hello, then say farewell To the places you know We are all mortals, aren't we? Any moment this could go Cry, cry, cry, oh Even though that won't change a thing But you should know, you should hear That I have loved I have loved the good times here And I will miss our good times here





Madeleine student Kiær

supervisor

Ole Petter Wullum

INTERACTION DESIGN

# Interaction design shapes how technical systems impact people's lives, influencing our behavior and quality of life. We design interactions with products, websites, applications, and control rooms to create seamless user experiences. When we succeed, we provide people with the freedom to complete their tasks without technology getting in the way, while also empowering them to achieve new things more effectively.

Interaction design can also spark curiosity and engagement by incorporating elements from story telling and game design, making experiences more enjoyable and motivating.

Today, ethical considerations are a crucial part of designing digital products. It's not always about creating another app or website. Sometimes, we need to critically examine what people truly desire in their lives and ensure our designs enhance their well-being without causing unintended harm.

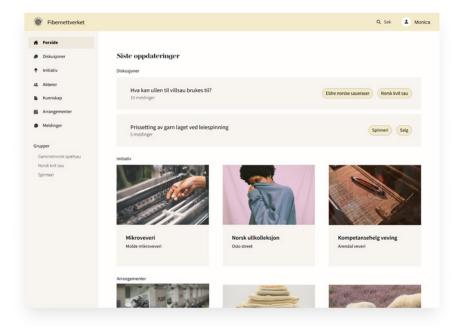
# COLLABORATION AND COMPETENCE EXCHANGE IN THE WOOL INDUSTRY:

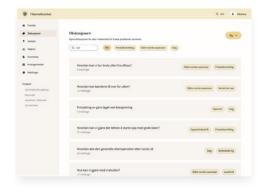
A digital internal network for the small-scale producers using wool.

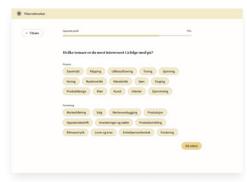
In Norway many textile producers have moved their production out of the country because of the high costs of production. This thesis examines the value chain of wool-production in Norway with a system-oriented design approach.

In interviews with the producers, they say low profit is a common challenge and that it is a niche market. There is a need for new types of products and for the actors to reach a wider market. This thesis investigates how to strengthen the existing actors, help new actors and create a network where they can collaborate more closely.

The final concept is a digital portal for an internal network. Nordenfjeldske Fibershed is a grassroots organization for the textile industry. They were involved in the process and were used as a case for the concept. The digital network facilitates discussions to solve common issues, the support of new initiatives, knowledge, and groups to communicate. Two iterations of user testing were conducted to validate the content and the user interface. This portal will reduce the barriers of collaboration and competence exchange for the small-scale producers.







#### SUNN UTØVER:

Innovative E-Learning Platform for Prevention of REDs among Athletes

This master's thesis introduces "Sunn Utøver", an innovative digital tool designed to proactively educate athletes and coaches about Relative Energy Deficiency in Sports (REDs) – a syndrome stemming from insufficient energy intake relative to energy expenditure, leading to serious health consequences like hormonal imbalance, impaired bone health and diminished cognitive and physical performance. Traditionally, preventive measures of REDs have focused on symptom management, primarily among elite female athletes, a reactive approach neglecting the broader athlete population.

"Sunn Utøver" seeks to fill this gap in existing education for the young athletes by providing accessible, educational learning tailored to all competitive levels and genders, emphasizing early detection and preventive strategies. Utilizing a human-centered design methodology, the project involved iterative development through semi-structured interviews, user testing and co-creation with young athletes, sports experts and coaches. The tool integrates behavioral change techniques, fostering ongoing learning and proactive health management.

Evaluation through the User Experience Questionnaire (UEQ) and the System Usability Scale (SUS), resulting in a score of 83, confirms the tool's effectiveness and highlights its potential for enhancing awareness and healthy behaviors in the sports community. By shifting from a reactive to a proactive approach in REDs prevention, "Sunn Utøver" represents a significant advancement in supporting athletes' health and performance sustainability.





## DESIGN OF A DIGITAL CONCEPT PROPOSAL THAT ENHANCES SAFETY DURING TRAVELS BY PUBLIC TRANSPORT FOR PEOPLE WITH DISABILITIES

According to Statistics Norway, 1 in 8 Norwegians are disabled. The disabled are a complex and heterogeneous group and consist of people with physical, cognitive, and social difficulties. Studies show that about 1 in 3 of those with disabilities struggle to travel by public transport. In this context, the Government has described that "measures that contribute to coherent, universally designed travel chains that many people benefit from are given priority".

