

# Introduction to AI Sweden



[ai.se](https://ai.se)



[my.ai.se](https://my.ai.se)



[ai.se/newsletter](https://ai.se/newsletter)



[youtube.com/c/aisweden](https://youtube.com/c/aisweden)



[linkedin.com/company/aisweden](https://linkedin.com/company/aisweden)



Chiara Ceccobello, PhD  
Data Scientist



Beatrice Comoli  
Admin Lead

# OUTLINE

- What is AI?
- AI Sweden introduction
- Decentralized AI
- NLU – GPT-SW3
- Information-driven healthcare
- Q&A

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# What is AI?

- AI is a field of computer science that focuses on creating intelligent machines capable of performing tasks that typically require human intelligence.



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- AI is a field of computer science that focuses on creating intelligent machines capable of performing tasks that typically require human intelligence.
- It involves the development of **algorithms and models** that can discover patterns and generate insights from the data they are exposed to. This process enables such algorithms and models to **LEARN, REASON, and MAKE DECISIONS** autonomously.



# What is AI?

## Artificial Intelligence

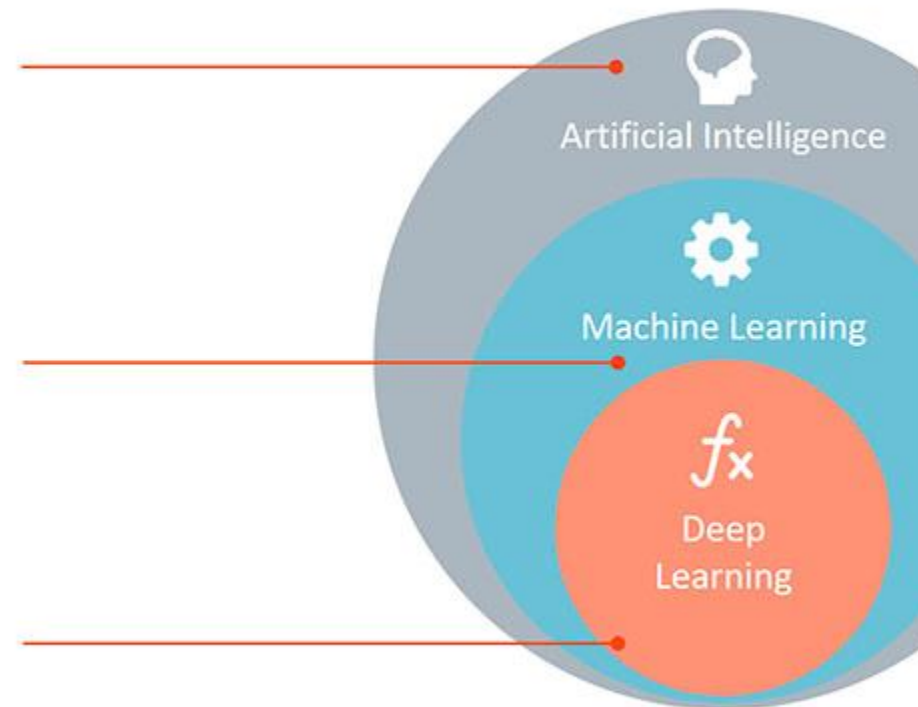
Any technique which enables computers to mimic human behavior.

## Machine Learning

Subset of AI techniques which use statistical methods to enable machines to improve with experiences.

## Deep Learning

Subset of ML which make the computation of multi-layer neural networks feasible.





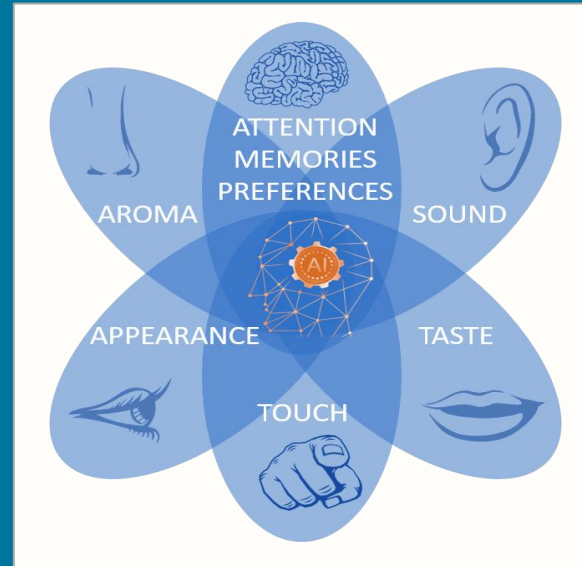
# What is AI?

