

29. qualityaustria Forum

Beyond the Hype

Warum AI gekommen ist um zu bleiben und wie wir davon profitieren können

March 12th, 2024

Clemens Wasner



@ClemensWasner



Clemens Wasner



www.AI-Landscape.at

Talking Points



State of AI



Working with AI



Austrian AI Ecosystem



A few (mis) conceptions

Why is AI relevant?

How things used to be



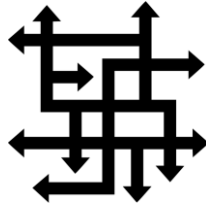
... 50,000 Boeing employees.

**... in just 16 months during the
late 1960s.**

Our expectations keep increasing



Energy Savings

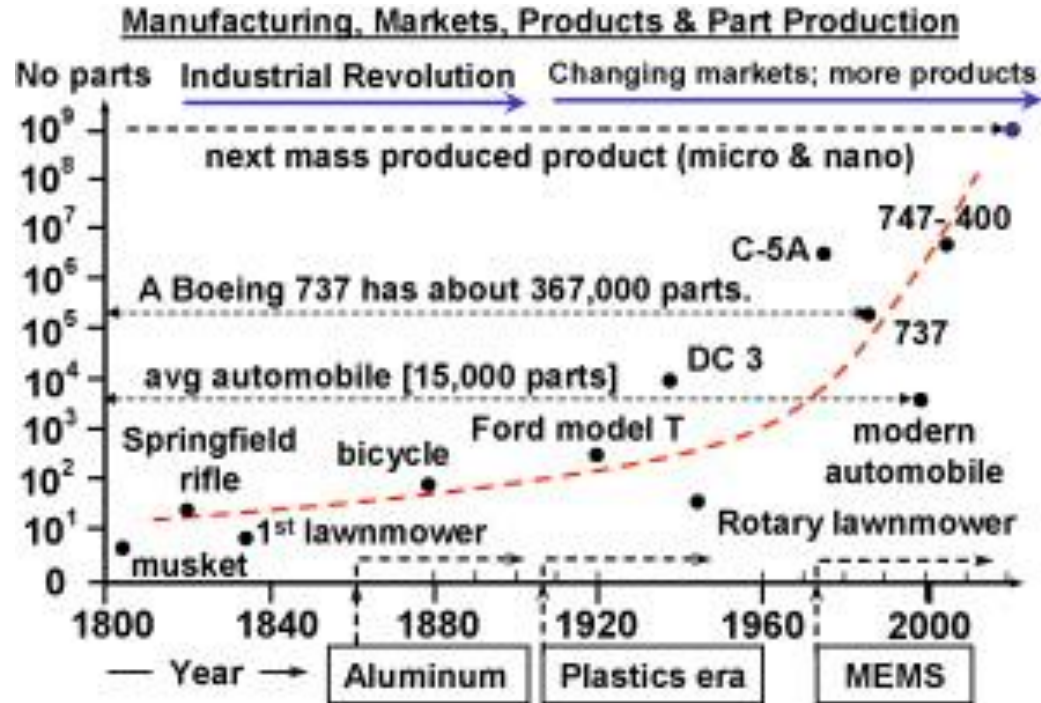


Manage complexity



Regulations

Rising complexity



Source: [Metal forming progress since 2000, CIRP Journal of Manufacturing Science and Technology](#)

1

State of AI



First Wave of AI 2012 - 2021

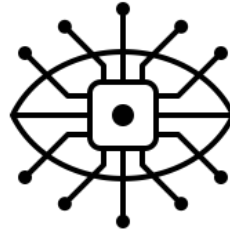


First Wave of AI Technology

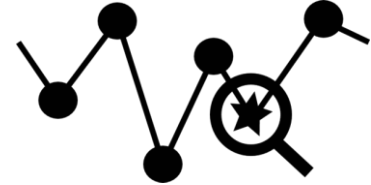
Forecasting
& time series analysis



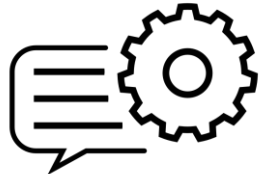
Computer
Vision



Anomaly detection



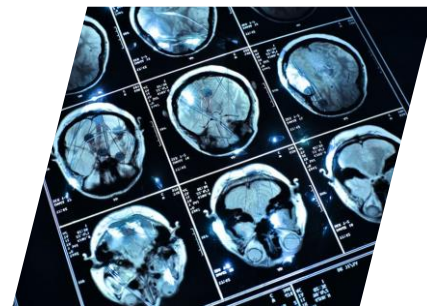
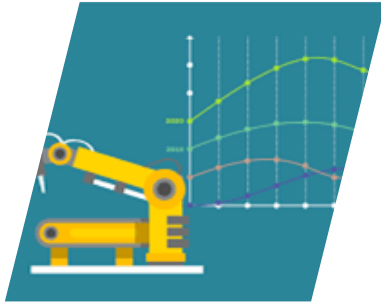
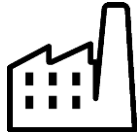
Natural Language
Processing



