DOING YOUR MASTER’S THESIS IN COLLABORATION WITH A COMPANY OR ORGANISATION

• **Contact** the company or organization via supervisor or your own initiative
• MSc thesis focuses on an **academic** issue
• Who can you **collaborate** with
• What is your **motivation** for writing your Master’s thesis in collaboration with a company or an organisation
• You may need a **Fast Track Agreement** (NDA/IP etc.) available at:
  • [https://medarbejdere.au.dk/administration/forskning-talent/erhvervssamarbejde/samarbejdsaftaler/fast-track-agreements/](https://medarbejdere.au.dk/administration/forskning-talent/erhvervssamarbejde/samarbejdsaftaler/fast-track-agreements/)
• Sometimes **unexpected challenges** may arise

**Inspiration and Proposals**

• Check out the CS job- and project- wall at [cs.au.dk/jobwall](cs.au.dk/jobwall)
• Examples and proposals after the thesis orientation (15.15-16.00 Store Aud.)
What If Lab: Lasse Chor

STIBO Accelerator: Karsten Dehler
Thesis Collaboration
With the Water Industry
Water, to most of us...
Po River, Italy
We haven’t been very mindful to our water in the last 50 years...
STILL, WATER IS NOT SEXY...
TECHNOLOGY
IS...
WHAT IF…
WATER + TECHNOLOGY = ?
What if Lab

What if Lab is an technology hub, placed in the Spring in Aarhus. At What if Lab we are matchmaking ambitious students with industry partners who wants to solve the future environmental challenges within the field of water.

We have the space and connections...
THE SPRING AT A GLANCE

- The Spring is located about 7 km from Aarhus City Hall close to the Aarhus Syd highway.

- Aarhus Vand’s new headquarters in The Spring will be completed in January 2023.

- The next development phase in The Spring has a total site area of 80,000 m², with room for construction of 50-80,000 m² total floorspace.

- In collaboration with a long-term investor, the City of Aarhus expects to establish a site development company for the innovation district: the City of Aarhus will provide the site, and the investor will provide the necessary capital.

- Aarsleff, Business Academy Aarhus and Aarhus Tech – about 800 employees and 300 students combined – are all located in The Spring.
Goals and ambitions

- Create an international hub for innovative, sustainable and efficient water technology solutions.
- Develop the world's most sustainable, climate resilient and digital water supply.
- Double the export of water technology from 20 to 40 billion DKK in 2030 and create new Danish jobs.
- Contribute to a CO2- and climate-neutral water sector.
- Increase the number of start-ups and SMEs within the water technology sector in Denmark.
- Build a world-leading high professional research and knowledge environment within water technology.
- Build a world-leading knowledge base for lifelong learning in water technology.
The playing field: The Water Ecosystem
Project proposals

What if wastewater were not seen as waste product, but as a resource that can be used for future energy production through P2X?

As part of efforts to achieve the Global Energy and Power for All goals, the challenge to harness wastewater as a renewable energy source is a novel approach. Projects focusing on wastewater treatment and its potential for energy production are being conducted worldwide. A European Network project that will explore the possibilities of using purified wastewater as an energy source will further the development of purification technologies. The project aims to investigate the feasibility of using purified wastewater as a source of renewable energy. The project is funded through the Horizon 2020 programme and will bring together experts working on the development of innovative technologies for the energy sector. The project is expected to provide new insights into the potential of wastewater as an energy source.

Area of interest:
- Renewable energy and carbon capture technologies
- Water management and energy production
- Excavation and environmental monitoring

Project partner: SunWaste

What if we used interactive visualization and animation to improve collaboration in climate change adaptation?

Cities are investing in water infrastructure to adapt to climate change, urbanization, and aging assets. Underpinning these efforts are emerging digital technologies, which are highly specialized and often create silos within the workforce. We are creating a newAccelerator simulation model for sustainable stormwater management partnerships to better understand challenging processes. The model is called InfraSim and it simulates regional stormwater management and urban development through distributed simulations. The model is developed in close collaboration with urban planners and water utility engineers. The model integrates data from various sources, such as climate models, hydrological models, and urban development plans, to simulate the impact of climate change and urban development on stormwater management infrastructure. The model is designed to help urban planners and water utility engineers better understand and plan for the future of stormwater management infrastructure. The model is also designed to be used in collaboration with other stakeholders, such as urban planners, water utility engineers, and decision-makers, to improve collaboration and decision-making in stormwater management planning.