Entur is a government-owned transportation company whose purpose is to bring together the entire country's public transport services into one service. As part of Entur's social responsibility, their goal is that it should be safe and easy for everyone in Norway to travel by public transport, including those with disabilities.

This master's thesis explores how to make traveling by public transport easier for people with different kinds of disabilities through a digital tool in the Entur app, with a focus on universal design.

We have conducted a collaborative and analytical design process where we have developed our proposed concept, "Stegvis navigasjon". This digital tool will act as a hand to hold onto when traveling by public transport and thereby increase the perceived accessibility of public transport for those with disabilities.







#### AN EXPLORATORY ASSIGNMENT ON DIGITAL STORAGE

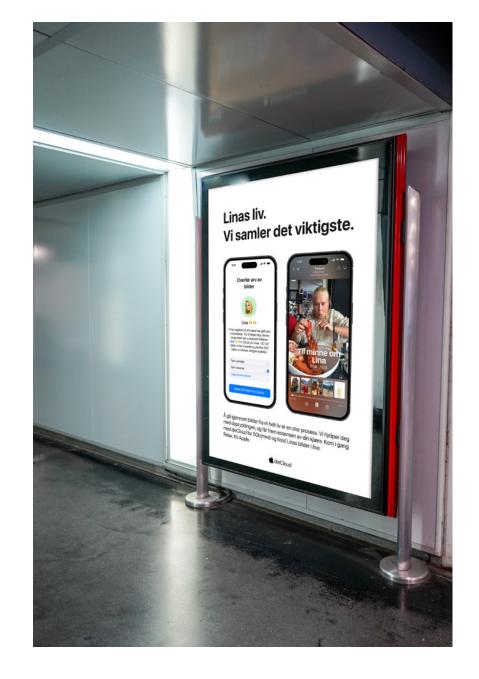
Who decides what gets remembered?

Every second, 61.400 photos are taken, with over 90% captured on smartphones

This master's thesis explores Gen Z's relationship with personal digital photos. Our digital photo collections are growing uncontrollably, making them difficult to manage and keep track of. Gen Z has become accustomed to the seductive image of the cloud as an infinite storage space, avoiding the need to decide what to keep and what to discard. As a result, they have not developed archiving routines like previous generations have. Consequently, Gen Z does not know what to preserve or how to store it in a meaningful way.

We are increasingly surrendering control of our photos to algorithms and seamless services provided by major technology companies. Are we heading towards a reality where we become more dependent on the help of technology companies to manage our photos and memories, and what will that world look like?

I aim to help Gen Z reflect on the responsibility they want to have over their digital photographs in order to maintain control over their personal memories in the future.



#### **DESIGN ON AUTOPILOT:**

The collaboration Between AI and Design

Since the launch of ChatGPT in November 2022, the use of AI has become significantly more widespread in society. In this master's thesis, we aimed to examine how AI is used in design, with a focus on user-centered design. This thesis is a combination of a research project and a traditional design process. Through this thesis, we worked towards the following research question: "What are the possibilities for the use of AI in design?"

Research was conducted on various aspects related to AI and design. This involved mapping out AI's role in society, how AI is currently used in design, the current practices and workflows of designers, and their attitudes towards the use of AI in design.

To further explore the capabilities and possibilities of AI in design, we conducted a design sprint where we used as much AI as possible. Al performed tasks ranging from conducting interviews, analyzing insights, generating ideas, prototyping, and user testing.

Based on the research and the case study, we developed the solution desAIn: a methodology handbook aimed at designers who wish to integrate AI into their design process. The methodology handbook presents six new Al-powered design methods that leverage the strengths of Al.

Metodehefte des for Al i design Designere vs Al

students Mathias Østvold Ek Magnus Paulsen

supervisors

André Liem

June Kyong Trondsen

#### CONTROL OF AUTONOMOUS SHIPS:

Designing a System and Modular Operator Station for the Monitoring and Control of Autonomous Ships

> In recent years, autonomous ships have transitioned from concept to reality through the integration of sensory input and artificial intelligence. As there is still a need for remote human interference, in terms of monitoring and complex navigation, shore control centres (SCCs) will be an important part of future maritime navigation.

This product allows the SCC navigators to monitor and control a fleet of vessels as part of a team. The navigators operate from inside a versatile simulator, able to control any vessel due to its modular design, while also accommodating routine tasks between navigation assignments. The enclosed spherical design of the simulator offers navigators the privacy they need to concentrate, while the integration of sensory technology ensures that they maintain the necessary situational awareness needed when navigating.

