Portfolio.

Fredrik Hyltén-Cavallius

About me:

Name: Fredrik Hyltén-Cavallius

Date of birth: July 23 1981

Address: Öregrundsgatan 10
115 59 Stockholm
Sweden

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E-mail: fredrik@cavalliusdesign.se
Website: www.cavalliusdesign.se

Knowledge:

Software: SolidWorks 2009
3D Studio Max 2011 (Mental Ray, VRay, etc.)
Rhinoceros 4.0
Hypershot
Adobe CS4 Suite

Languages: Swedish (native)
English (fluent)
Danish (good)
French (conversational level)
German (conversational level)

Awards and some exhibitions:

Pre-selected for the Well-Tech Award 2010 for Taiyou.
IF Concept Award - 2008 Honorable Recognition for the NIM-bicycle

Milan furniture fair - at WellTech Innovation Technology Prize 2010
Copenhagen Design Week, "Code 09" 2009
Form Design Center Malmö summer 2008
Stockhom furniture fair 2008
Milan furniture fair - at That's design - "Supermarket" 2007
Milan furniture fair - at CP Comany & Stone Island - "HomeWhere" 2005

Work and academic merits:

2009 Master degree in industrial design, Lund University, Sweden

2008 Internship during six months at GRO-design studio in Eindhoven, Holland (www.grodesign.nl) Working with projects for Microsoft, Nokia, Panasonic.

2007 Started at the Master programme in Industrial design at Ingvar Kamprad Design Centrum (IKDC) Lund University, Sweden

2007 Bachelor degree Industrial Design Programme at IKDC, Lund, Sweden

2006 One exchange semester in Austria at FH-Joanneum Graz.The main project, Taiyou, was published in Auto & Design nr 165 - 2007

2005 Started my own business with focus on visualization and graphic design. Gave basic courses in Adobe Photoshop and Illustrator. I earned my living by running my business during all of 2005.

2004-2005 Worked as an assisting tour guide for University of California during two summer course excursions in Brussels, Belgium.

2003 Started at Industrial Design Programme, IKDC, Lund, Sweden

2002 Studied French in Pau, France for six months. Graduated with a "Certificat Pratique de Langue Française"

2001 Internship two semesters at Industrial Design consultancy firm Zenit Design Group in Malmö, Sweden (www.zenitdesign.se)

1998-2000 Upper Secondary School, Natural Science Biology Programme at Spyken Lund, graduated with a transcript average of 19.8 of a possible 20

1997 Started to work as part time assistant for photographer Staffan Widstrand, Stockholm (www.staffanwidstrand.se) and still does. We have made reportage trips in Sweden, Finland and Brazil.

Please contact me for up to date contact details to employers or other references!

Project 1.

A modern apartment + A fire = Piet

◂ Soon extinct?
Today fewer and fewer have
a closer relation to fire

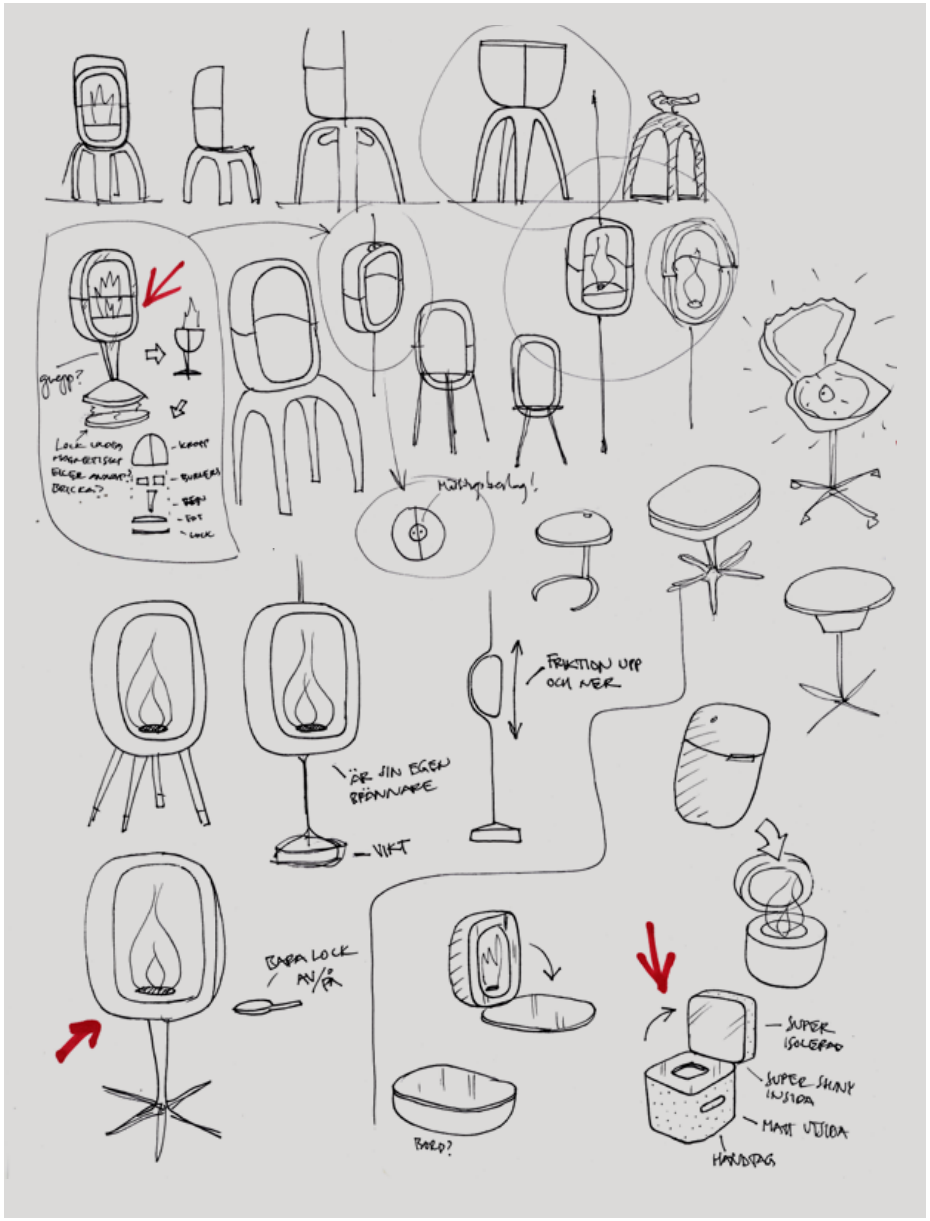
Piet is my master thesis project, completed in 2009. I started this project by giving myself the theme fire. I found that even if we were very dependant upon fire just a few generations ago, it has become a scarce commodity in our modern homes. Could I create a product that brought fire back into our apartments?