## Artificial Narrow Intelligence (ANI)



MULTIMODAL  
FOUNDATION MODELS

## Artificial General Intelligence (AGI)



## Artificial Super Intelligence (ASI)





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**Why?**

**AI**  
SWEDEN

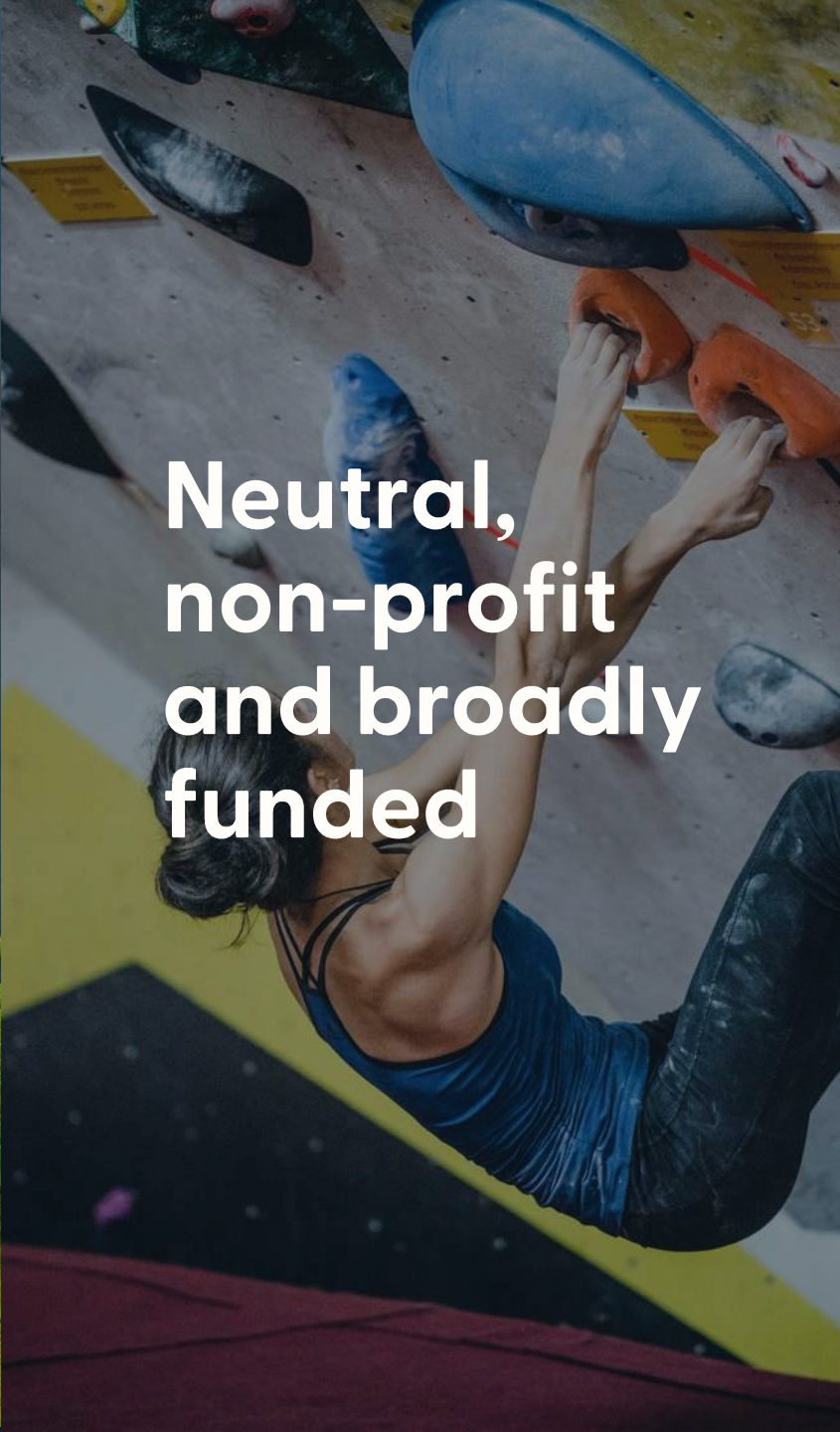
**Accelerating the use of AI for the benefit of our society, our competitiveness, and for everyone living in Sweden.**