The simulator serves as the foundation of a system guaranteeing safe and orderly navigation. It incorporates a wearable alarm keeping the navigator informed about the status of the fleet at all times, a digital surveillance platform providing real-time fleet information and a VR navigation universe used in combination with physical controllers when a ship has need for human intervention in terms of navigation.

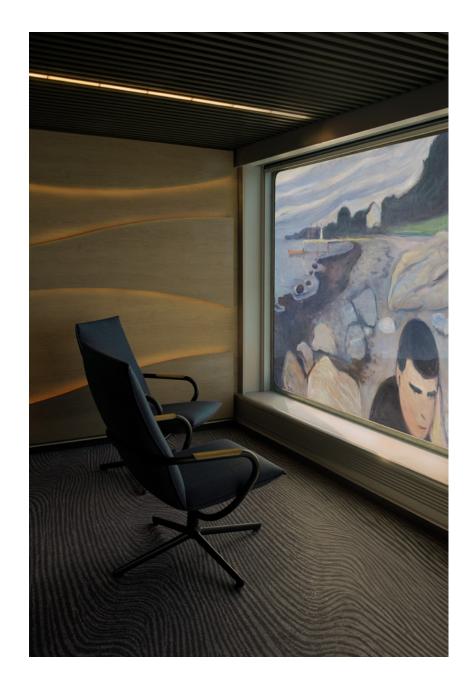


# EXPLORING COASTAL NORWAY: An Interactive Approach to Enhance Educational

Tourism on Cruises

The growing appeal of Norwegian cruise tourism, especially with Bodø appointed as the European Capital of Culture for 2024, offers a chance to enhance the passenger experience. In 2023, the number of tourists peaked, with 5.5 million passengers visiting Norwegian ports (Forbes, 2023). Cruise tourism plays a vital role in both national and municipal economies. The Shore Control Lab (SCL) at NTNU Nyhavna aims to improve maritime user experiences with human-centred design. A researcher from the SCL on a cruise along the Norwegian coast noticed a lack of information about the coastal views. This led to a service and experience design project to investigate the passengers' needs to provide educational opportunities.

Passengers' primary motivation for Norwegian cruises is to experience the coastal nature. However, during winter, the limited daylight hours obstruct the view of the coast, turning the large windows into valueless reflective surfaces. To address this issue, I created an installation utilising projectors to display nature and culture related content on the windows during dark hours, providing passengers with experiences they would otherwise miss. This approach not only enhances the passenger experience but also offers educational opportunities.



SERVICE

DESIGN

# Services are always around us, and we rely on them daily for everything from transportation, education, health, banking, entertainment, communication, housing, tourism, and public safety. Servicescapes are typically composed of both tangible and intangible components that collectively generate value – visible, concrete, social, and perishable elements. This year's master's theses reflect the growing importance of service design across different themes, sectors, and overall scope.

Service design at the Department of Design involves generating knowledge and hands-on experience with best practices for designing attractive services within and between the private, public, and third sectors. Of key importance is achieving a shared understanding of target groups, opportunities, challenges, service offerings, and relevant touchpoints through conducting insight work, co-creation, prototyping, testing proposals, and visual dissemination.

The following projects are important contributions, each in their own way, to fulfilling ID's vision of 'Design for a better world'.

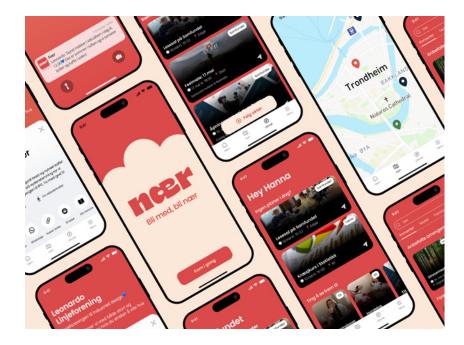
# IMPROVING STUDENTS' WELL-BEING THROUGH SERVICE DESIGN AND CO-CREATION

Since 2010, there has been a significant rise in reported mental health issues among students, with 42% experiencing such problems in 2022 and 35% of these being severe. This trend poses a serious societal problem as student well-being impacts not only individuals but also the future workforce and societal development.

To tackle this wicked problem, the research adopts an exploratory and iterative approach, leveraging insights from various stakeholders, including students and professionals involved in student welfare. Given the complexity and multifaceted nature of this issue, it is crucial to involve various stakeholders to co-create effective solutions.