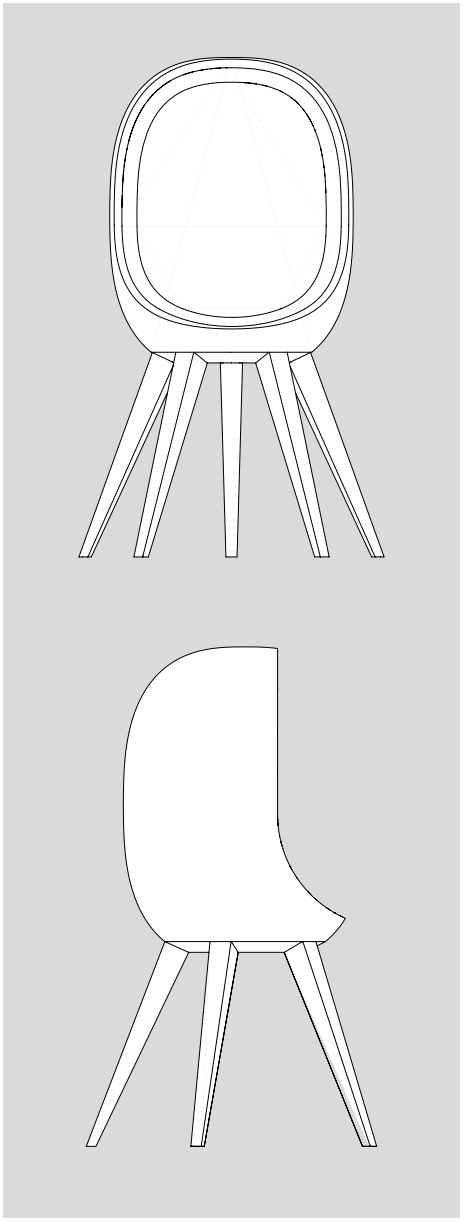
I found the ethanol burner technology to be a good solution since it doesn't give any smoke or soot and therefore it doesn't need a chimney. But the chimneyless stoves sold today are either retro copy fireplaces or very minimalistic steel and glass products. I wanted to do something else.

When studying old fire related products I found the wall mounted candle holders with brass reflectors. I did a little test with a lighter and a spoon to see the effect. With a concave reflector the visual impact of the flame was substantially enhanced. Still the same amount of fuel was used!

A concave reflector improves the visual impression without increasing the amount of fuel used ▸

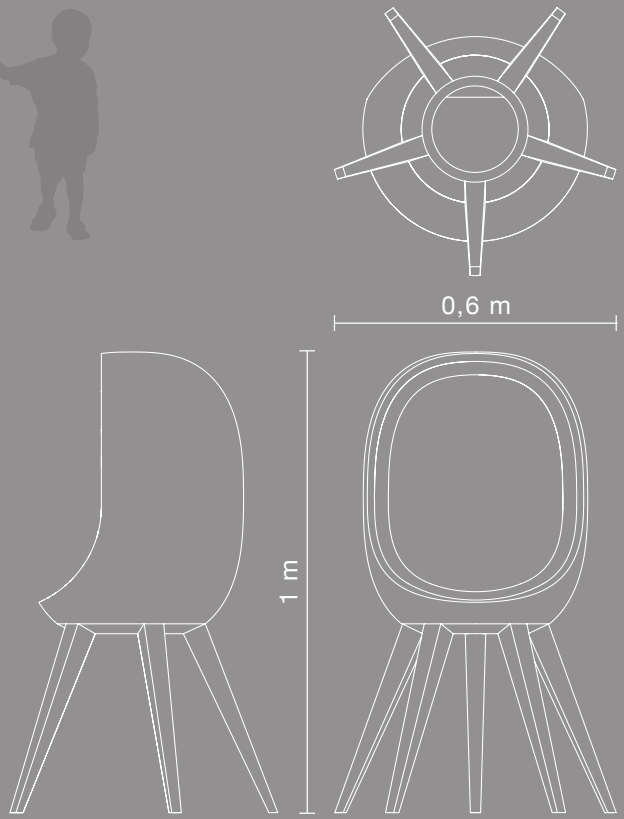
The reflector mockup in aluminum foil



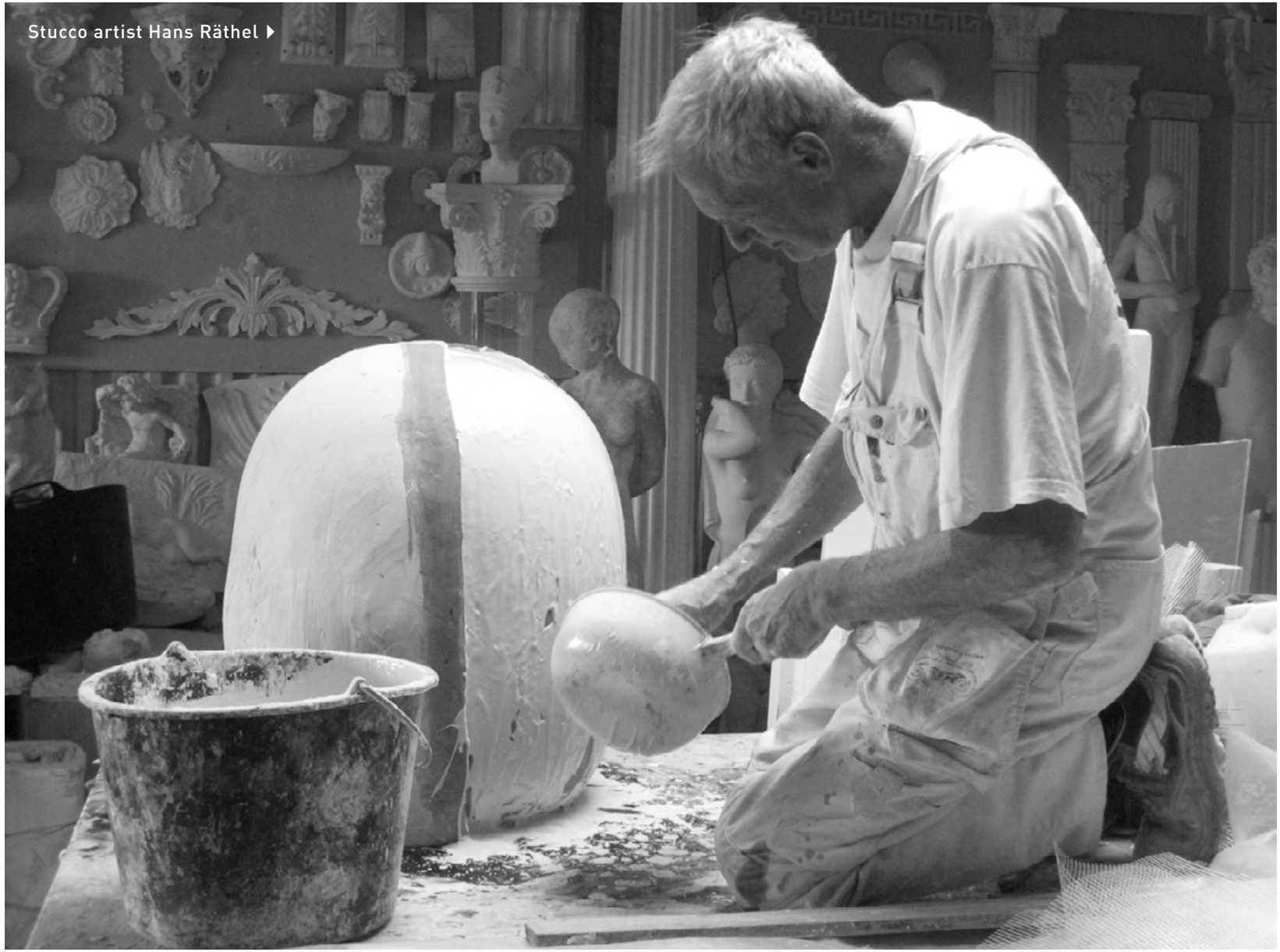


I later did a full scale test in aluminum foil and found that the facets created by my simple model further enhanced the play of light. I decided to integrate facets in the final brass reflector as well. The reflector later proved to be the most charismatic part of my design, making it stand out from the crowd.