Area of interest:
- Climate change adaptation
- Urban development
- Water infrastructure

Project partner: InfraSim

What if the Water sector used open source data?

As the water sector becomes increasingly digital, there is a growing need for open source data to support the development of innovative solutions. Open source data can help to increase transparency, reduce costs, and promote collaboration. The Water sector can benefit from open source data through the development of new applications and services. The Water sector is a key stakeholder in the transition to a sustainable water future and open source data can help to accelerate this transition. Open source data can be used to support the development of new applications and services that can improve the efficiency and effectiveness of water management. The Water sector can benefit from open source data through the development of new applications and services that can improve the efficiency and effectiveness of water management.

Area of interest:
- Digital transformation
- Open source data
- Water sector

Project partner: Open source data

What if digitalization of the water sector is making water a commodity instead of a common resource?

As digitalization of the water sector becomes more prevalent, there is a growing concern that water is becoming a commodity instead of a common resource. The Water sector is a key stakeholder in the transition to a sustainable water future and digitalization can accelerate this transition. Digitalization can help to increase transparency, reduce costs, and promote collaboration. The Water sector can benefit from digitalization through the development of new applications and services. The Water sector can benefit from digitalization through the development of new applications and services that can improve the efficiency and effectiveness of water management. The Water sector can benefit from digitalization through the development of new applications and services that can improve the efficiency and effectiveness of water management.

Area of interest:
- Digitalization
- Water sector
- Common resource

Project partner: Digitalization of the water sector
Satellite data and computer vision for leakage detection
Using technology to create a behaviour change in private households or public spaces
Using open data to predict and prevent flooding of smart cities
Creating immersive experiences to help everyone understand the importance of water
Use AI, ML, VR, XR, Blockchain, Quantum Computing, Microservices, IoT, Robotics, Digital Twins, Metaverse (and other tech buzz words...)

To MAKE WATER GREAT AGAIN and solve real problems...
Still unsure if water is relevant to you...

95 %
How to apply?

1. Apply for one of our project proposals set by one of our industry partners

2. Apply with your own idea and we will help you find the right industry partner

www.lighthousewatertech.dk/projekt-whatif/
Help us make water great again!

Contact What if Lab Water:

Maja Arenfeldt Kragh
Projektleder, What if Lab
CLEAN - Danmarks miljøklynge
+45 42832683 | mak@cleancluster.dk

www.lighthousewatertech.dk/projekt-whatif/
Incubator, playground, sandbox, “Q’s lab in the basement”...

STIBO ACCELERATOR

Karsten Dehler
Director, Stibo Accelerator

Cases
StiboAccelerator.com -> Project Proposals
We *know* we have to be **crazy** and **wild** – but… Monday morning our staff is right back at doing THE SAME OLD THING!
Nudge the mindset =>
create the culture!
Stibo Holding: 3 very different business units

STIBO

90%

10%

Master Data Management and Product Information Management solutions

Editorial and advertising solutions for the news industry

One of Europe’s largest print solution suppliers
Owned by a foundation – what does that mean for Stibo?

**Made for the future** – our owners were convinced that innovation is the key to future development and growth. Thus, Erik Kiær and his wife transferred all their shares to a foundation with a long-term perspective.

**A long-term solution** – profit will be re-invested in order to create the best framework for long-term development and to support science and culture.

**The Danish model** – LEGO, Carlsberg and Stibo are all well-known foundation owned companies with a solid base for ensuring 300,000 people a good job and have a better return on equity than the listed companies.

**No exit strategy** – an ownership structure with such a long-term perspective and ‘patient money’ enables Stibo to concentrate on the future needs of its customers and not to make a quick profit.
STIBO

1794-1995

Stibo 1.0

1995-2010

Stibo 2.0
Megatrend: Internet

2010-20??

Enterprise multi-domain data
Megatrend: Digitization
A few of Stibo’s customers
...we have been in this business for decades. We know ALL there is to know. Why do they all keep talking about DISRUPTION !?!
Most large organisations...
Many rabbits

Graduate programs

Investment in startups

"Entrepreneur-in-residence" program

Grants for IT talents

Case-challenges at the university

Master thesis partnerships

Ideas Lab/Incubator

Internships

Student developers
The ambition

Student

Entrepreneur? Employment?
The ambition

Student

Entrepreneur?
Employment?
The ambition
The ambition

Student

Entrepreneur?
Employment?
The ambition

Entrepreneur?
Employment?