Speech Processing
& Chatbots



State of AI Business



Second Wave of AI from 2022

Generative AI
Large Language Models



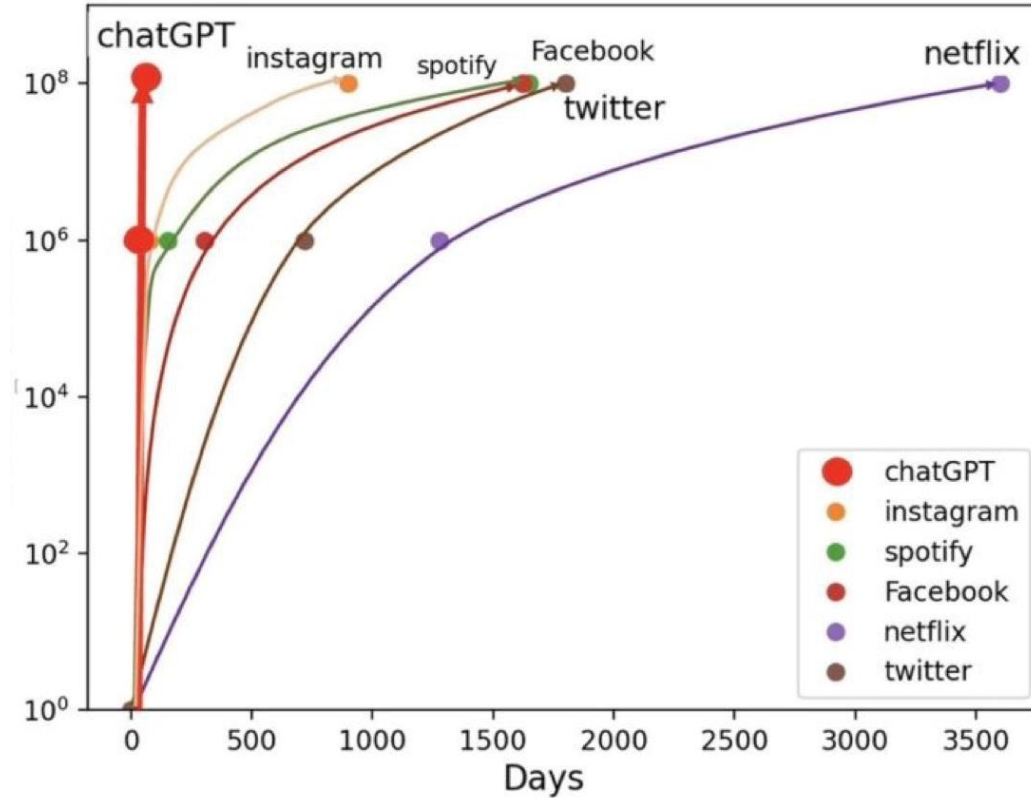
Second Wave of AI from 2022

First wave

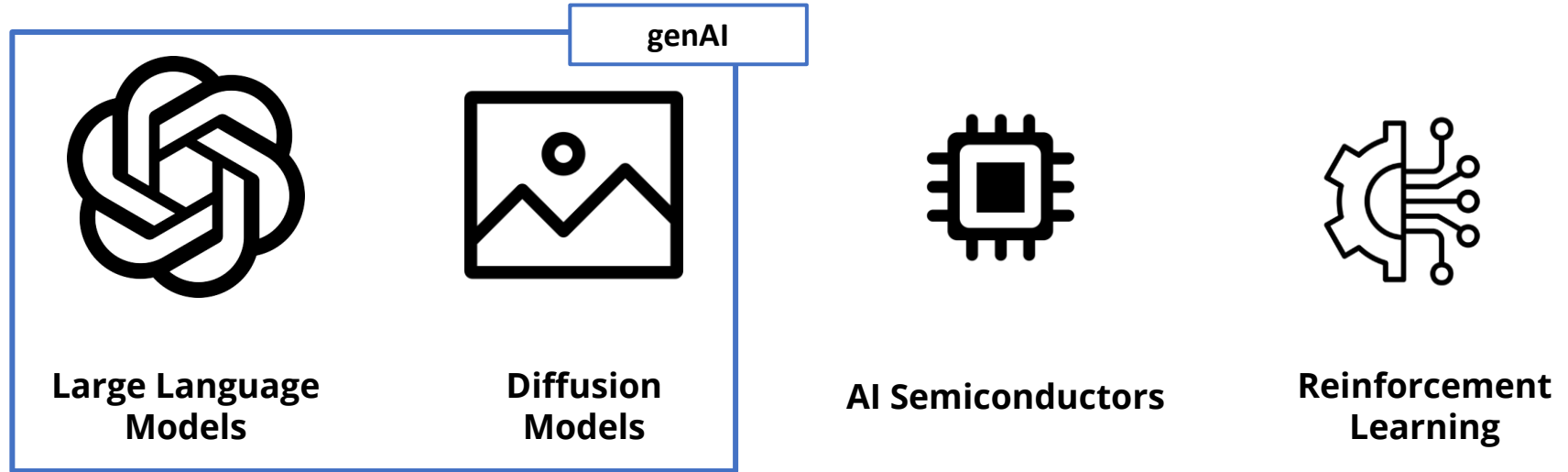
1 M users after 1500 - 2000 days

Second Wave

1 M users in 5 days (ChatGPT)

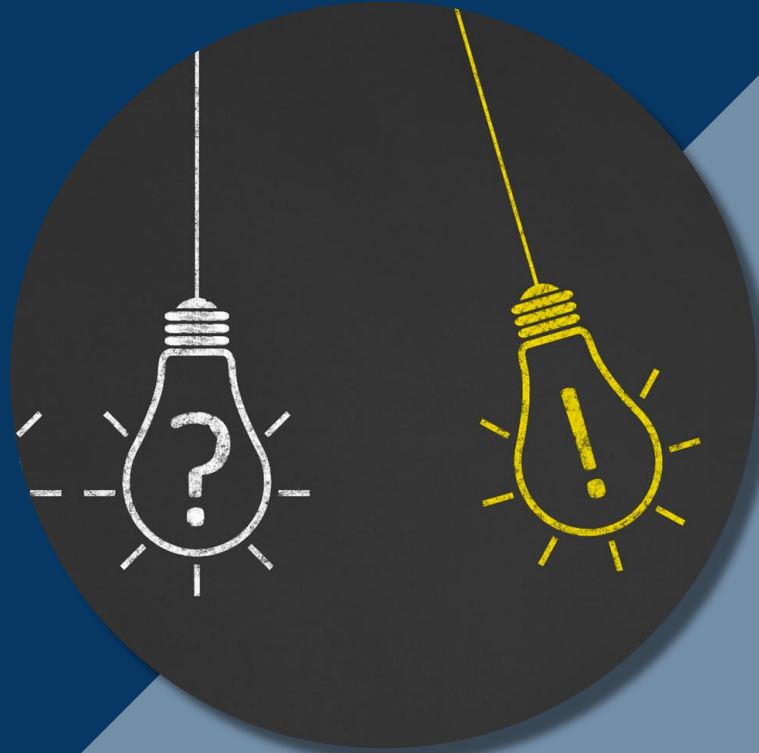


Second Wave of AI Technologies



2

Working with AI



Working with AI

1

How an AI help us to become more efficient?



2

Would it make sense to integrate AI elements into our service offerings & company functions?

How an AI help us to become more efficient?

Efficiency levers

`</>` coding

Text generation

- Grant proposals
- manuals
- Specification & requirements
- Marketing copy
- ...

Knowledge management

- Internal
- Towards customers
- Patent research
- Trademark infringement

Document and text processing

- Invoices and purchasing orders
- Service tickets
- Mail sorting
- ...

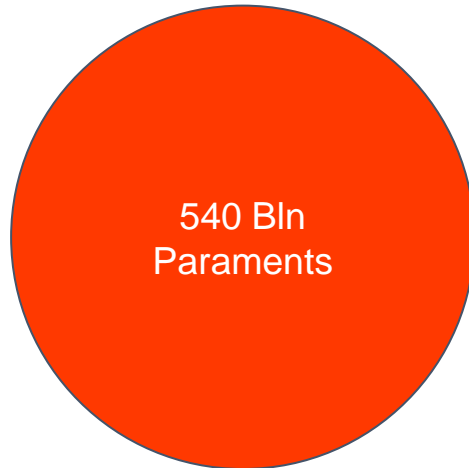
Admin & financials

- Forecasting and controlling
- Recruiting
- Skill management
-

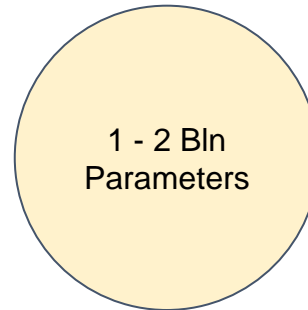