Modeled in SolidWorks - rendered in Hypershot



The final concept consists of a slipcasted, white ceramic hull, a faceted brass reflector and a layer of rockwool insulation between the two to keep the outside cool when the stove is lit. This also makes it easier to place Piet anywhere in a room since it's able to stand close to walls and other furniture. The burner is fitted into an insulated brass holder in the center of the wooden stand, made from massive elm.



Stucco artist Hans Räthel ▸

Since I wanted a fully functional prototype in real materials, a large part of my project time was spent finding and studying different production methods. The only part I couldn't make in the right material was the outer shell that was meant to be made from white ceramic. I got help from a stucco artist and together we made the shell in plaster, reinforced with fibreglass.

The final functional prototype ▸

Piet in action ▸

Project 2.

An easy bike + A new frame = NimBike

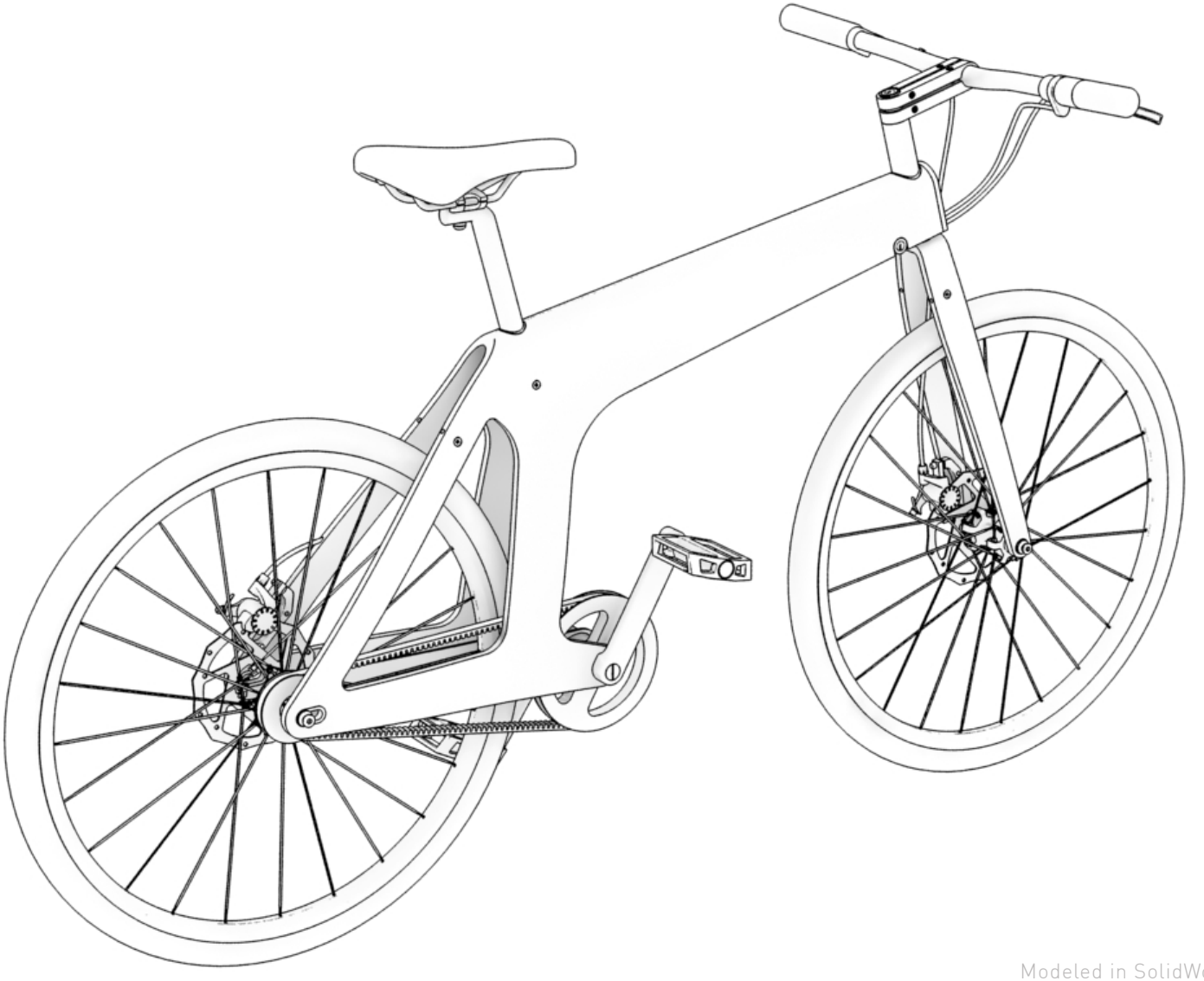
NimBike

is my master 3rd year bachelor project made together with Jacob von Matern. The city bike concept NIM has a frame made of a carbon fibre sandwich material with a foam core which makes it very light and strong. We tried to remove everything messy and complicated with a bike and concentrating on making fun to ride and easy to own. The frame is a heat shaped sandwich with Divinycell foam and prepreg carbon fibre twill. This can be cured inside a vaccuum bag and later water jet cut by robots to minimize the volume of resin needed. This also reduces the workers exposure to resin fumes.

concept award

2008


Full scale model in real materials
Foldable handlebars
One allen key for all adjustments
Fenders and parcel rack accessories
Integrated LED lights
Integrated locking wire
Belt drive system for less greasiness
Gears in front hub for easy tireshift