**What?**

**National  
center for  
applied AI**



**Neutral,  
non-profit  
and broadly  
funded**



**Private  
sector, public  
sector,  
academia**



**AI**  
SWEDEN

# National responsibility, regional presence

## Current consortium of host organizations

**E**Business

**i**INNOVATION  
SKÅNE

Humantech  
Foundation



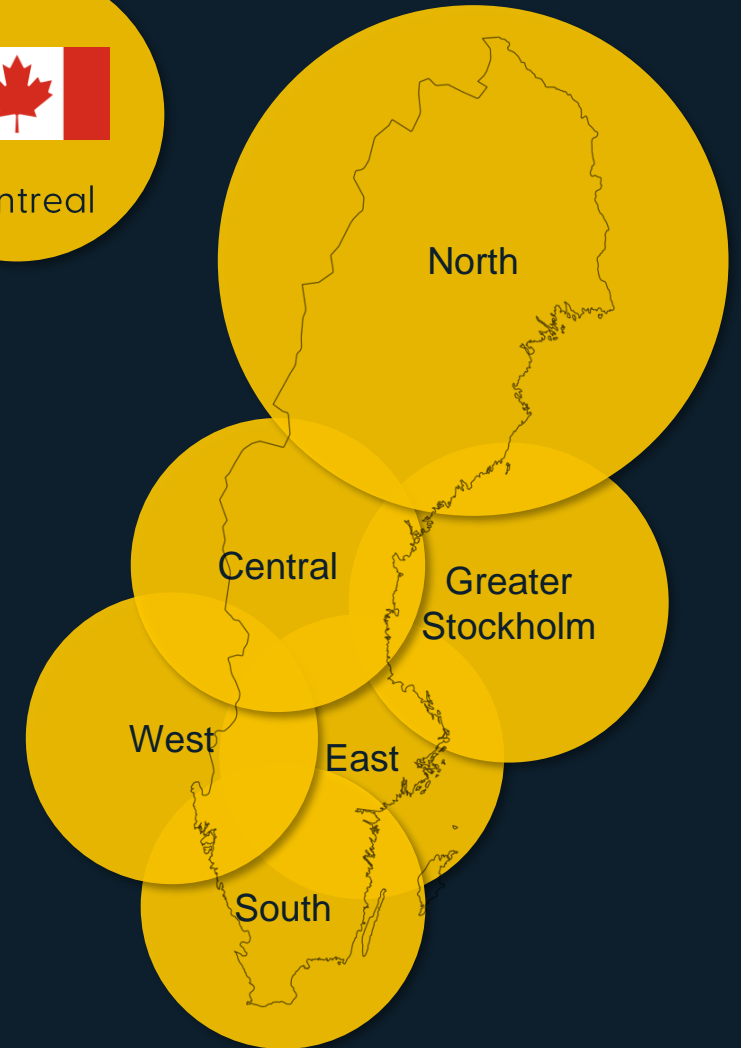
LINKÖPING  
SCIENCE  
PARK



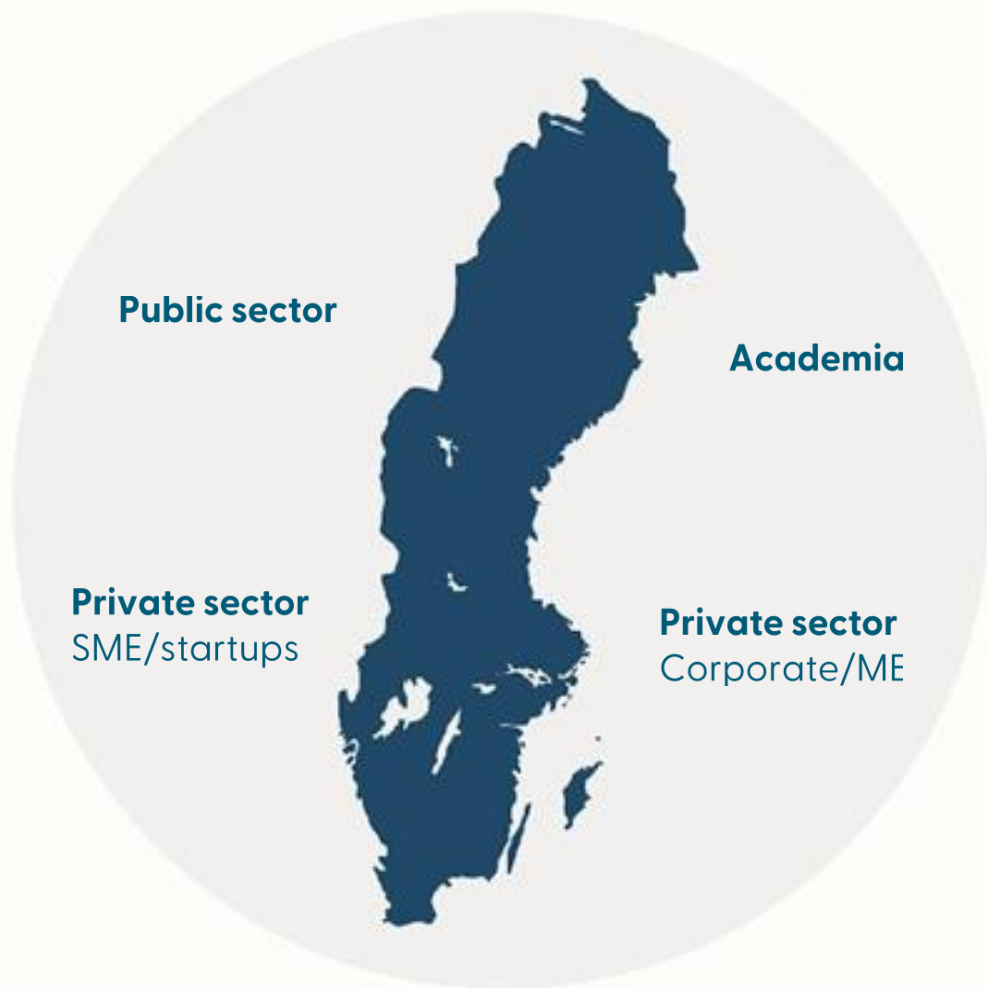
Santa Anna IT  
Research Institute

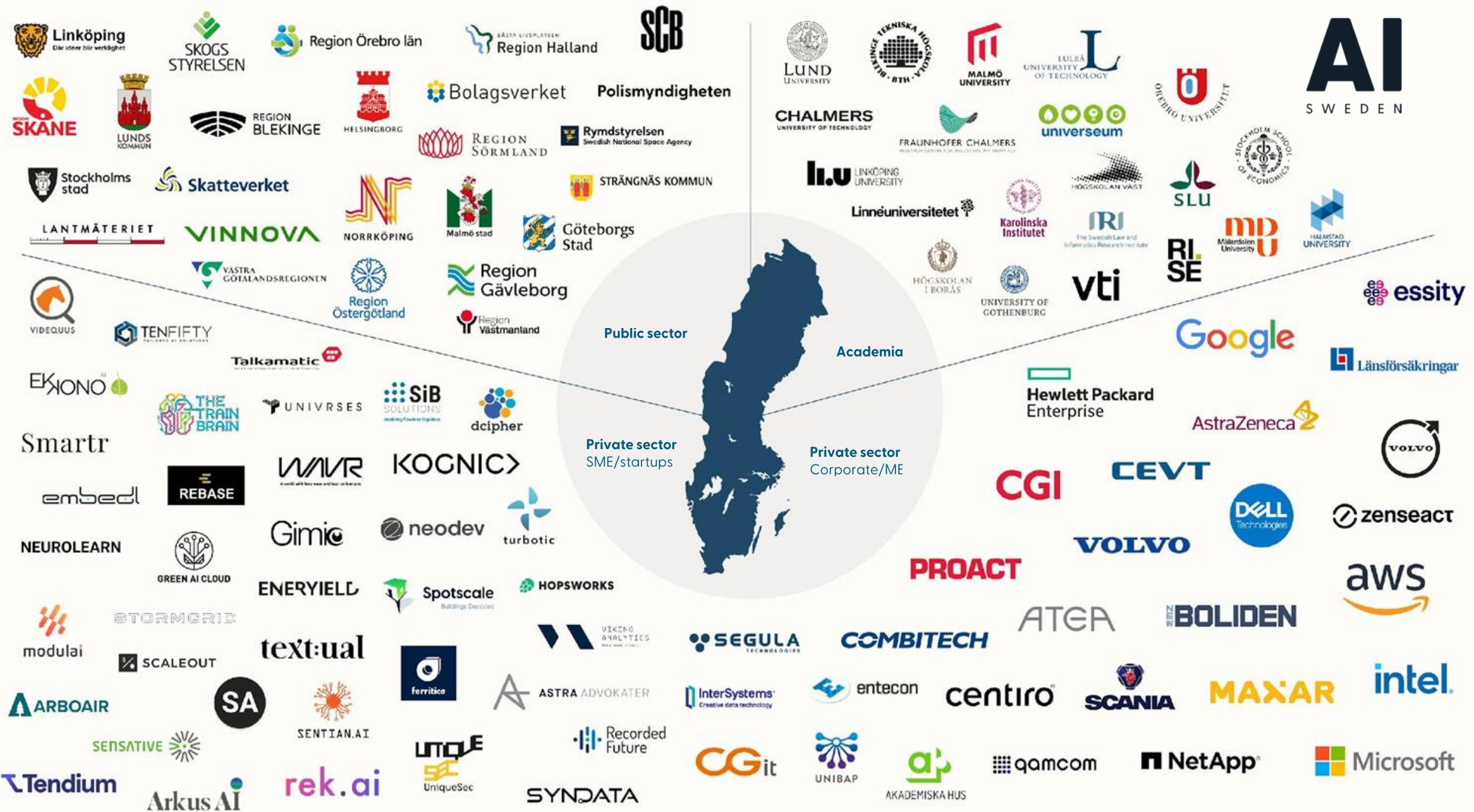
**high  
five**

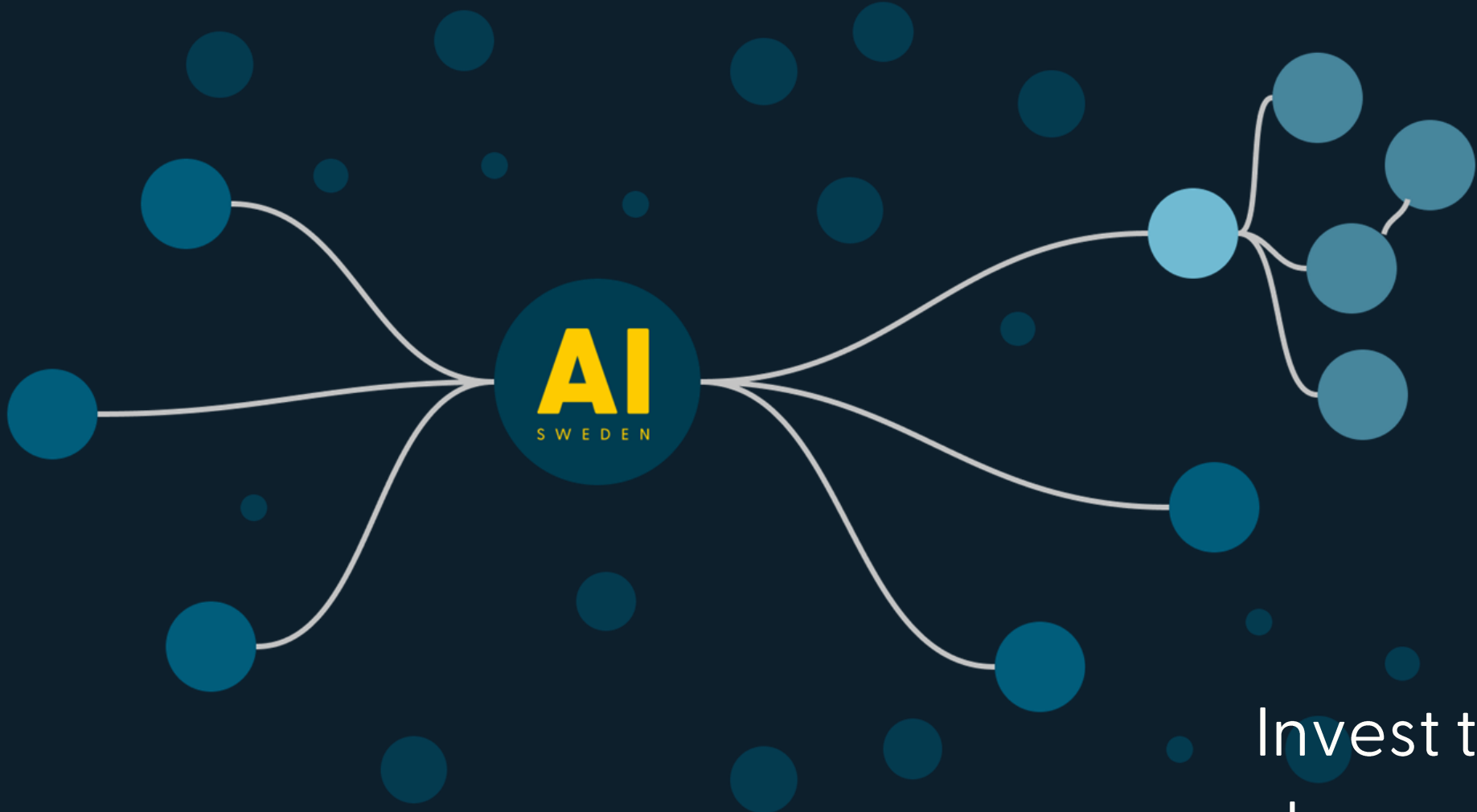
**MD**  
Mälardalen  
University





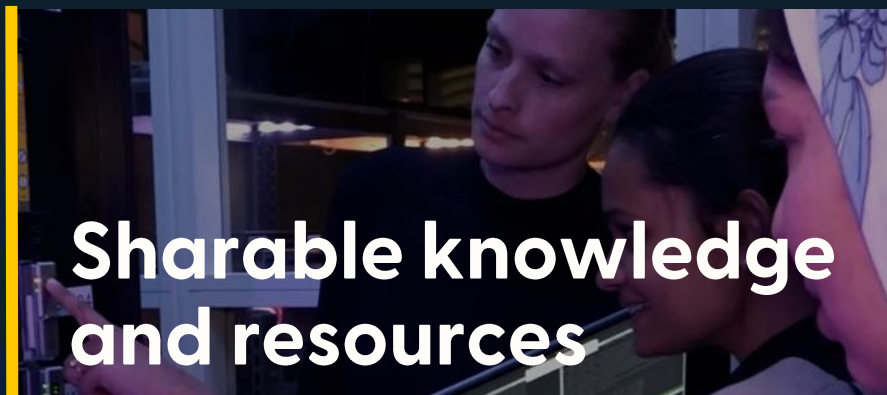
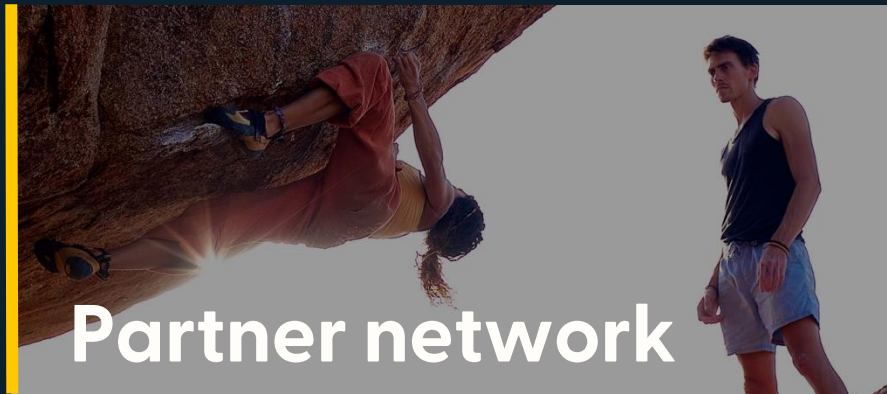






Invest together,  
share with many

# Accelerating the use of AI in Sweden





# Talent programs

## Young Talent program

Young machine learning talents working with AI Sweden and partners during fall 2021. New recruitment 2022.

## Junior AI Change Agents

Students from Hyper Island's "AI Business Consultants" program joined AI Sweden for an 8-month internship in October, 2021. New cohort 2022.

## Eye for AI program

18-month program in rotation between a minimum of 3 partners. First program started Oct 2021. New recruitment 2022.

## Systems Engineer program

Recruitment program starting with 3 months dedicated to training. In development, start late 2021.

## Talent attraction team

Group of partners jointly developing talent attraction programs.

→ [Stay up to date about our talent programs.](#)

# AI Sweden Job Board



## 700+ job seekers already signed up

A growing pool of candidates with a Swedish and international reach. This is the way for AI talent to grow.

## Promote partners' job ads

The Job Board page doesn't manage actual applications. Instead, it is a showcase of what is available.



**AI | job board**  
SWEDEN

## Free and easy to use

The Job Board is one of many free tools partners have access to.

## Boost the Swedish AI ecosystem

AI Sweden Job Board is the place for talent to find new opportunities within the AI ecosystem.

