

T-robotics

Providing skilled labor to the world with robotics and
physical AI



The problem with Robots

Fail Often

Difficult to
Program

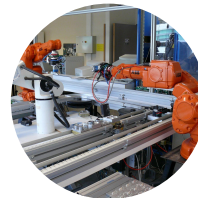
No Awareness of
Task

Long turnaround times:



Palletizing system

3 to 6 months



Assembly tasks

4 to 8 months



Pick and place

2 to 5 months



Handling system

3 to 7 months

Machining Case: Verksted Partner

Invested in a robot for 100,000 USD

Total ROI from robot 108,000 USD

Cost of robot engineers \$140,000/year

Stopped using the robot as it too difficult to program for their machinists



The root cause of problem is mathematics

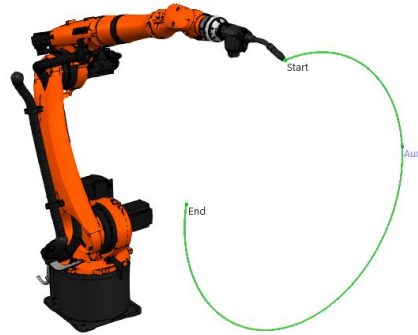
1960 - Today

Point-to-Point Programming (PTP)

Very time consuming

No Intelligence - Fails often

Accurate and fast



Our Innovation

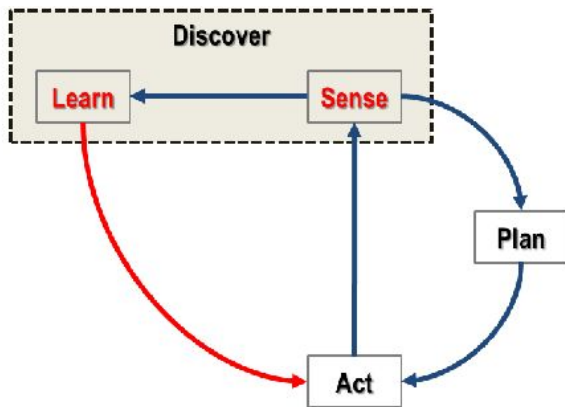
2010 - Today

Constraint-Based Programming (CBP)

Very difficult theory

Accurate/ fast in known situations

Intelligence in **known** situation



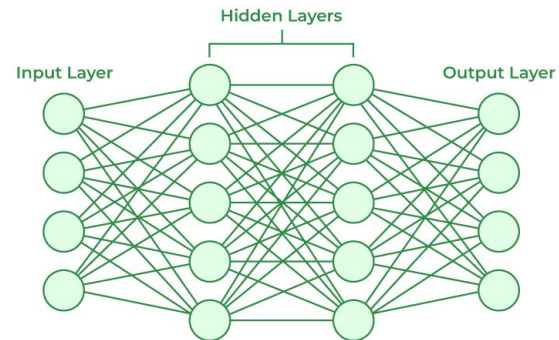
2021 - Today

End-to-End Neural Networks (NN)

Requires immense data collection

Very low accuracy and very slow

Intelligence in **unknown** situation



The team - 7 PhD Engineers - 11 Total



Asad Tirmizi, Ph.D.
CEO

Robotics Scientist. ByteDance, Vicarious (now Google). Best PhD Award in Robotics 2016 Italy. Next Gen. Innovator award (EU).



Lars Tingelstad, Ph.D.
CTO

x-Professor of Robotics (NTNU) Norway's premium technical university. Supervised PhD's & Grad students. Lead of largest robotics lab in Norway.



Alejandro Astudillo, Ph.D.
VP Software

Research and robotics SW lead with 8+ years of experience developing SW for rapid deployment of efficient automated solutions using robots. Colombian "Young Researcher and Innovator", ASME Rising Star Award.



Mathias Arbo, Ph.D.
COO

Robotics Scientist. PhD Robot Behaviors and Learning. Tech Lead Robotics SINTEF. Postdoc, and PhD degree from Department of Engineering Cybernetics at NTNU



Sonny Samson-akpan, M.Sc.
Business Dev. Executive

Business developer. 9+ years of experience in business project management and sales process optimization.



Vahid Mokhtari, Ph. D.
Robot Planning

Robot Planning Scientist. Inventor of the SAFE planner. A leading authority on robot planning and decision making logic



Ajay Sathya, Ph.D.
Robot Skills

Robotician and Inventor of Tasho. A groundbreaking robot control library. 8 years of experience in robot skills creation



Jason Frasier
Robot User Experience

x-Principal Product Designer LinkedIn. Designer of the LinkedIn Sales Navigator



Product

Robot agent software equipped with **physical AI skills**

Skill models trained for **specific industrial tasks**

The screenshot displays the ActGPT chat interface. On the left, a chat window shows a conversation between a user and the robot agent. The user asks for help programming a robot to load and unload parts from a CNC lathe. The agent responds with a task plan for machine tending. The right side of the interface shows the 'Generated Task Plan' for 'MachineTending', which includes a list of actions and a visual sequence diagram. The sequence diagram shows a flow of tasks: Initiate, Load, Machine, Unload, Place, and Rest. The chat window also shows the user's input and the agent's response.

Chat

HEy

A Hello, I am ActGPT, your robot programming assistant from T-robotics. I will help you program the robot to load and unload parts from the Okuma LB3000EX II CNC lathe. To begin, what product would you like to produce?

xyz

A Ok. How many of these products do you want to produce?

4

A Okay, 4 pieces of the product will be produced. What is the material of the product?

Alu 6061

A The product is made of Alu 6061. Are the

Write a message...