Our master's thesis addresses this challenge and aims to enhance students' sense of belonging by facilitating easier participation in student activities and promoting a culture of openness around life's many challenges.

The thesis proposes the establishment of a new entity Nær, dedicated to enhance belonging amongst students. Two key concepts of Nær include a mobile application to streamline participation in student activities and a newspaper column to promote openness about student life challenges. This holistic approach aims to create a supportive environment that addresses the wicked problem of student mental health and fosters a stronger sense of community among students.





students

Hanna Moe Amanda Limstrand

supervisor

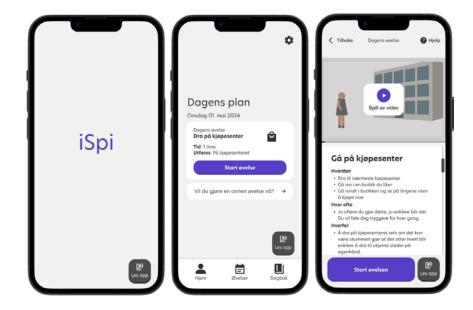
Brita Fladvad Nielsen

# DIGITAL SELF-MANAGEMENT SERVICE AS A SUPPLEMENT FOR SOCIAL ANXIETY TREATMENT FOR PEOPLE WITH INTELLECTUAL DISABILITY

For people with intellectual disabilities, access to everyday technologies is often a challenge due to a lack of adaptation. They are more exposed to mental disorders and should have the same right to access mental health services as others in the population. Currently, the Norwegian health services are focused on the general population but often do not consider people with intellectual disabilities.

The aim of this thesis is to create universally designed mental health services that encourage independence and self-management at home, to improve the adaptability and personalization of therapy provided by psychologists at the clinic. The solution is a digital service that acts as a supplement for social anxiety treatment for people with intellectual disabilities. Collaborative user-centered design research methods, interaction design principles, iterative expert testing/analysis, and universal design guidelines guide the solution development. The solution was tested with end users, municipal caregivers, and healthcare experts. Although initial results are positive, much needs to be done to make the solution userfriendly for end users and also validated by therapists for its use in clinics.

Dagens øvelse Forhåndsvisning 0 Gå på kjøpesenter



student Madelen Gamborg-Nielsen supervisor

Ashis Jalote Parmar

# PERSONA BASED FILM FOR EARLY IDENTIFICATION OF BINGE EATING DISORDER (BED) FOR **HEALTHCARE PROFESSIONALS**

The obesity epidemic is a growing issue globally. Obesity is a chronic condition, meaning it is long-lasting and recurrent. Despite not being recognized as a mental disorder, underlying mental health issues may contribute to and cause obesity. Binge Eating Disorder (BED) is an example of such a condition, where weight gain often results from overeating. Studies show that 30% of those seeking obesity treatment suffer from BED. Identifying BED is crucial before considering weight loss, as a focus on weight can aggravate the condition.

This master's thesis explores early identification services for BED to support healthcare professionals, where lack of knowledge related to BED has been found to be a leading factor in their underdiagnosis. Following thorough collaborative user centered design research methods and iterative expert testing, the outcome was an educational film which is based on research driven persona on BED for healthcare professionals and students. The aim of the film is to distribute knowledge and raise awareness among current and future healthcare professionals about Binge Eating Disorder. Initial pilot testing of the film in a lecture demonstrated increased knowledge and awareness among students in healthcare.



# DESIGNING B2B DIGITAL GROCERY SERVICES FOR ODA:

A Case Study on Norwegian Kindergartens

A typical Norwegian child eats around 3000 meals in kindergarten. This means 3000 occasions to socialize over a meal and to consume and learn about healthy food which can create a basis for permanent dietary changes for children.

Kindergartens play a pivotal role as a public health arena, providing a platform where authorities can reach nearly all Norwegian children, regardless of their socioeconomic status. However, the quality and quantity of meals served, even among neighbouring kindergartens, can vary significantly.

I have collaborated with Oda, one of the leading digital grocery stores in Norway, to explore how their B2B services can contribute to improved grocery ordering in kindergarten, hence leading to children eating quality, good and healthy meals.