Modeled in SolidWorks - rendered in 3D studio Max

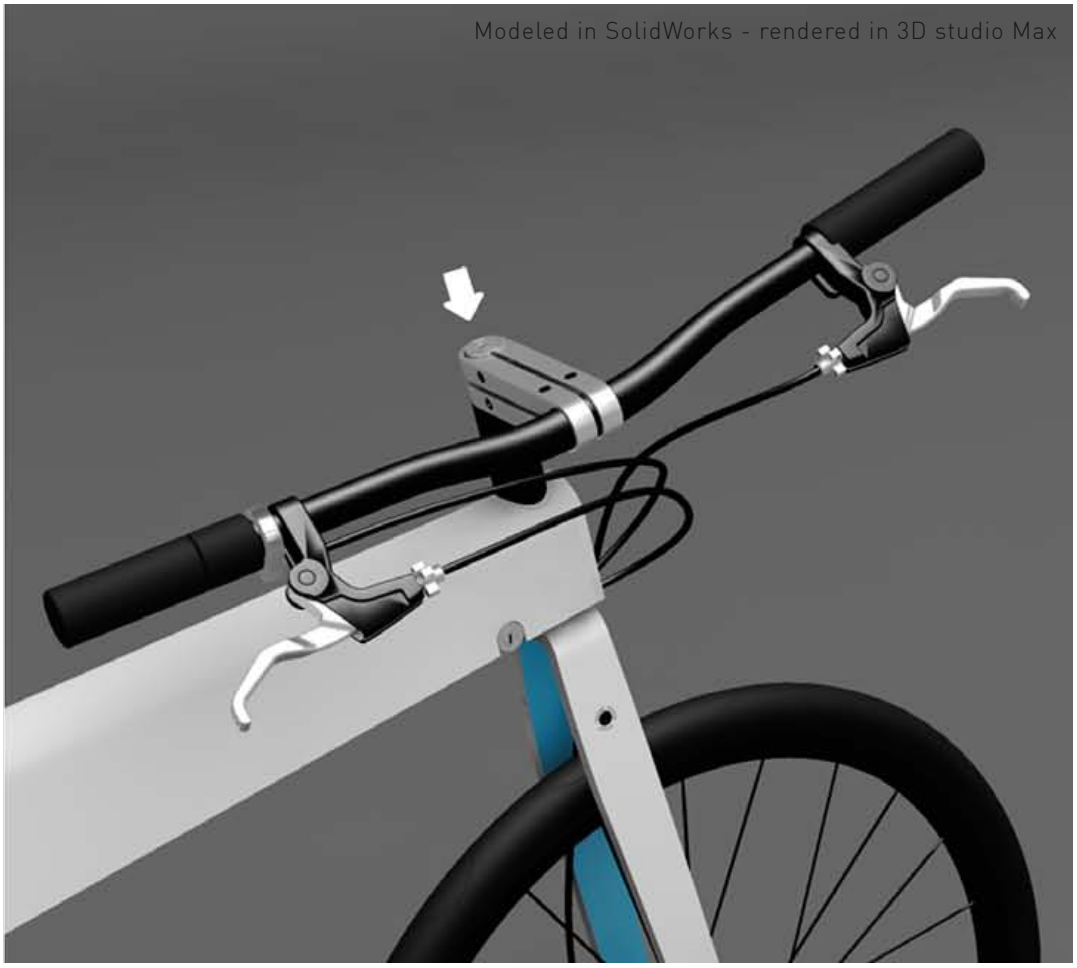
After the sketching phase we made a detailed CAD model, did some force calculations in SolidWorks, made the last changes and went down to the workshop and started on the full scale model.

Belt drive front hub

Turnable stem

Internal wire lock

Full scale model



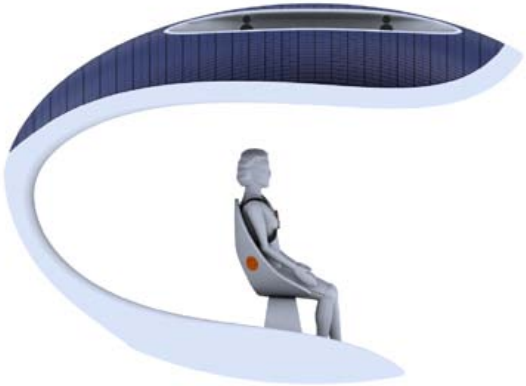
Did you ever have problems fitting your bicycle between other bikes in a parking stand? Or maybe tried to fit the bicycle in the back of your car or hallway? By unlocking a cyclinder in the stem of NIM you temporarily remove the connection between the fork and the handlebars. Then turn the handlebars and relock the cyclinder in place, done!

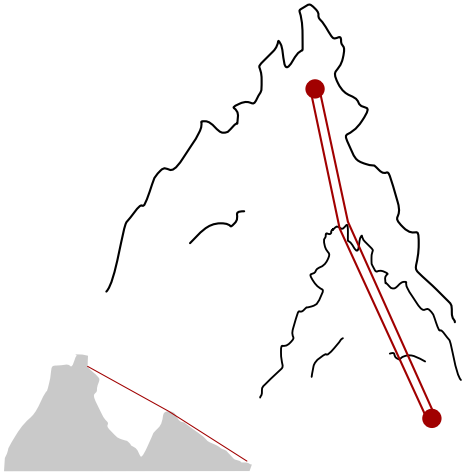
Project 3.

Sunlit mountains + No snow = Taiyou

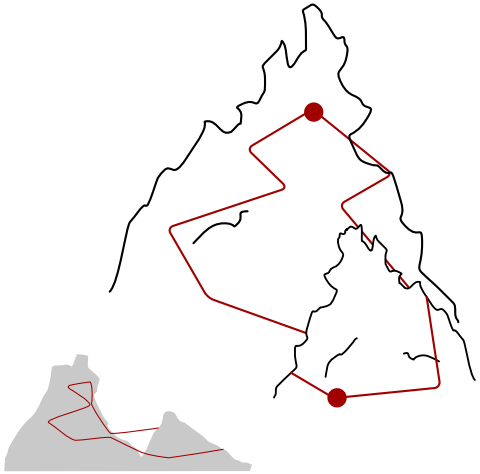
Taiyou was the result of a third year course at FH Joanneum in Graz, Austria. The task was to make infrastructure solutions for future mountain areas, when snow may become more scarce. The Taiyou lift system is a sightseeing system for any mountainous area with lots of sun. Taiyou drives on the wires, powered by solar panels on the roof. The two wire system gives better wind stability during the ride and lets you increase the spans between the towers.