Generated Task Plan

List of actions to be performed by the robot

Response 1: MachineTending

CNC lathe machine tending with one gripper - Generated at: 01:43:27 PM 21/08/2024

Sequence Initiate

Script Action

Repeat Action

Sequence LoadUnload

Sequence Pick

Sequence Load

Sequence Machine

Sequence Unload

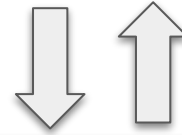
Sequence Place

Sequence Rest

< Previous Response

Next Response >

Natural Language



Robot Agent

Constraint Based Skills

Trained Neural Network Skills



Robot Action

Technology - Robot agent software that helps program



The agent knows the task **better than any human** and continuously improves

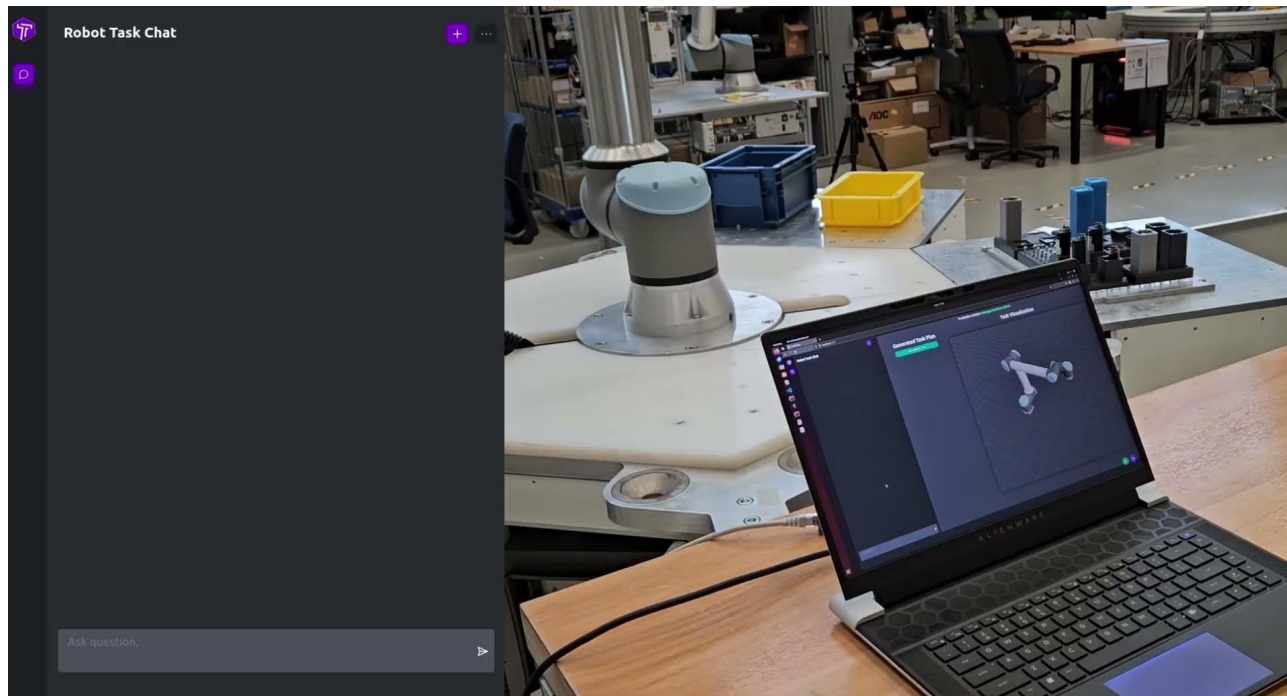
Provides **guided Programming** in simple language

Trained on **Vision, Haptics, and Language** of the task encoded in a proprietary foundation model

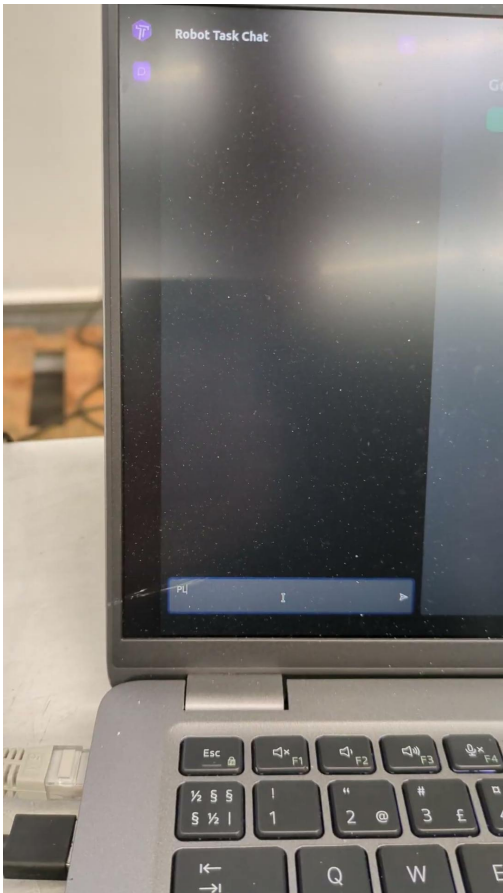
Technology - Trained skills that shift between machine and human behavior

Constraint-based optimal control provides machine like performance in known situations

Neural networks provides human intelligence in unknown situations



Traction



**7 Committed
Deployments**
\$1.17 Million

21 in Pipeline
\$6.2 Million

Machining Case: Verksted Partner

T-robotics actGPT estimated saves **\$98,000 USD**

Story across machine shops in US & EU



Thank you