- ➔ Application form can be found on [ai.se/en/jobboard](https://ai.se/en/jobboard)
- ➔ Job ads are displayed on [jobboard.ai.se](https://jobboard.ai.se)
- ➔ Reach out to [sofia.heden@ai.se](mailto:sofia.heden@ai.se) if you have any questions

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# What is decentralized learning?

An introduction to Edge Learning Lab



# Data Factory



# AI Sweden – The AI Gym





# Data Factory Team



Oliver Helmin  
Technician



Ebba Josefson Lindqvist  
Project Manager



Helena Theander  
Head of Operations



Kim Henriksson  
Testbed Architect



Beatrice Comoli  
Admin. Lead



Vinutha Magal Shreenath, PhD  
Sr. Data Scientist



Josefine Rembsgård  
Legal Coordinator



Mats Nordlund, PhD  
Head of Data Factory



Fredrik Viksten, PhD  
Sr. Engineer



Chiara Ceccobello, PhD  
Data Scientist

+ Students and contributors from our partners

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## What?

### Natural Language Processing (NLP)

Process and analyze natural language with computer systems

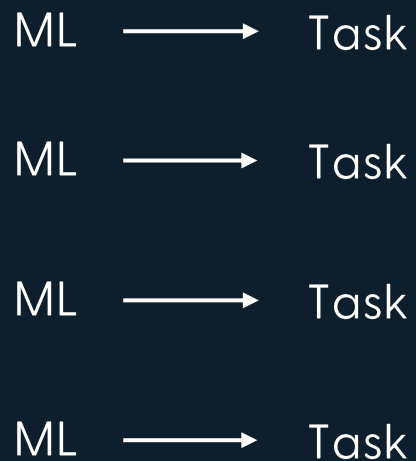
### Natural Language Understanding (NLU)

Enable computer systems to "understand" and generate language data.

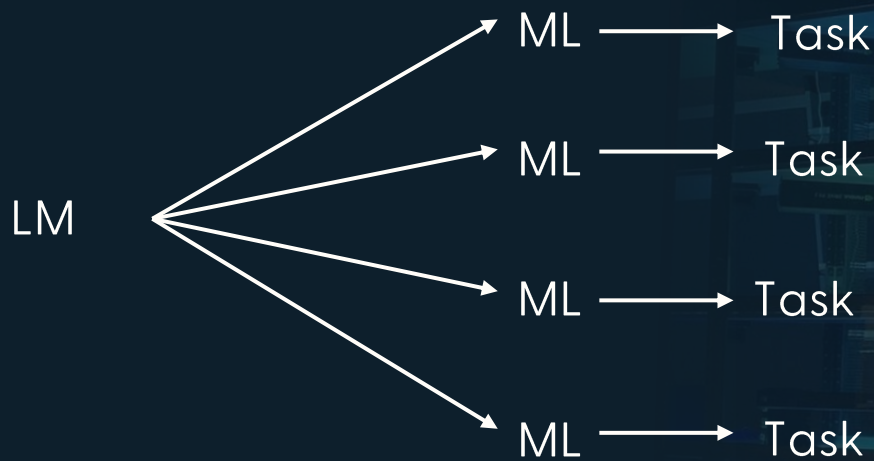
### Language Models (LMs)

Algorithms/statistical models that "learn" languages by "reading" large amounts of language data