This thesis investigates how high-quality digital tools can facilitate kindergartens for optimised grocery ordering despite competency, motivation, facilities, and budget differences. The collaborative design process considers multiple stakeholders' perspectives to meet their interests, needs, and limitations. The developed digital tools and strategy aim to empower good routines through the product "Recurring Carts" and the feature "Food Preferences".

oda

student lda Guldbrandsøy supervisor

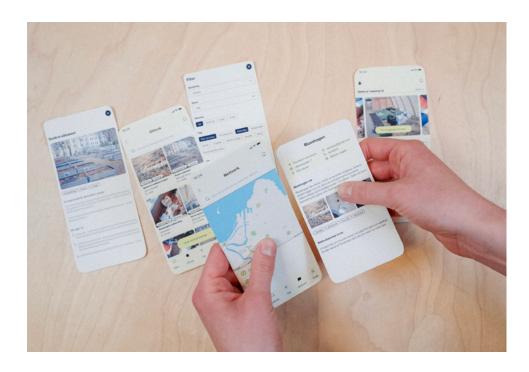
Ashis Jalote Parmar

A SYSTEMIC DESIGN APPROACH TO PROMOTE HEALTH AND SOCIAL CONNECTIONS IN PRIMARY SCHOOLS, EMPHASIZING THE INCLUSION OF CHILDREN, THE CULTURAL AND SOCIAL SIGNIFICANCE OF FOOD, AND SUSTAINABILITY

Children who are excluded from social arenas represent a significant societal challenge, with substantial costs for both the affected individuals and society. As a place where children spend many hours each day, the school has a unique position to help address this issue. The school represents one of the most important settings for children, and it is crucial that children feel included and experience mastery and a sense of well-being.

This thesis addresses inclusion of children within the school context and has identified practical learning in a school garden as an area with the potential to improve the current situation. A school garden is a space the school can use for growing vegetables, among other things, and allows for practical and interdisciplinary learning.

The thesis proposes the development of a digital platform to make it easier to integrate the school garden into the curriculum. The platform aims to create a culture for sharing educational resources related to the school garden to encourage teaching methods that motivate and engage students. The concept is demonstrated through a prototype of the platform "Reddik". On this platform, teachers can explore and share educational resources and build networks across schools.





student Dina Westby supervisors

Casper Trude J. Boks Arntsen

# A COMMUNICATION TOOL TO LIMIT YOUTH **EXCLUSION IN THE NORWEGIAN CELEBRATION** KNOWN AS "RUSSETIDEN"

In Norway today, we face a growing challenge with youth exclusion, especially among high school students. This issue is particularly difficult during adolescence, a time when discussing challenging topics is already hard. The graduation celebration period, known as "russetiden", often starts as early as middle school. However, many schools wait until the final year to address it, which can be too late given the earlier challenges like exclusion and pressure.

To change this, national collaboration and effort are required. Therefore, we have focused on the question "How can we make it easier for young people to start the dialogue about exclusion during russetiden?".

Through thorough research and ten user tests, we have developed the communication tool "hør her". Based on scenario building, this tool acts as a catalyst for conversations about challenging topics and promotes understanding among young people.

"hør her" contains realistic scenarios that young people may encounter during "russetiden". These are discussed using physical components and character cards. In collaboration with Ombudet for barn og unge i Akershus, Buskerud, and Østfold, we have tailored the concept to meet school needs, with plans to implement it in schools next fall.





students Roselin O´Hara

Oda Tillman Dawes

supervisors

Marikken Høiseth

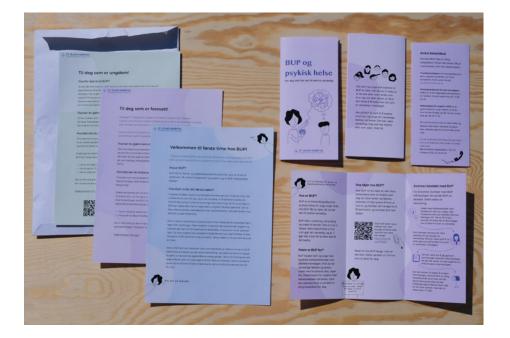
Trude J. Arntsen

## DESIGNING A USEFUL AND PREDICTABLE WAITING EXPERIENCE FOR PATIENTS AND FAMILIES IN BUP

At St. Olavs Hospital, the average waiting time for a first BUP appointment is 10 weeks. This time leads to stress, uncertainty and expectations not fulfilled among users.

Through the insight phase we conducted both desk research and interviewed stakeholders with different knowledge and perspectives. We found that many adolescents are unwilling to open up about their difficulties at the first appointment. Many parents do not involve their child during the waiting time, mostly because they do not know how to talk to their child about mental health issues. Both the adolescents wanting more information about BUP and the parents wanting help in preparing their child, lack good sources of information/tools.