Training costs are falling

Example Large Language Models

General Purpose Models
Google PaLM



Specialized Models
Replit Ghostwriter



Fine-tuning
LLama2



Training costs are falling

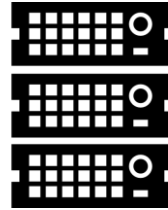
Example Large Language Models

General Purpose Models
Google PaLM



€7 - 15 M

Specialized Models
Replit Ghostwriter



€1 - 2 M





















Relevant for SMEs

Fine-tuning
LLama2



€100 - 1000

Open Source

	Category	Paid	Open Source Alternative
	Large Language Models	ChatGPT  ChatGPT	Llama, Alpaca, Hugging Face's Transformers
	Image Generation	Midjourney 	Stable Diffusion, StyleGAN2
	Voice Cloning / Text to Speech	Elevenlabs 	Suno.ai Bark, Mozilla TTS, MaryTTS
	Transcription	Open AI Whisper 	Mozilla DeepSpeech
	Voice Conversion	Voice.ai 	Retrieval Based Voice Conversion, Suno.AI Bark
	Video Generation	Runway ML 	Pika Labs, AnimateDiff
	Music Generation	Mubert, SongStarter, LALAL.AI 	Meta Audiocraft (MusicGen, AudioGen), Suno.AI Chirp
	Data Generation	Gretel.ai 	Synthea
	Multimodal Chatbot Creation Platform	Character.AI 	Oobaboogah (text-generation-webui)
	Lip syncing	Heygen 	Wav2Lip