**Before 2018**

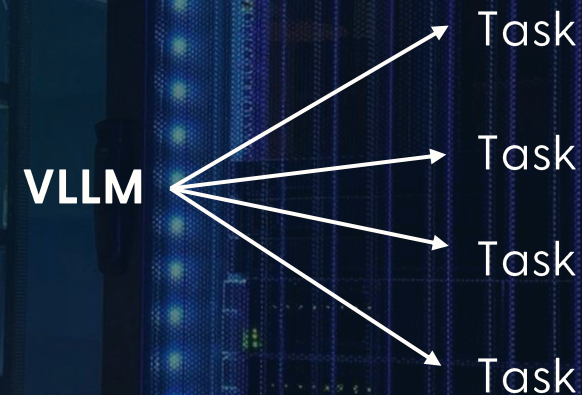


**After 2018**



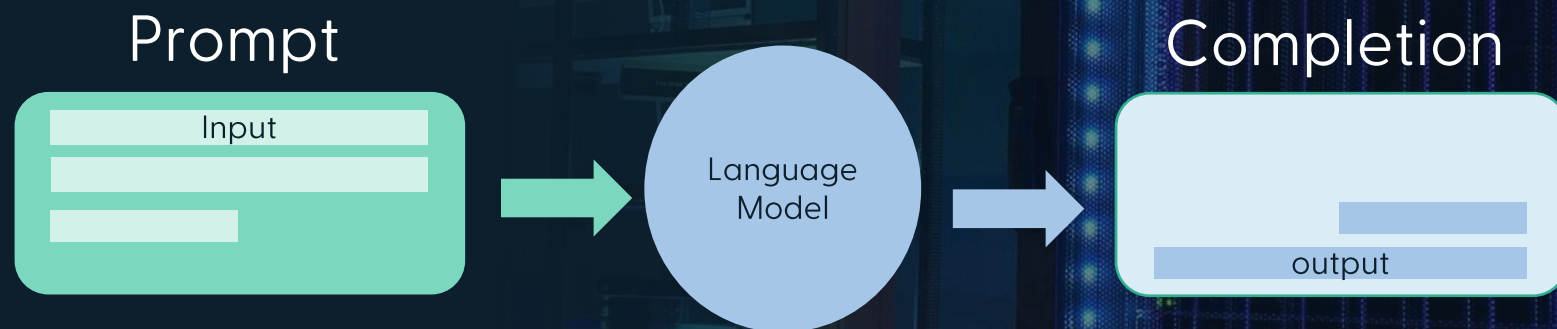
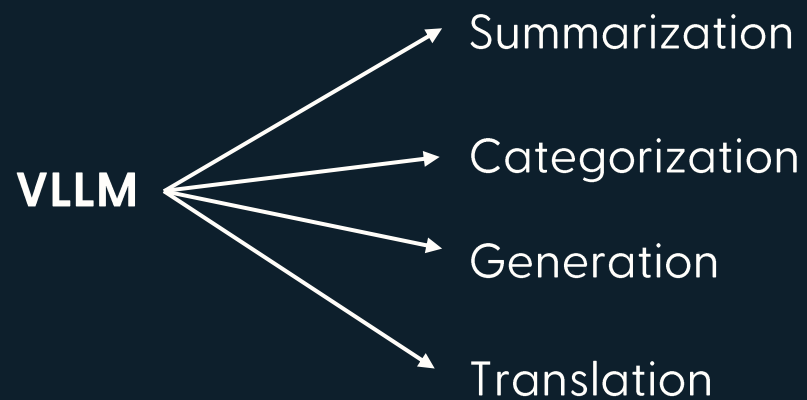
e.g. BERT

**After 2020**



GPT:  
Generative Pretrained  
Transformer

After 2020









# GPT-SW3 consortium



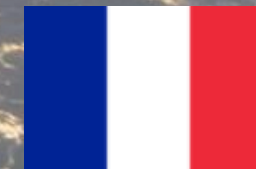
AI Nordics community on Discord

Data platform and deployment partners:



# Countries that develop VLLMs

USA and China dominate



# Why?

Build competence

Digital and linguistic  
sovereignty

Democratize access to LLMs

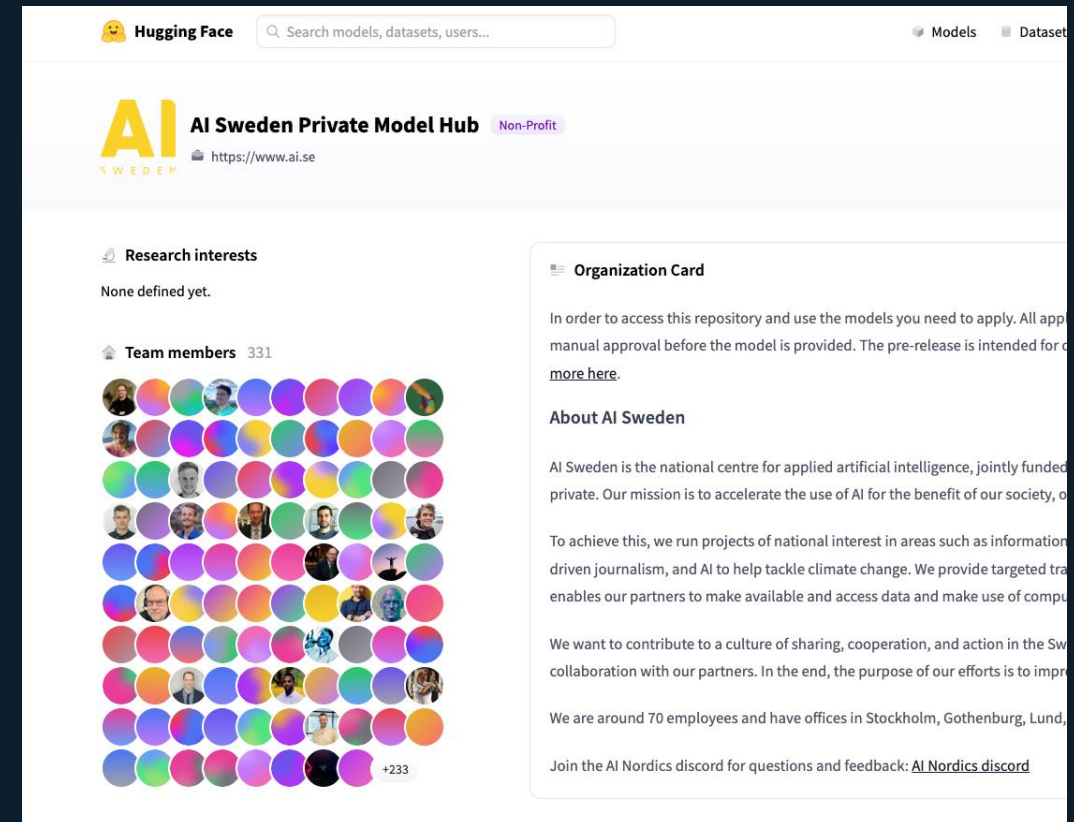
# How?

Collaboration

Transparency

# GPT-SW3 Controlled Pre-release

Accelerate the use of AI in an open, transparent and collaborative way and build competence in the Nordics about generative language models.