3 - 6 months
Master thesis
Incubator, playground, sandbox, “Q’s lab in the basement”…

STIBO ACCELERATOR

1.397 months or 116 FTEs research

Ma./Ba. Students: 234 students from 21 different academic institutions

Projects: 120 innovation projects

Established: 2014 (17 seasons)

Co-creation with customers

Branding: 260+ events

Infusing innovation: Inspire out-of-the-box thinking

HR: Recruit top talent

ESG: Support talented students
We needed a new language...

Simon Sinek's Golden Circle

Double Diamond Innovation

HBR Innovation Matrix

Otto Scharmer, Theory U

Charles Jennings 70-20-10 model

Simon Sinek's Golden Circle
The colours of innovation

Traditional organic development:
“Ways to do things better”

Creativity:
“Why not…?”

Radical innovation:
“What if…”
The colours of innovation

“What we should have done already…”

Organic development:
“Ways to do things better”

Creativity:
“What don’t we…?”

Radical innovation:
“What if…”

Innovation “comfort zone”

Well known tools, well known methods

Well known tools, new methods

New tools, new methods

…just catching up
The colours of innovation?

Let's imagine the future together – to make better decisions today!

**Innovation “comfort zone”**

- **Organic development:** “Ways to do things better”
- **Creativity:** “Why don’t we...?”

“...just catching up

Well known tools, well known methods

New tools, new methods

Radical innovation: “What if...”

Future X

Future Y

Future Z
…the red sock in the white wash
The trinity…

Customers and partners

Innovation team

Stibo
The trinity…
...when we evaluate our own innovations
How it works?
The **Stibo Accelerator** model, 3-5 months total

Meetings with partners

Total period of 3-5 months

- Collecting burning questions and "Red Dots"
- Meetings with partners
- Administration etc. handled by Stibo Accelerator

**Build**

- Partner brainstorm
- Mentors
- Counsellor visits
- Ideation workshop

**Re-shape**

- Commercialise concept
- Recruit talent
- Establish startup

**Validation**

- User validation (via partner)
- Partner debriefing
Master Thesis Research project in the Stibo Accelerator:

Getting personal with the price tag!

What if the price tags on the shelves in your supermarket recognised you and could suggest products, special offers and individual pricing?

Søren Lundtoft
Anders Nies
Laurits Langberg

Retail industry partner: REMA 1000
Meget mere discount!
Getting personal with the price tag!

What if the price tags on the shelves in your supermarket recognised you and could suggest products, special offers and individual pricing?

Søren Lundtoft
Anders Nies
Laurits Langberg

Master of Science in IT Product Development, Aarhus University
The potential implementation of new 3 dimensional scanning technology to add value to the supply chain between The Home Depot and their suppliers.
An examples
Segway Robotics Alpha Development Partners
The Segway Robotics team selected its initial department partners from a large applicant pool numbering in the “thousands,” the company says, who were selected from applicants to its Developer Program, which was announced at Intel’s Developer Forum in Shenzhen this past April. Developer concepts include both hardware and software, and in addition to the Loomo SDK, Segway will offer its partners a bay that allows adding on hardware accessories.

Developer kits will start rolling out to partners early this year, with the first to receive including BMW, Intel, MIT Smart Center and Stibo Accelerator. Segway chose the companies because of the range of opportunities they’ll be building with Loomo, which include autonomous driving for BMW; personal robotics and depth capabilities for Intel; medical and elderly care for MIT; and enterprise and consumer safety and retail for Stibo Accelerator.

A lot of companies this year, especially automakers, are demonstrating personal
Using Segway’s Loomo robot to map and scan the store, it will be possible to create and update a map of the store with SKU placements.
Case collaboration with Stibo

Take a look at the project proposals below and contact us if you see a topic that you would like to work with.

- Technology to protect us - why don't we own our data?
- Visualizing the Cost of Sharing Data
- Bias Detection
- Collecting "Earth Points"
- Usage Context Synthesizer
- Destination: Metaverse
- Digital Construction
- Spatially persistent Metaverse
- Biometric marketing - potential, pros and cons
- Create the robotic photographer of the future
Thank you
“Q’s lap” has left the basement...

Karsten Dehler
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