Nature of AI projects has changed

First Wave
2012 - 2022

€ 100.000+ AI model development cost, on top of implementation

6-18 months project duration

B2B driven

PhDs in AI & machine learning

Second Wave
2023 ~

€ << 100.000 service cost

projects measured in weeks

B2C driven / consumerization

Developers

AI and the public sector

A few (personal) observations

From a startup perspective



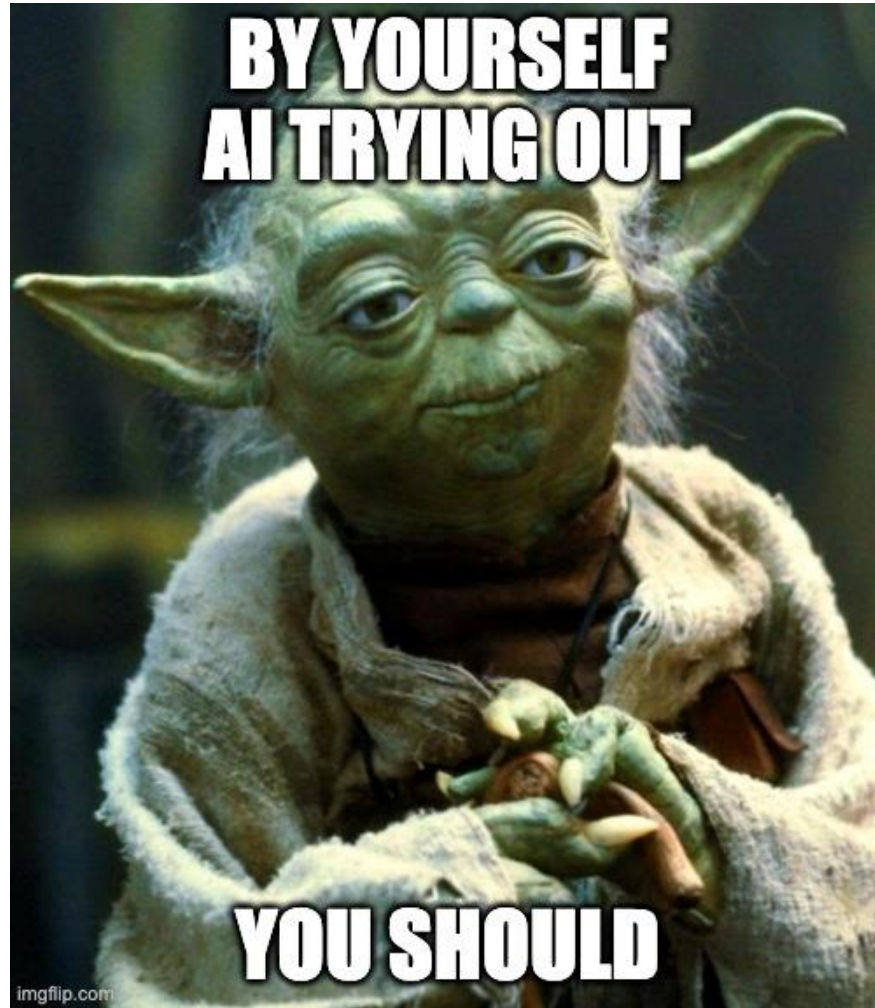
- Very long procurement cycles for projects above EUR 50.000
- Large effort for integration at customer-side, which in turn reduces funds for core functionality
- Decision process often unclear: who is the problem owner, where does financing come from, ...

From an organizational perspective



- Structured exchange with community and external partners not the default
- Difficult to move from PoC to production
- Anti-network effect: Visibility of internal initiatives slows down momentum

TL, DR



3

Austrian AI Ecosystem



“Wenn die Welt einmal untergehen sollte, ziehe ich nach Österreich, denn dort passiert alles 50 Jahre später.”

Gustav Mahler, (1860 - 1911),
österreichischer Dirigent und Komponist

AI Landscape Austria

Key Facts

300+	Companies & startups ¹	10%	AI Startup YoY growth rate
50+	Universities & Research institutions	50+	International players
70+	Ecosystem players e.g organizations, investors,...	3	Ellis Units ²
70%	of startups received public funding	3x	huge uptake in female (co)founders in 2022

¹ excluding general IT service providers with AI capabilities

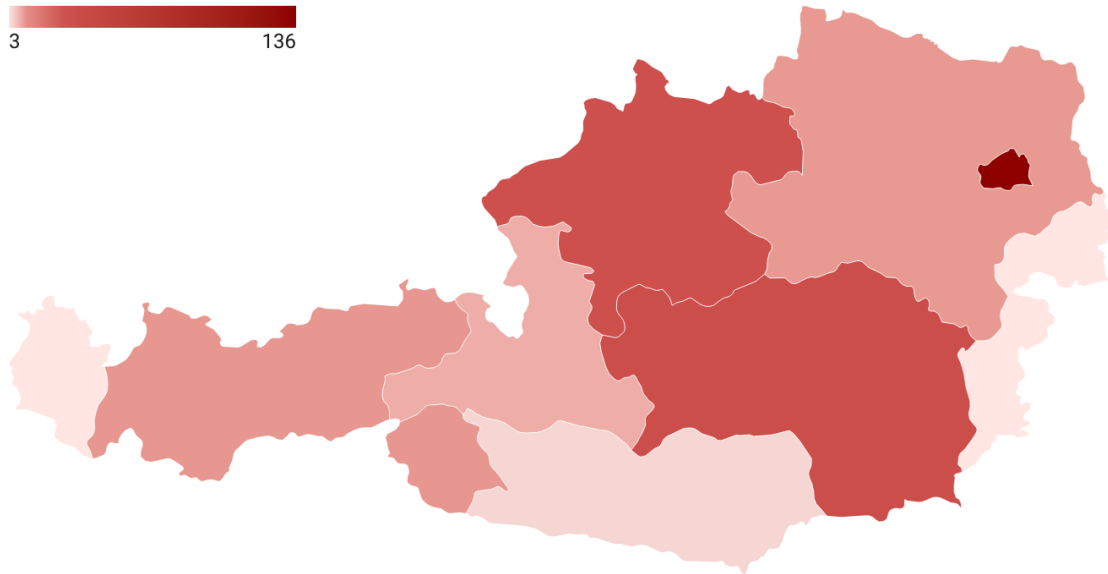
² Austria is home to 3 out of 39 Ellis units, making it the country with the highest density of top AI research institutions per capita

Geographic distribution

85% of all startups located in 3 regional hubs

AI company distribution

Distribution of AI companies and startups, based on location of headquarter



~55%

of startups located in
Vienna



~30%

in Styria
& Upper Austria

Map: Clemens Wasner • Source: <https://www.ai-landscape.at> • Created with Datawrapper

LANDSCAPE AUSTRIA 23



www.AI-Landscape.at

AI STARTUPS & COMPANIES

EARLY ADOPTERS

ENABLERS & EXTENDED ECOSYSTEM

GENERATIVE AI - CLASS OF 2023

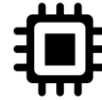
Second Wave of AI Austrian Companies & Startups