Our product consists of a brochure, attachments to the acceptance letter from BUP and a conversation tool. The brochure provides general information about BUP and will be handed out by health services. The attachments provide more information so that both the adolescent and the parents are more prepared for the first appointment. The conversation tool is designed to help parents talk to their child about BUP and the difficulties the child is experiencing. This will help the child feel more prepared for the first appointment.



Byrkjeland Nilsen supervisor

Marikken Høiseth

#### PAIN POINTS IN MUNICIPAL HEALTH SERVICES:

Applying service design to create a conversation starter about issues in health services in Orkland municipality

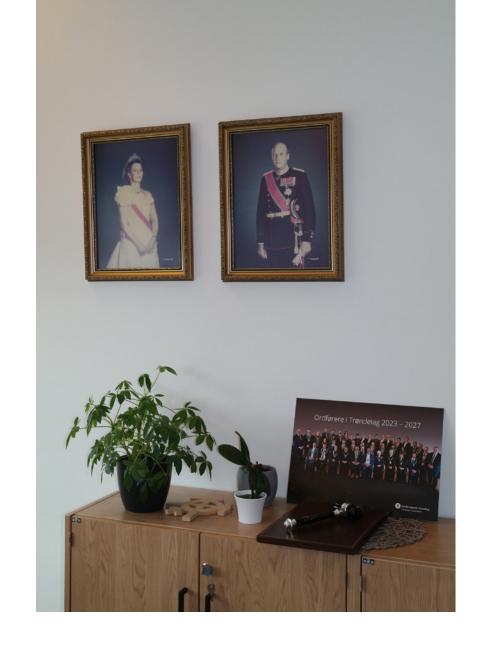
Orkland municipality was established in 2020 as a result of merging four municipalities in Trøndelag County. It bears the mark of being a proactive, innovative, and secure community for its inhabitants. However, like many other municipalities, Orkland is facing several health-related challenges, such as overcrowded nursing homes and shortage of healthcare workers. Additionally, the municipality is under significant pressure from both politicians and residents due to high expectations and rights.

What quality can be expected from services in public healthcare? How do you expect to be treated when in need of help from your municipality?

In our master's thesis, we collaborated with Orkland municipality to explore challenges faced by the municipal healthcare services. We engaged with a team of hardworking employees located in the allocation unit, who spend every working hour distributing resources and services to those in need. We also spoke to stakeholders such as nurses in nursing homes, representatives from the municipal administration, and County Governor of Trøndelag County Council. This led to the identification of 91 pain points that healthcare workers from Orkland experience.

By visualizing the identified challenges within a systematic framework, we explored how to communicate pain points to both leaders and employees in a manner that facilitates awareness and change. As a result, we developed a conversation starter in the shape of a map.

90



students Ida I

Ida Marie Mauseth Marija Håkonsen Milovanovic supervisor

Casper Boks

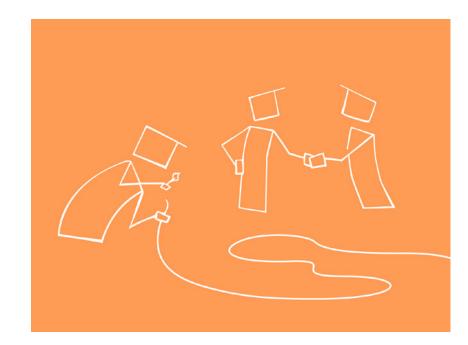
# THE OPTIMAL COLLABORATION: A Framework for Student-Industry Collaborations

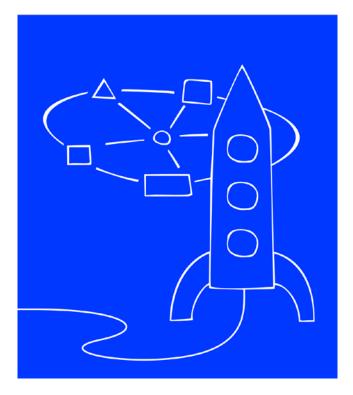
In an announcement from 2021, the Ministry of Education mandated all higher education institutions to review their educational offerings and integrate direct collaborations between students and industry partners in all appropriate study programmes. Consequently, universities have been striving to engage students and industry partners in internships, project assignments, and mentorship programs as part of teaching.

As one of Norway's leading universities, NTNU collaborates closely with several public and private companies and organisations. Many internal initiatives aim to cultivate more industry collaboration in the teaching context. Nevertheless, data from NTNU's candidate survey and NOKUT indicate that students are unsatisfied with the industry involvement and perceive their education as decreasingly relevant.