Modeled in Alias and SolidWorks - rendered in 3D studio Max



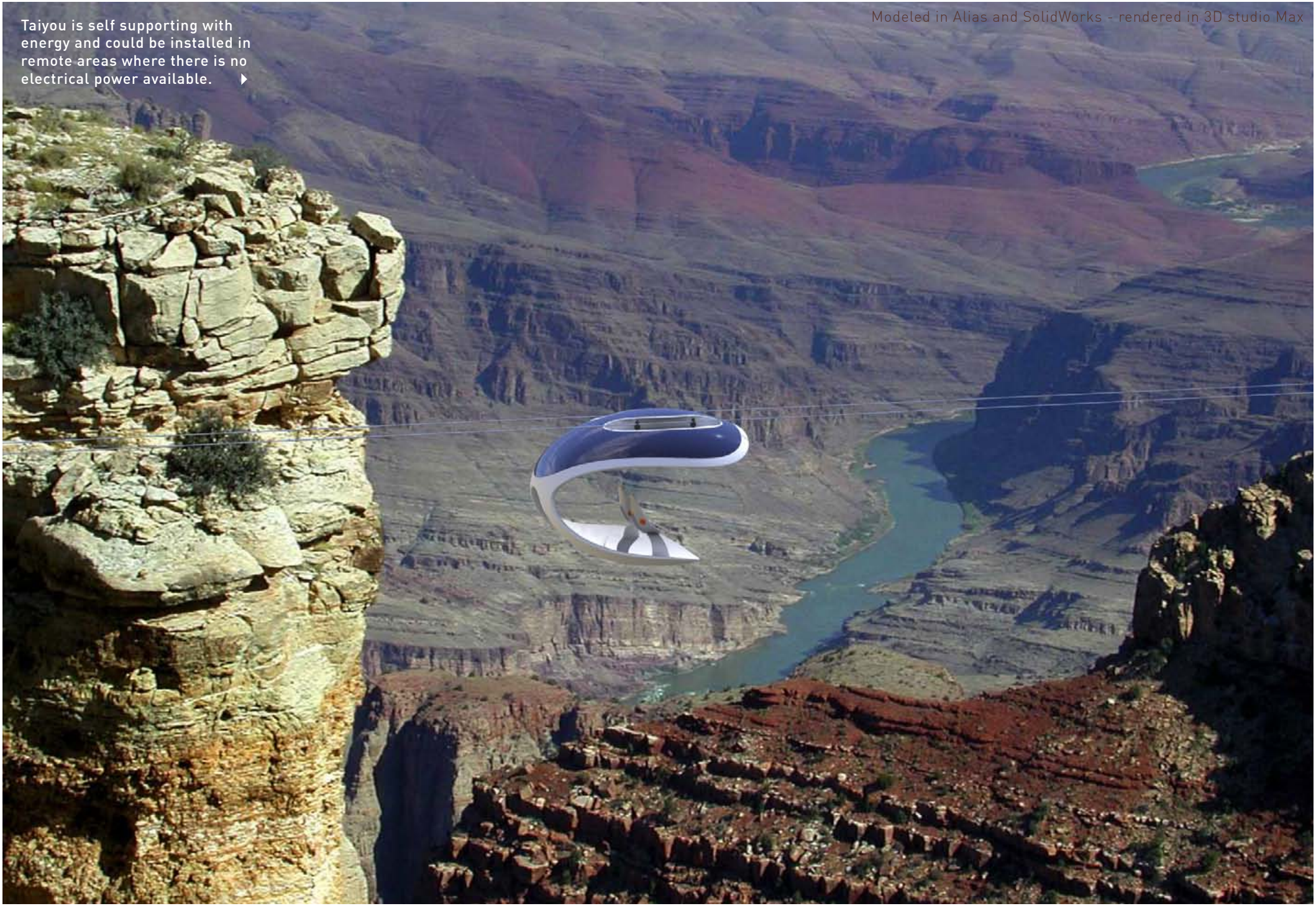


Normal lift route



Taiyou

Taiyou is all about the ride, you don't even have to get off at the top if you don't want to. Unlike a normal lift Taiyou will take a different route on its way back. Inside the roof there is enough lithium batteries to complete a full ride if the sun is suddenly covered. The floor underneath the chairs can slide back and forth to compensate for the the tilt when Taiyou is climbing or descending.

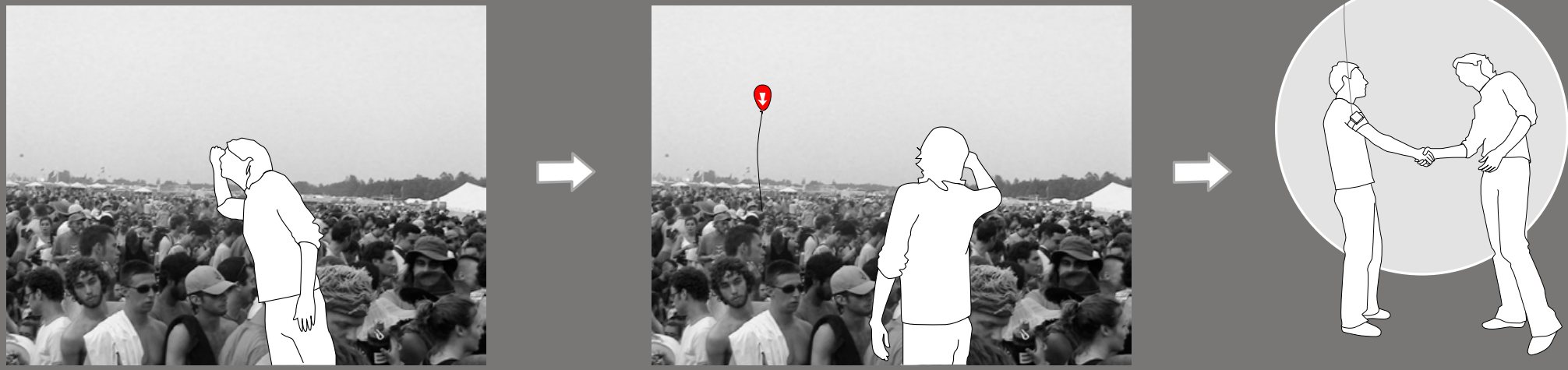


Taiyou is self supporting with energy and could be installed in remote areas where there is no electrical power available.

Modeled in Alias and SolidWorks - rendered in 3D studio Max

Project 4.

Two friends + A festival = Balloon Bouy



Balloon Bouy

The task for this second year workshop was to create innovative solutions for problems that arise when you are in transit. We looked at a scenario where you are at a festival where the cellphone network is contstantly overloaded and you are late for the meeting spot. Just pull the handle and the Balloon Bouy armband will release a helium balloon and your friend will not leave for the concert without you. The Balloon Bouy could also be a good help for children who suddenly lose their parents in crowd.

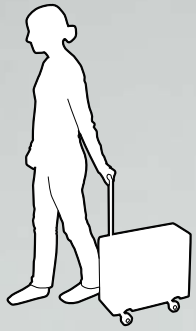
Full scale model

The result was exhibited at the Milan furniture fair 2005. The project was made in collaboration with CP Company and Stone Island. Made together with Oskar Daniel and Erik Egerup.

Project 5.

Airport floors + To much time = GateSkate

pull



sit

skate

Full scale skateable model

GateSkate

is a durable hardshell cabin bag with an extendable handle, a soft cushion on top and foldable skateboard wheels. Kill some time exploring those vast smooth floors, sit down and read or just race to the gate! When the handle is extracted the skateboard wheels fold out and you are good to go! GateSkate was part of the same travel workshop as Balloon Bouy and was also exhibited during the Milan fair 2005.

The lock for the top lid. Detail of the full scale model - exhibited at CP Company showroom during the Milan furniture fair 2005. GateSkate was made together with Oskar Daniel, Erik Egerup and Daniel Gunnarsson.

Project 6.

A mechanical brand + Today = A Camera Phone

Photoshop rendering

LEICA

This was a quick project to show some of my Photoshop and 3D renderings skills. I tried to imagine what a camera phone made by camera maker Leica would look like.


C
P
OFF
Leica
LEICA


C
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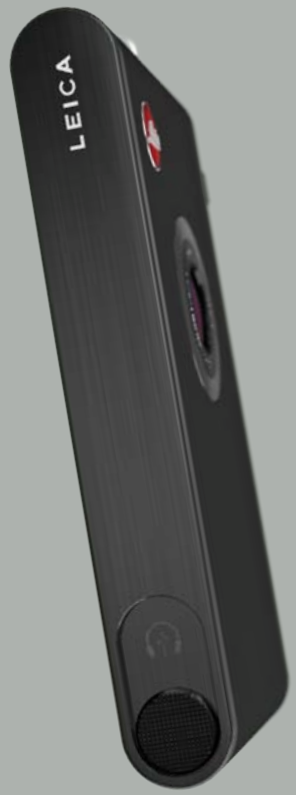
Modeled in SolidWorks - rendered in 3D studio Max

LEICA



Closed

Open

Only one cable connector for all purposes.
USB-mini for Headset, Charging and Image Transfer.