# Our NLU team



**Magnus Sahlgren**



**Francisca Hoyer**



**Felix Stollenwerk**



**Danila Petrelli**



**Ariel Ekgren**



**Alice Heiman**



**Amaru Cuba Gyllensten**



**Saga Kristjánsdóttir**



**Tim Isbister**

# The DAIM project

Distributed AI infrastructure for foundation Models (2023-2025)



Complete the **validation and deployment of GPT-SW3** within the current infrastructure to gain knowledge and create a benchmark that can serve as input for the next-generation infrastructure and models



Define and build a **demonstrator of the next-generation infrastructure** for training, testing, validating and deploying foundation models using decentralized learning techniques



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# AI for Healthcare

**Research and  
knowledge  
discovery**

**Healthcare  
operations**



# AI for Healthcare

**Research and  
knowledge  
discovery**

**Healthcare  
operations**

## Short term

Data structure and understanding

Ability to make data-driven decisions

## Long term

Increased precision, decision support

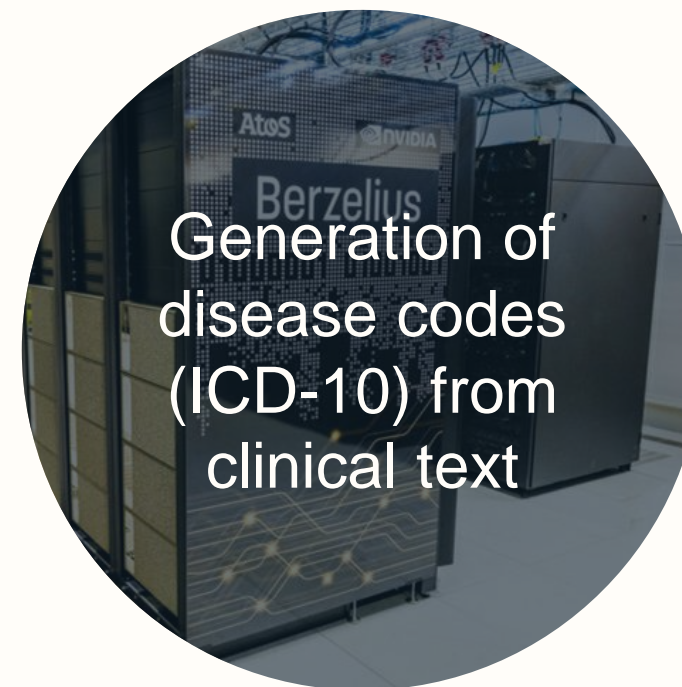
Individually tailored healthcare

Increased efficiency

# Federated learning between two Swedish hospitals



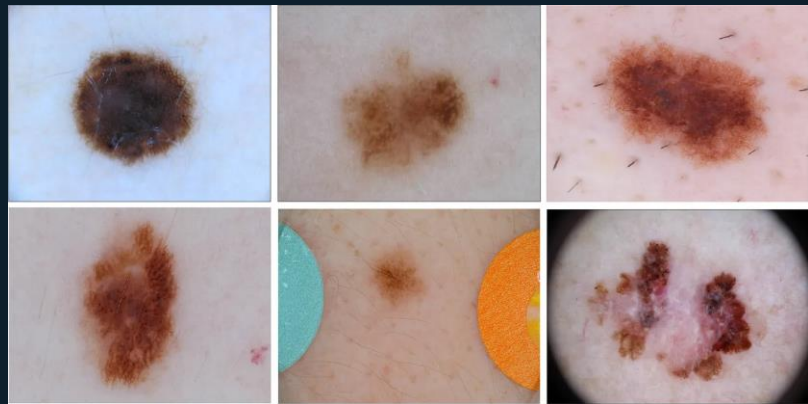
# Application of GPT-SW3 on clinical text



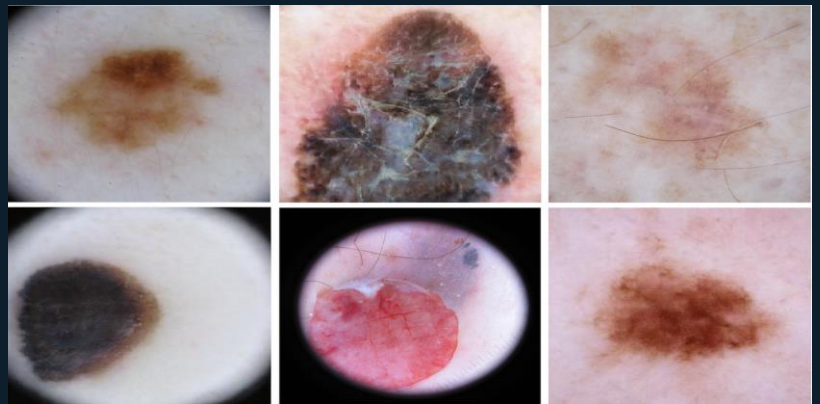
Patient journals from ~80 patients from a hospital in Halland



# Generation of synthetic dataset



Real data



Artificial data

# NLU Talents



**Niclas Hertzberg**



**Anna Lokrantz**

# Eye for AI Talents



**Sandra Carrasco**



**Sylvia Majchrowska**



# Thank you!

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and sign up for [ai.se/newsletter](https://ai.se/newsletter)



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