This thesis explores collaborative student-industry projects at NTNU, mapping the intertwined experiences, problems and needs of students, industry partners and supervisors. As a result, it suggests a holistic framework of tangible measures developed to address the complexity of challenges using an exploratory codesign approach.

The thesis builds on The Collaboration Journey (Samarbeidsreisen), a project established to find ways of facilitating lasting successful collaborations between NTNU and Trondheim Municipality.





student Juliane Bencsik supervisor

Trude J. Arntsen

### BRIDGING THE GAP BETWEEN INCELS AND **NORMIFS**

In contemporary society, a significant issue has emerged involving young men's sexual behaviour, influenced by perceptions of masculinity, mental health, and male sexuality. This project focuses on developing a product that bridges the gap between incels and normies (a term incels use to refer to non-incels), aiming to improve men's confidence in their sexuality and mental health, enhancing their ability to handle sexual and relational challenges.

Through literary research and an unconventional examination of subcultures, social media, and memes, it has been found that the most effective way to escape the incel lifestyle is to step away from online forums and computers and engage with the real world. Many respondents highlighted that socializing in person, joining community activities, volunteering, and seeking therapy were far more beneficial than any online service could be, and stressed the importance of forming genuine connections, building self-esteem through therapy, and developing social skills through regular, faceto-face interactions.

The app "Maxx", although being an online service, is designed to facilitate this transition, moving incels from their screens into reallife interactions. "Maxx" aims to shift the narrative from "how to get incels laid" to encouraging users to pursue personal growth and community involvement without ulterior motives, ultimately leading to healthier relationships and a brighter life.



#### **BETWEEN US:**

The Norwegian service system's encounter with people selling sexual services

> In collaboration with Nadheim Trondheim, one of the Church City Mission's initiatives, the project explores the system surrounding people who sell sexual services in Norway. Due to the Sex Buyer Law and the digitalisation of the prostitution market, prostitution has become less visible. This may have contributed to reduced stigmatisation of those selling sexual services. However, it may also have indirectly led to less attention and available knowledge, thereby reducing the willingness to fund projects related to prostitution.

Through a system-oriented approach supported by feminist and social design, we have mapped the current challenges and needs within the service system. We have also aimed to amplify the voices calling for systemic change that often go unheard. Together with people within the service system, we have designed a tool that communicates an identified need for coordination and collaboration. Its purpose is to stimulate discussion and promote a shared understanding.

There are many reasons why individuals may sell sexual services. This project does not intend to rescue people from prostitution or debate its morality, but to ensure that people selling sexual services have their rights met, just like everyone else. Whether on their own or with support from the service system.

Publiser rapport

students Emma Erikstad Rutherfurd

Vilde Aurora Halle Tvedten supervisor

Brita Fladvad Nielsen

#### FROM FEAR TO TRUST:

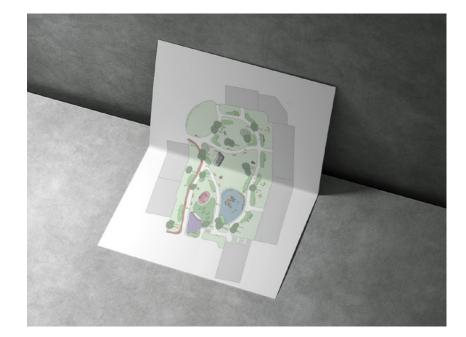
Perceived safety in neighborhoods

Do housing projects contribute to increased crime and feelings of insecurity? Are preventing crime and fear of crime the same? In the fall of 2023, Aftenposten published an article about a letter from the police to the city council leader in Oslo. In the letter, the police express concern that OBOS's housing project "Felt 16" in Mortensrud will lead to increased crime and further diminish the sense of safety among residents.

In our master's thesis, we, as designers, have delved into urban development, criminology, sociology, architecture, and landscape architecture to explore these questions and examine how Felt 16 can facilitate a sense of safety in Mortensrud.

The thesis offers a two-part solution: First, it presents a design strategy to address the social causes of perceived safety in neighborhoods, complemented by a toolkit for how urban developers can integrate the strategy into planning processes. Then, we provide a concrete proposal where we have applied the approach to design a planned green space in Felt 16.

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t Khai Sigve Nguyen Litleskare Dag Takuro Walseth Hara supervisor

Casper Boks

# CONFRONTING USERS WITH THEIR SUSTAINABLE CHOICES, WITH A TWIST

What are your excuses for avoiding sustainable action?

Through this project, users' excuses for avoiding sustainable choices in their everyday lives have been explored. The goal has been to find a way for the user to be confronted with typical excuses in an engaging way.