Large Language
Models



Diffusion
Models



AI Semi-
conductors



Reinforcement
Learning

ONLIM



blumatix

Atlas



ikt



EYES



Leftshift One



enliteAI



Magic



Mokker



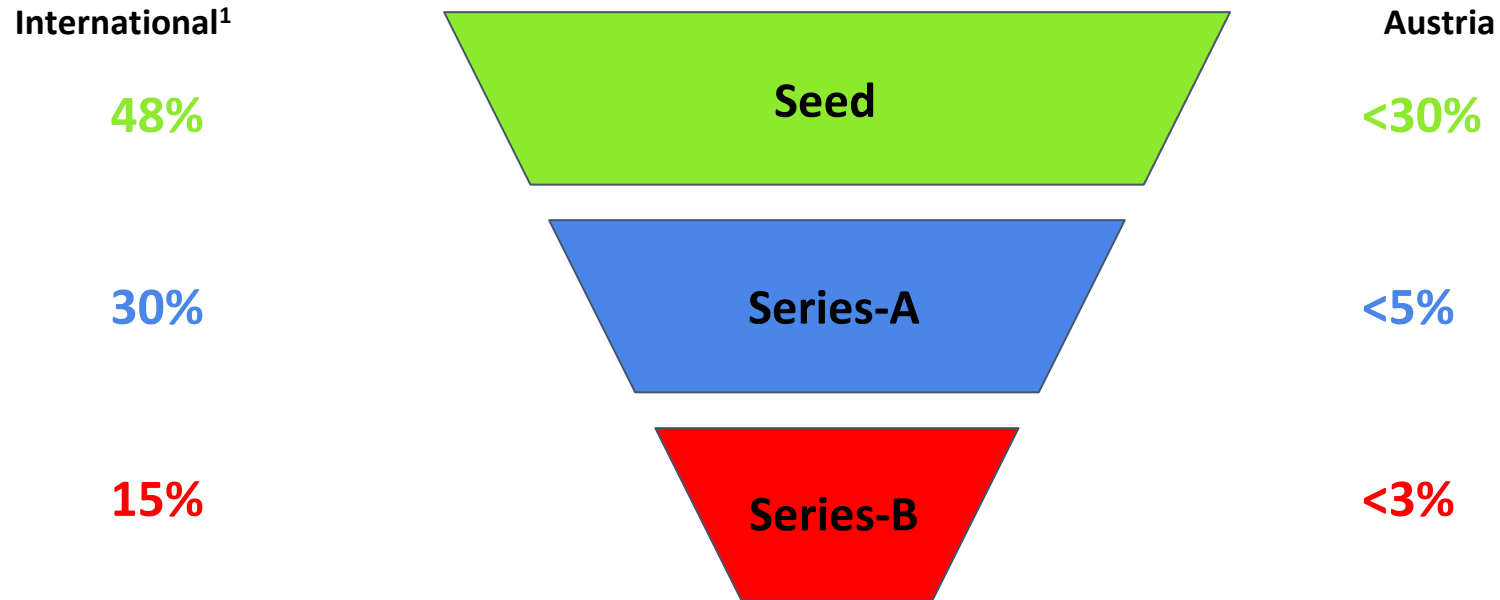
AI STORM

<extensity^{AI}/>



LALAMU

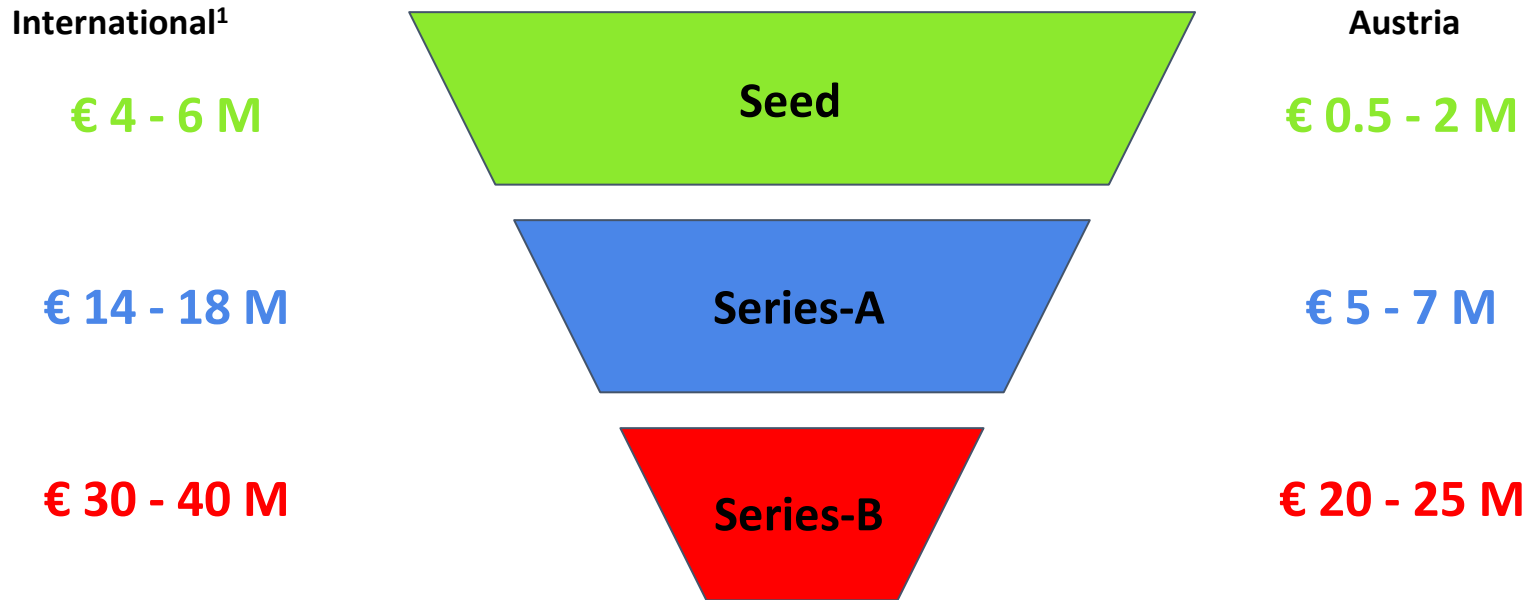
Austrian AI Startups Survival Rate



¹Source: CB Insights, The venture capital funnel

Austrian AI Startups

Average round size per Stage



¹Source: Crunchbase

Austrian AI Startups

Oddities...