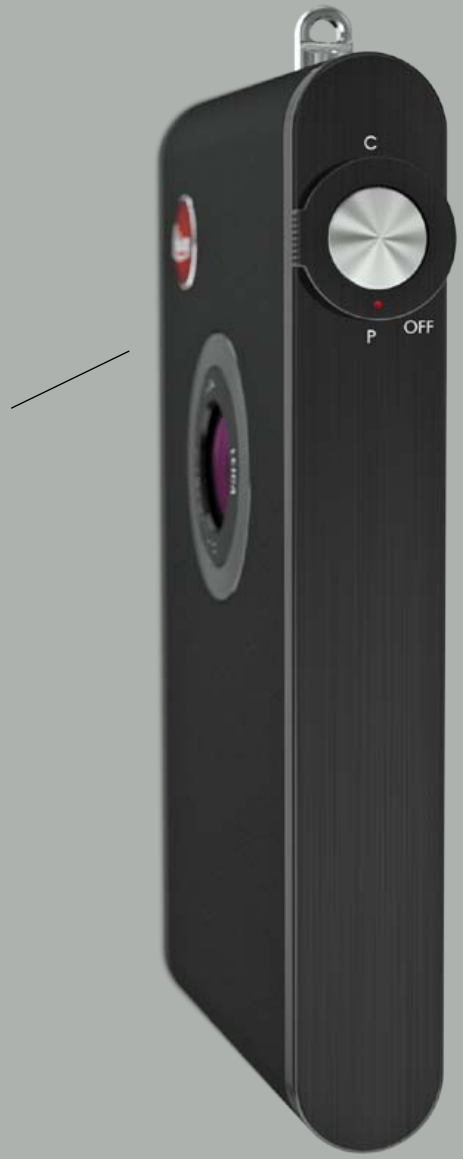
Modeled in SolidWorks - rendered in 3D studio Max

LEICA

Camera Mode
w. Zoom Function

Phone Mode
w. Volume Function

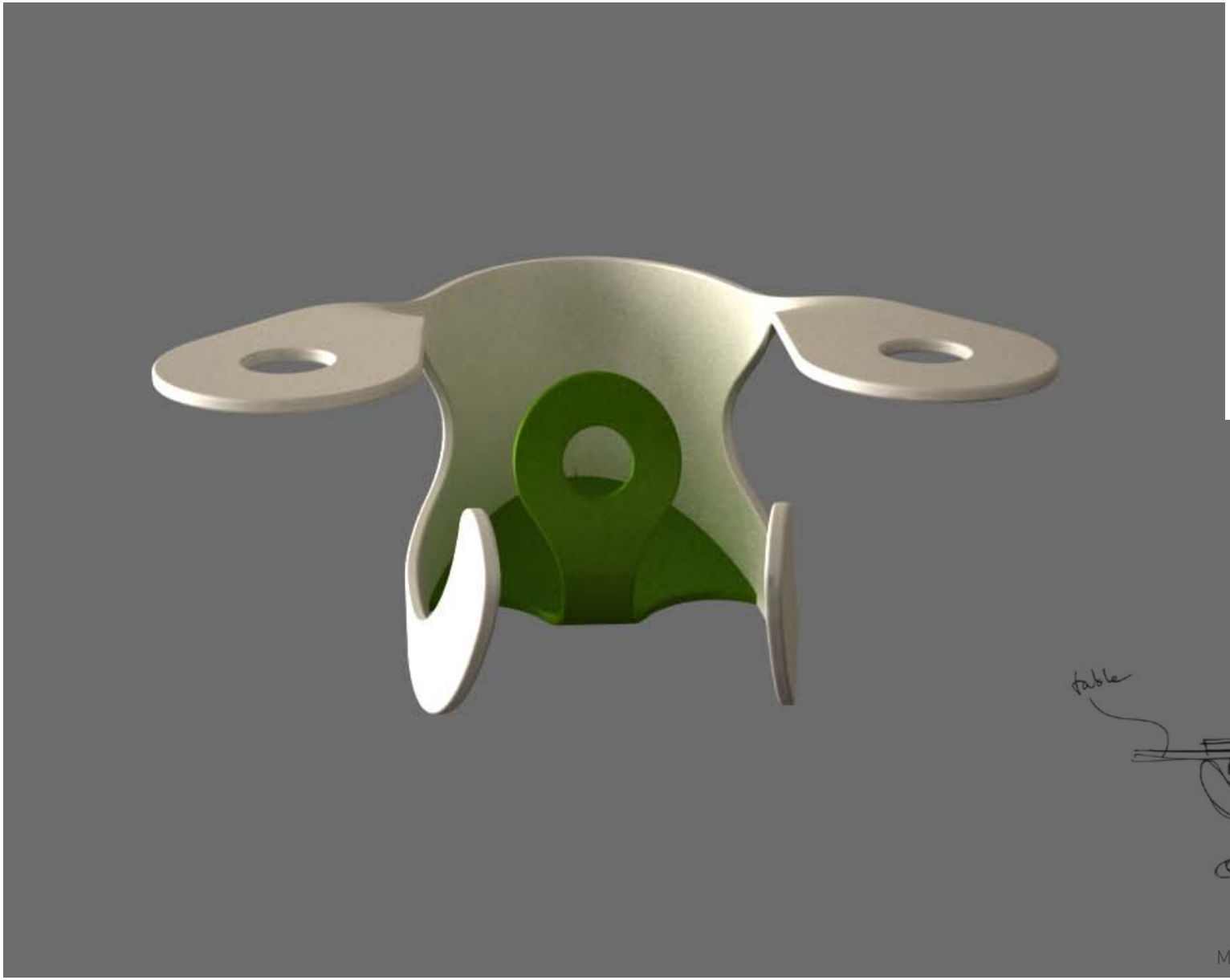
Off

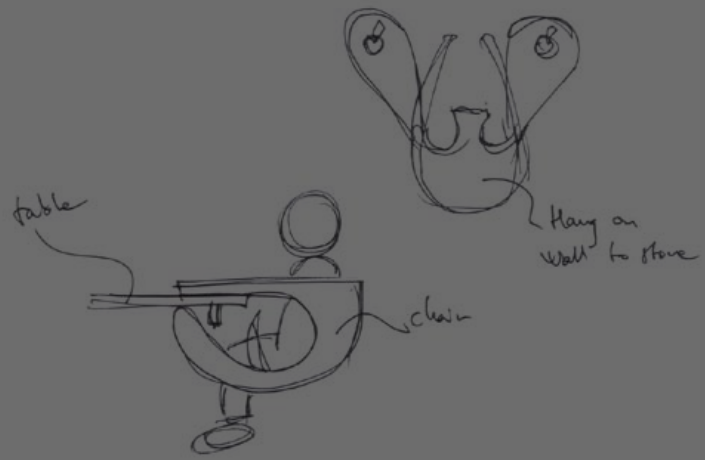


A mechanical mode switch - a key Leica element.
In Phone Mode the switch alters as Volume key, in Camera Mode as the Zoom key.

Project 7.

A heavy material + Children = Octopus & Mammoth





Modeled in SolidWorks - rendered in 3D studio Max

Mammoth

is a chair for small children that you can hang on the table and store on the wall. The material is LG Hi-Macs which is a Corian-like material, making the chair both stable and easy to clean. The middle part has a hole where a safety rein can be attached.

Mammoth took part in the LG-Hi-Macs competition 2007. Made together with Cecilia Wahlberg.