By looking at neural marketing principles and findings from Lindstrom's book Buyology, and micro-habits inspired by James Clear's book Atomic Habits, a simple influencing tool has been developed.

The project uses well-known quotes and sayings combined with typical sustainable excuses to motivate the user to make more sustainable choices in their daily lives. The concept is also inspired by Murphy's Law's satirical way of delivering a message. The result is a statement piece that aims to expose users to the product on a daily basis either at home, in the workplace, or in other public places. The result is dependent on exposure over time to achieve the maximum impact. The main focus of the result is the concept and the theme. The specific sentences are only example text to illustrate the product realistically.



#### STITCHING TRADITIONS:

A Service Design Approach to Youth Engagement in Traditional Crafts for Sustainable Fashion

The project explores how Norges Husflidslag (NH) can transfer their knowledge of crafts and traditions to the youth, and how acquiring such skills might contribute to a more sustainable clothing consumption.

The vast majority of NHs members are of older age, and NH is struggling to reach the youth. Only about 2% of their members are between 20 to 30 years of age. Craft skills that were previously common knowledge are now more rare. By learning such skills, young consumers can become more self sufficient, and be less dependent on the mass-produced mainstream.

I have created a service where students that want to learn a particular craft skill or technique, can get a fadder (mentor) from NH, that will physically meet and tutor them in that skill. This approach not only allows students to acquire their desired skills, such as crocheting, but also fosters intergenerational relationships and facilitates familiarity with the organization. The goal is that by learning how to make their own clothes students will realize the time and effort that goes into these processes, and recognize quality materials and craftsmanship. These abilities can help the students make more considered choices as consumers.



## SIMPLIFYING AVALANCHE RISK ASSESSMENT FOR **BACKCOUNTRY SKIERS**

Outdoor life is at the heart of Norwegian culture. Backcountry skiing has emerged as the hot new outdoor activity by blending adrenaline, breathtaking scenery, and quality time with friends and family. However, underneath mesmerizing powder tracks lurks the inherent danger of avalanches. In the last 15 years, 689 skiers have been caught in avalanches in Norway, resulting in 72 fatalities.

Careful planning, choosing the appropriate terrain, and taking safety precautions can reduce the risk of getting caught in an avalanche. However, the tools and information needed to make good decisions are scattered and complicated, making risk assessment difficult, especially for beginners.

I have investigated the challenges that skiers face with the complexity of avalanche safety and explored how new services can make safety more accessible, enjoyable, and learnable.

By assessing perspectives from many skill levels, the project aims to cater to a wide range of interests, needs, and limitations among skiers. I have explored how to design tools and information to be helpful regardless of expertise. The resulting digital service aims to enable skiers to make better risk assessments about tour planning, terrain choice, and safety precautions.



Amal Koshy Abey • Amanda Limstrand • Anders Myklebust • Anine Hallén • Birk Manum Bjerkan • Birk Martinius Paulsen • Boudewijn Reiziger • Celine Borge Byrkjeland • Celine Hogstad Nilsen • Dag Takuro Walseth Hara • Daniel Fremming • Dina Westby • Einar Rosenhaug Bjørset • Ella Sofia Roll-Lund • Emma Erikstad Rutherfurd • Emma Siberg Nakken • Ferdinand Steen-Johnsen • Hanna Moe • Hedda Ottman • Ida Guldbrandsøy • Ida Marie Mauseth • Ingvild Therkelsen • Janne Fagerli Isaksen • Jenny Leth Skjetne • Jonas Klev Selvikvåg • Juliane Bencsik • Khai Sigve Nguyen Litleskare • Kristina Eraker Ødegaard • Linea Madeleine Breivik • Liv Therese Meberg Schjetlein • Madeleine Kiær • Madelen Gamborg-Nielsen • Magnus Paulsen • Magnus Tuftedal Pettersen • Maja Eugenie Meland • Mari Blaasvær • Marija Håkonsen Milovanovic • Markus Smalø • Mathias Østvold Ek • Oda Tillman • Rebecca Jahns • Rein Helle Mårdalen • Roselin O'Hara Dawes • Sebastian Oliver Dahl • Simen Tufte • Sofie Krigsvoll • Synnøve Antonsen Torp • Thomas Sneis Vidhammer • Tobias Hilmersen • Tuva Strøm Kongshavn • Vetle Hoel Haadem • Vilde Aurora Halle Tvedten • Vårild Heirunn Imbjørg Engmark Øyulvstad • Ådne Meland