“we received a huge investment!”

2 MEUR

“...hmmm actually...”

600k EUR Investment
1 - 1.4 MEUR Government grants



Startup valuations are in many cases much lower (up to 60%) than implied through PR

Public funding landscape

Local and national grants



Innovation

- (up to) EUR 200k grant
- Project size: EUR 450k
- 45% quota



AI Adoption

- up to EUR 150k grant
- Project size: EUR 180k
- up to 80% quota

Pre-Seed - Deep Tech

- up to EUR 200k grant

Seed - Deep Tech

- up to EUR 800k grant



Basisprogramm

- Project size: up to EUR 3 Million
- 50% - 70% quota

AI4Green

- EUR 100k - 2 Million
- 50% quota

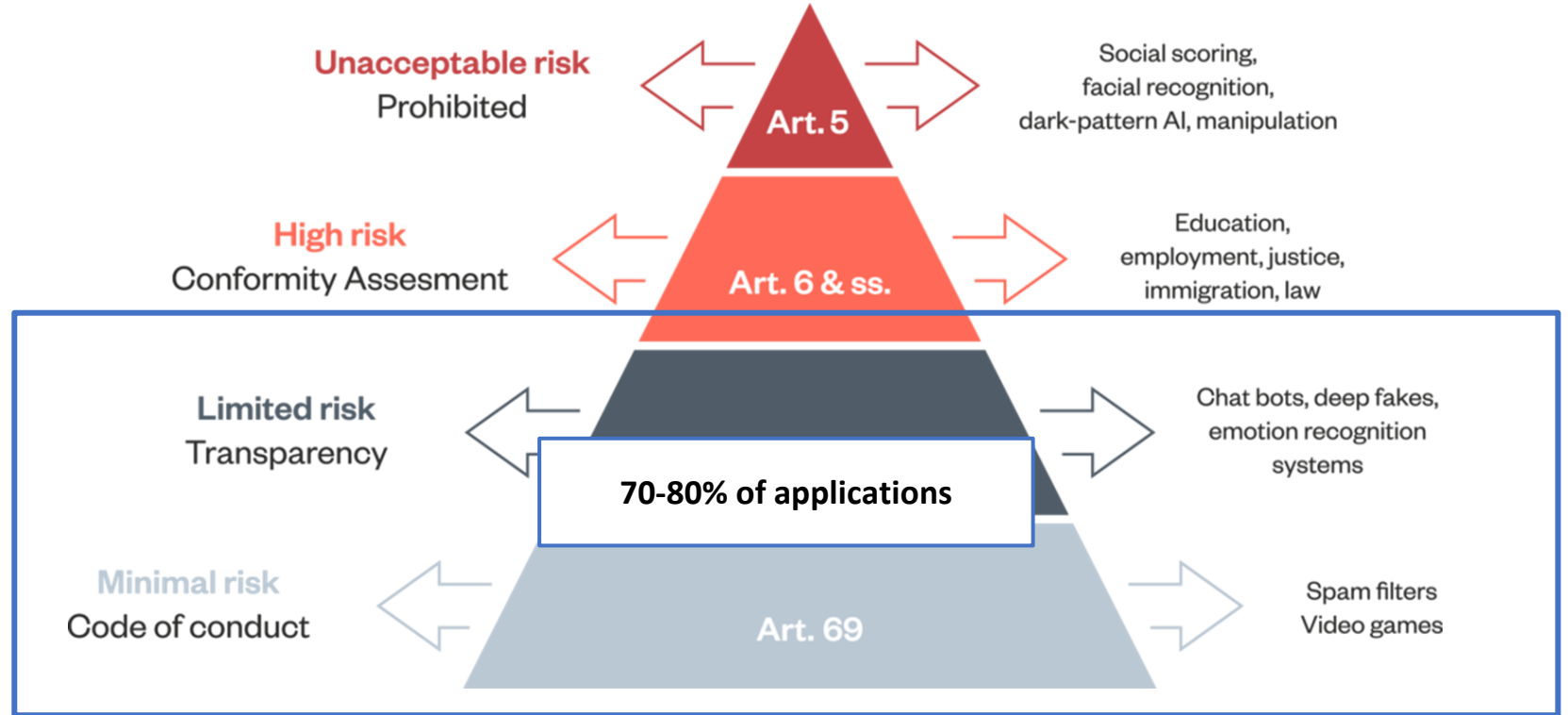
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A few (Mis)conceptions



**Regulation will
kill our business**

European AI Act Regulation



**AI will put us
out of job**

March 1964

Automation in Germany—
Entry of the Robots.



April 1978

The Computer Revolution—
How progress leads into
unemployment.