Octopus is a high chair for children made from the LG-Hi-Macs material. Just like Mammoth, Octopus utilizes the fact that the material is heavy and that it's hard surface makes it very easy to keep clean. Octopus is also stackable which could be conveniant in for example restaurants. Made together with Cecilia Wahlberg.


Modeled in SolidWorks - rendered in 3D studio Max

Project 8.

Stressed-out people + Breakfast = Day

Modeled and rendered in 3D studio Max

DAY was the result of a course made in collaboration with Tetra Pak. The task in this course was to design a package for liquid food and to encourage people to having breakfast. My solution is a breakfast calendar called "Day" One flavour of fruity, filling oat milkdrink for every day of the work week. Blow molded plastic bottles held together by a strong paper label. The drink is based on UHT-milk and doesn't need cooling. The label on DAY is perforated between every bottle. This in combination with the round shape, makes it possible to open the package and start on any day of the work week.

Project 9.

Intersections + Ears = CrossWays

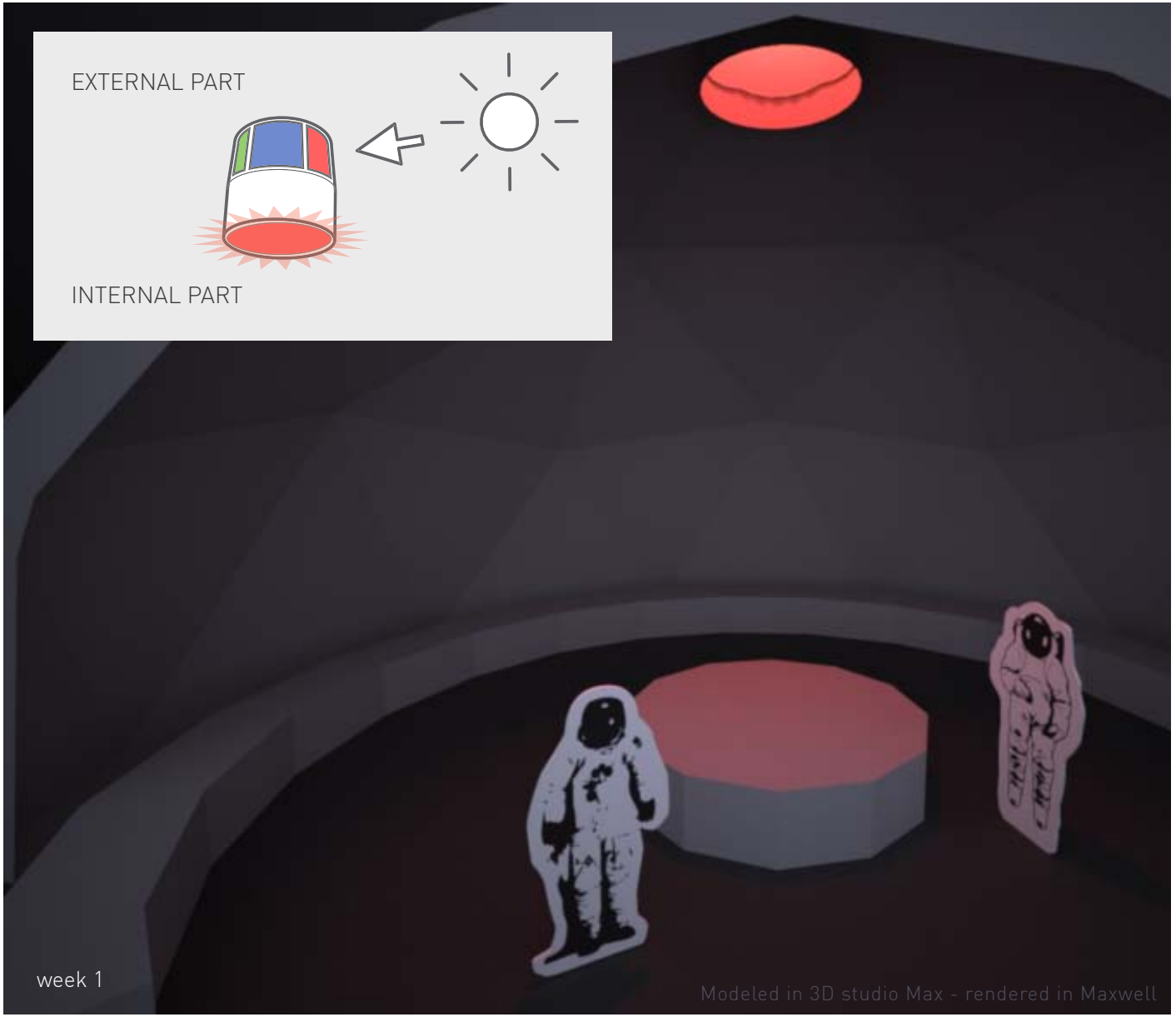
CrossWays

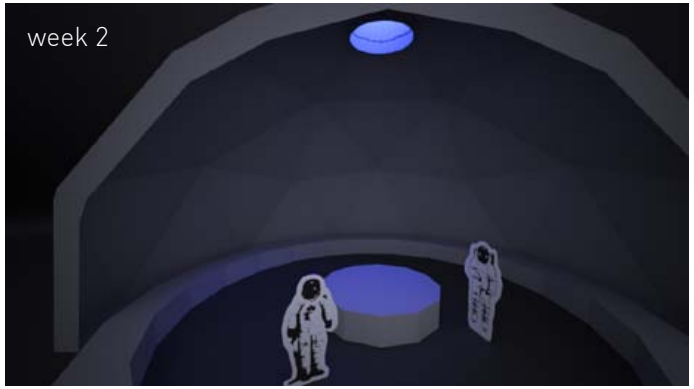
One year right before christmas when everybody was looking for presents, my friend Jacob von Matern and I made these earrings. We wanted to do something graphic, abstract and yet something people can relate to. The result was CrossWays, famous intersections from different countries seen from the sky transformed into graphical earrings, laser cut in black acrylic.

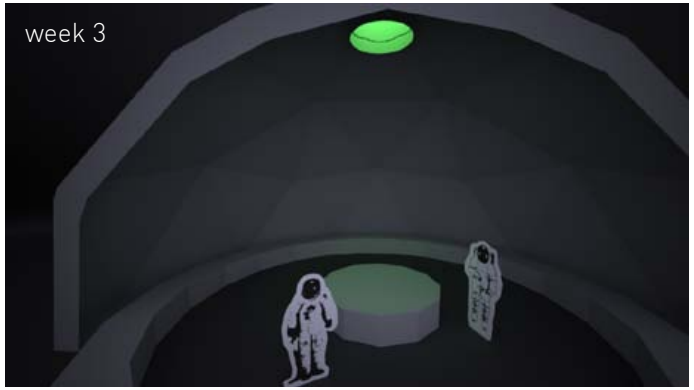
Project 10.