September 2016

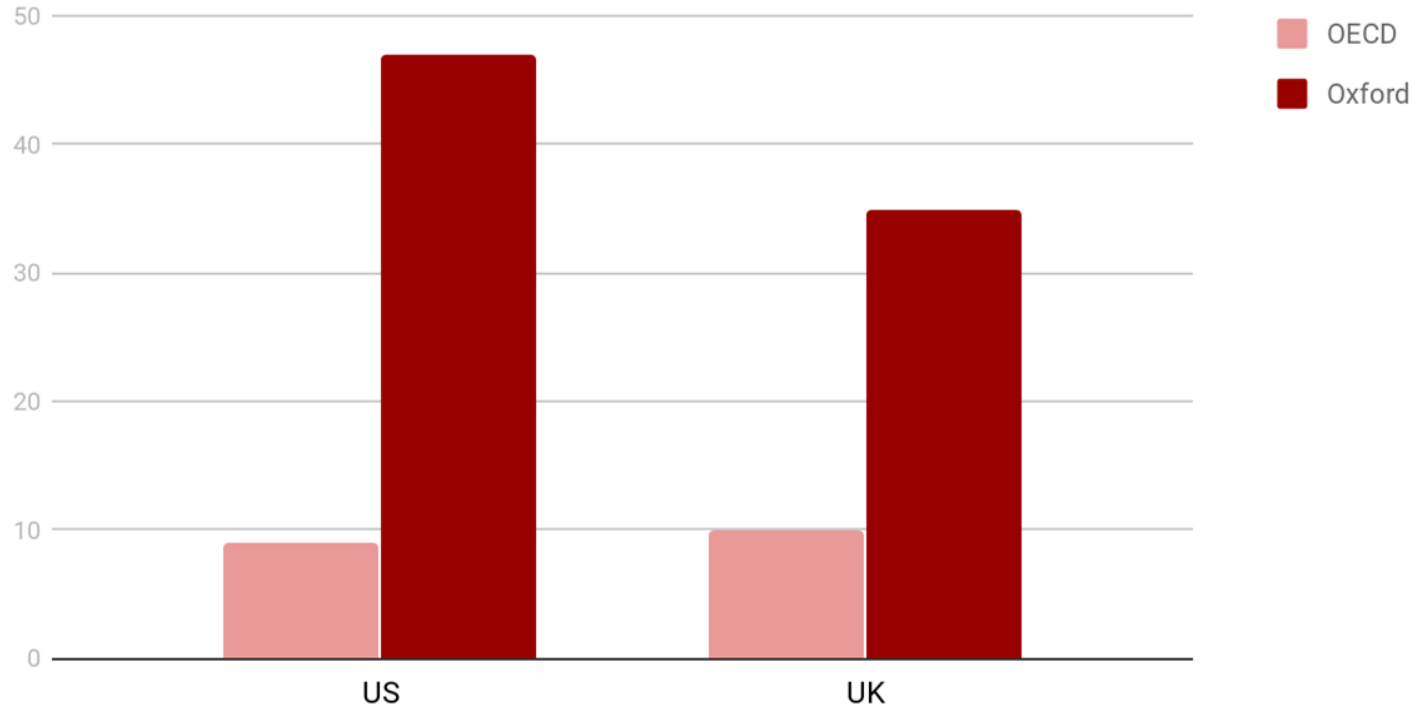
You are fired! How computers
and robots take away our
work—and which professions
are still safe tomorrow.



Source: Der Spiegel

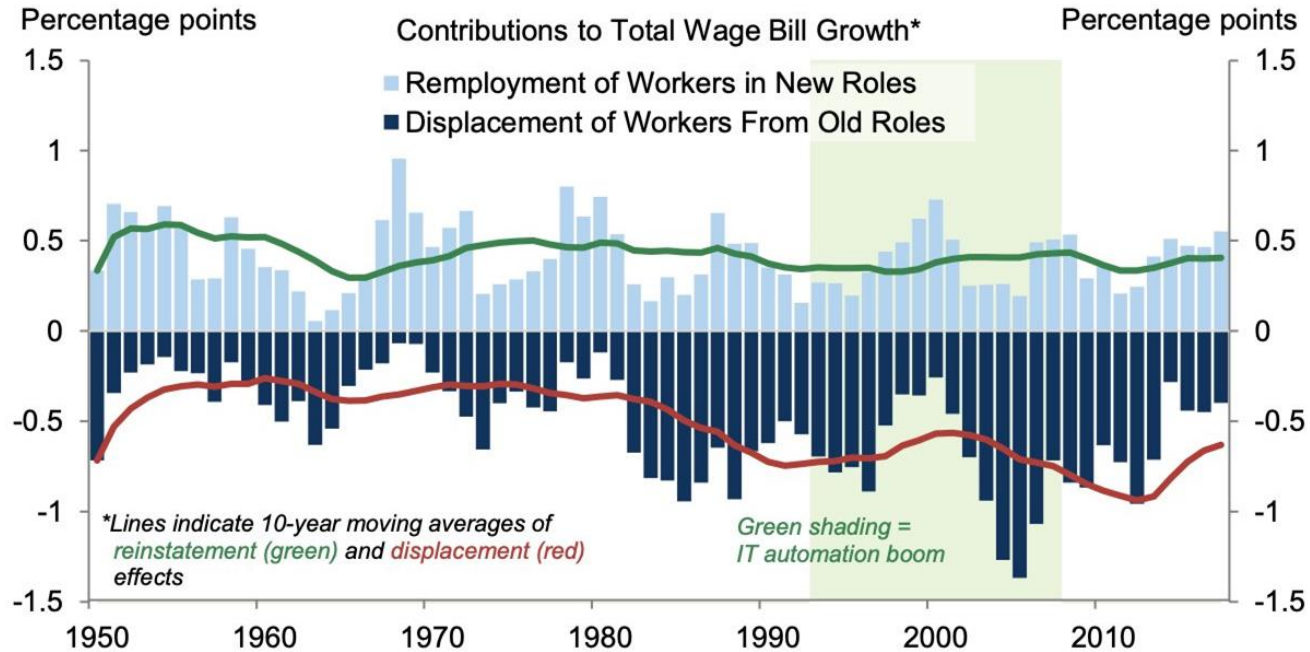
Impact of AI on our jobs

Two high-profile studies, two very different conclusions



Impact of technology on our jobs

Historic Perspective



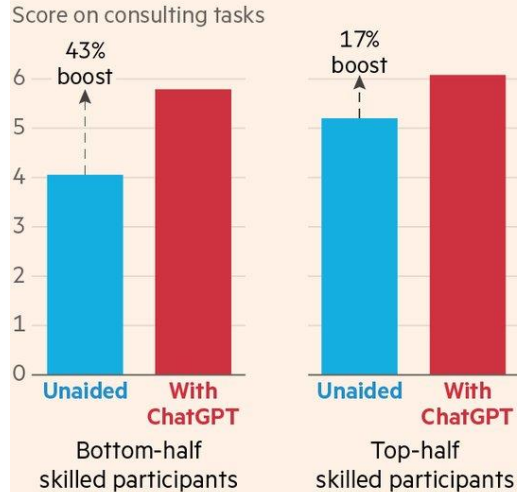
Source: Acemoglu and Restrepo (2019), Goldman Sachs Global Investment Research

Impact of AI on our jobs?