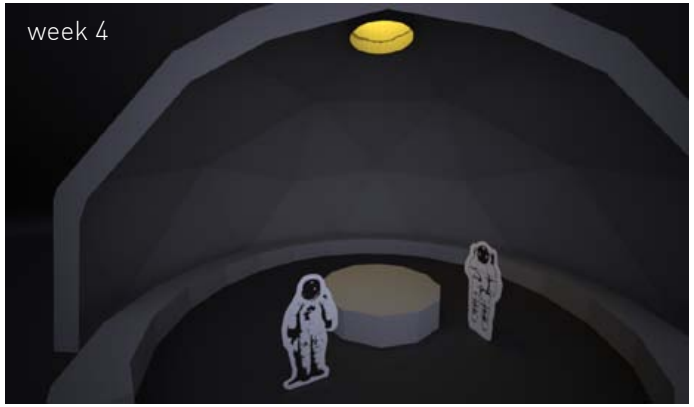
The moon + Sense of time = ChronoChrome

ChronoChrome was a pre-workshop before a longer NASA-course that took place in the fifth year. Our assignment was improving living on the moon. The moon base that is to be built by NASA in 2020 is probably being placed on one of the poles of the Moon. Here you can find spots with almost permanent sunlight - which gives you almost permament electricity for solar cells. To have constant daylight also means a non-changing view from the habitat window. It's very hard to keep track of days and weeks as they pass.







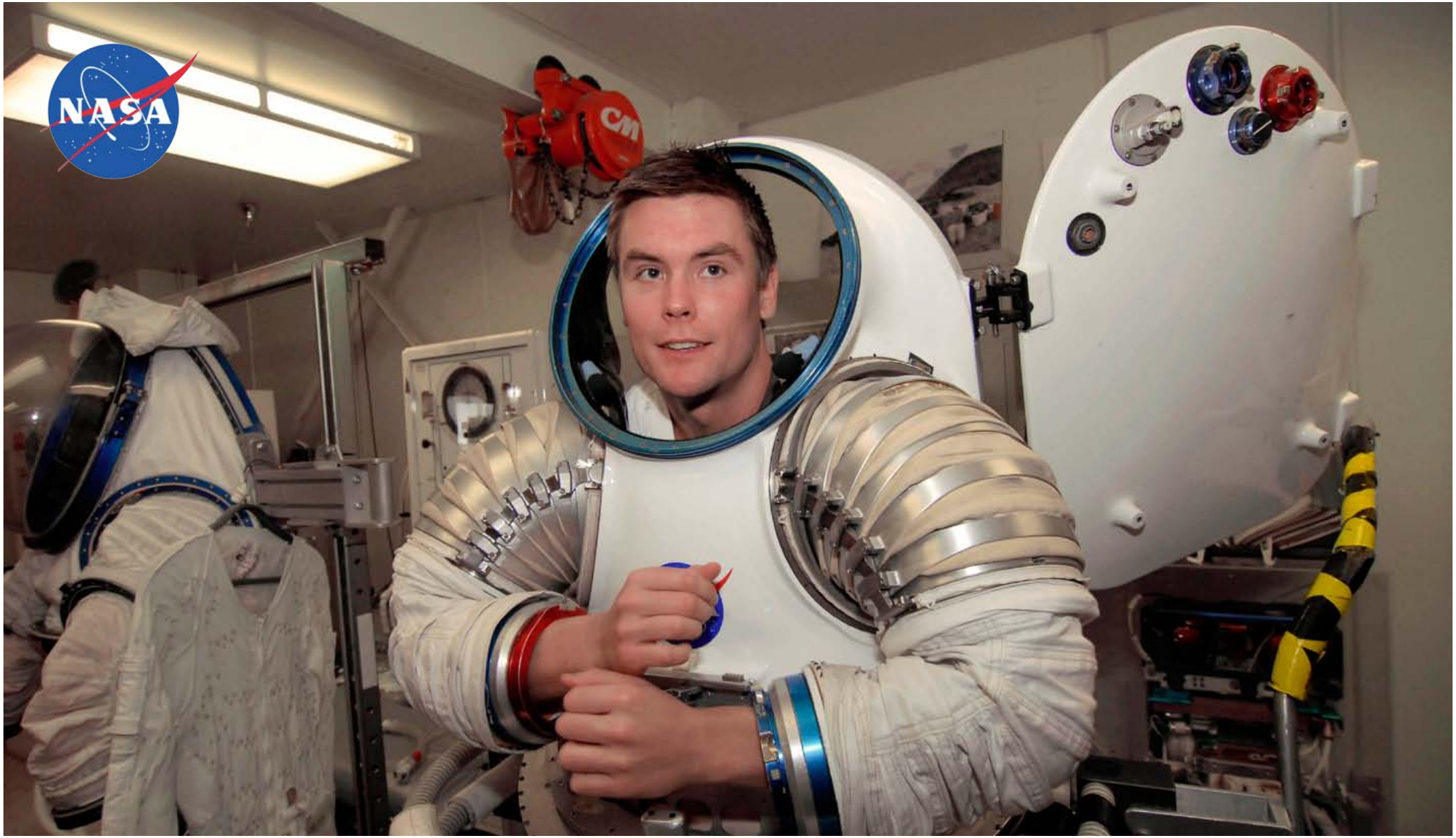


To help the astronauts keeping track of time we decided to place a color sundial (the ChronoChrome) in the roof of the habitat. The inner light screen will change color over time, giving each week a specific color, creating a more tangible sense of time.

This is not only practical but could also give the crew a sense of belonging and familiar cycles to relate to. Made with Jacob von Matern, Lisa Säfwenberg, Sofia Ohlsson and Lina Lewerth.

Project 11.

A trip to Mars + Bone loss = Ray



Ray This course started with a three week long study trip to NASA Johnson Space Center in Houston, USA. We got extensive tours on site to familiarize ourselves with the different areas of development carried out by NASA today. We saw models of future rockets, crew compartments, space suits, habitats for the Moon and Mars, surface vehicles, astronaut training facilities, control rooms and also got the historic background to it all. The goal was to spot a need somewhere in the space program where we as industrial designers could contribute. We where also free to take the knowledge we got "back to Earth" in our projects.

One thing we learned is that long term stay in weightlessness or micro gravity can cause osteoporosis - or bone loss. Since no one has been in space for more than six months this condition must be surveilled using an X-ray during longer missions. A larger habitat on the Moon also means more people working, less control from Earth and thereby a higher risk for accidents. An X-ray for space must be as small as possible and easy to move around.

However, when we took a look back at Earth we saw a multitude of scenarios where a portable X-ray could be very useful. A few examples of Earth scenarios: field hospitals in natural disaster areas, touring to hospitals that don't have X-ray equipment, visiting elderly at home, visiting large sport events or beach areas during summertime and placed at ski resorts during wintertime.

We found it interesting to see the big need for a device like this in non-space environments, so we decided to continue the project with Earth in focus.

Modeled in Alias and SolidWorks - rendered in 3D studio Max

The result is RAY, a portable medical X-ray system for any situation on Earth where you don't have have access to a stationary X-ray unit. It's not as powerful or precise as the large stationary X-ray systems but it works with household power and is easily controlled from a laptop. Place the image detector plate under the patient and expose. The images taken can be analysed directly on your laptop screen or be sent to a doctor anywhere in the world for further analysis.

Modeled in Alias and SolidWorks - rendered in 3D studio Max

Ray at home for elderly ▲

Modeled in Alias and SolidWorks - rendered in 3D studio Max

▲ Self retractable power cable

▲ Worklight integrated in arm

Existing portable X-ray systems often require special vans and large crates to be transported. When folded, RAY protects it's fragile parts in the center of the body and fits easily into the trunk of a normal car.

The end.

Thank you for your time!

fredrik hyltén-cavallius

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