More AI = more productive employees

In high-skilled white-collar occupations, generative AI levels the playing field, boosting performance the most for less-skilled workers

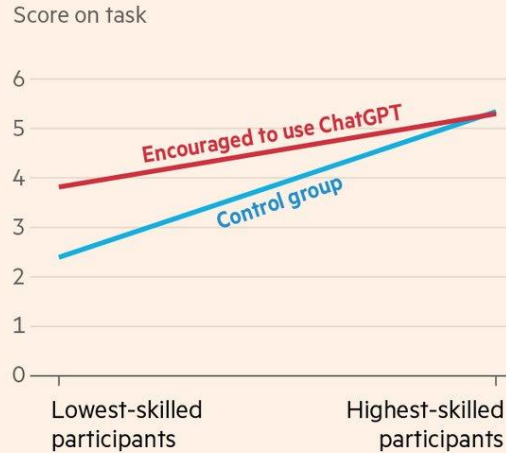
Impact of using ChatGPT on performance, among 758 Boston Consulting Group staff



Source: *Navigating the Jagged Technological Frontier: Field Experimental Evidence of the Effects of AI on Knowledge Worker Productivity and Quality* (Dell'Acque et al, 2023)

© FT

Impact of being encouraged to use ChatGPT on performance in professional writing tasks*



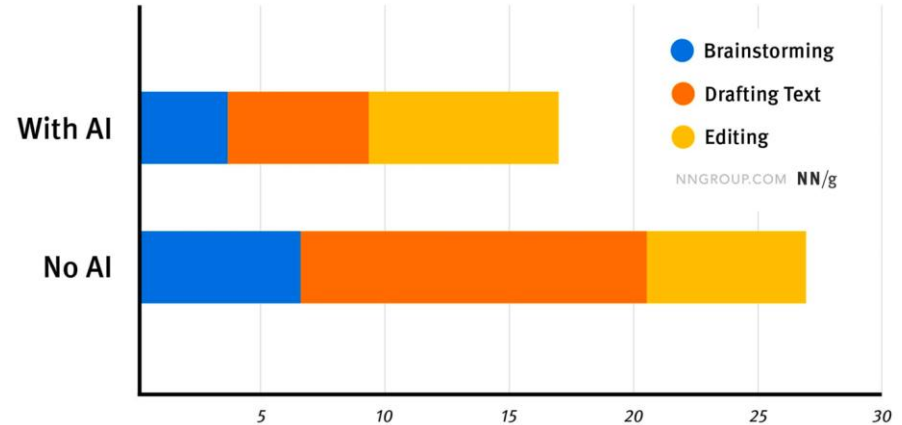
*Writing press releases, reports, analysis plans, and delicate emails
Source: *Experimental Evidence on the Productivity Effects of Generative Artificial Intelligence* (Noy et al, 2023)

MIT Study on the impact of ChatGPT

More AI = happier employees

- 20% reduction in inequality across skill levels
- 10% improvement of output quality

Time Spent on Writing Subtasks (Minutes)



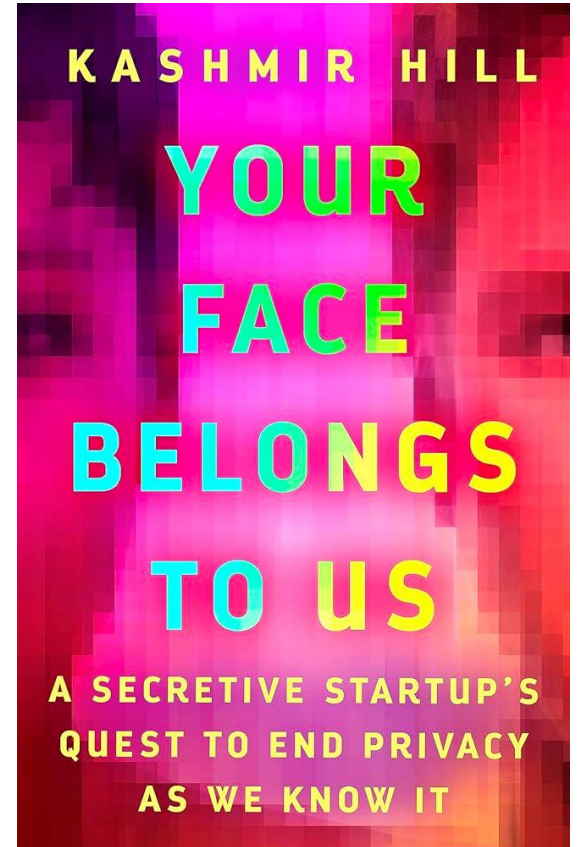
AI has bias

What about racial bias?

Facial recognition



Hoan Ton-That, founder and CEO of Clearview AI, said in a statement: “I have the utmost respect for Senators Markey and Merkley, and Reps. Jayapal and Pressley. However, on the topic of Clearview AI, recent NIST testing has shown that Clearview AI’s facial recognition algorithm shows no detectable racial bias, and to this date, we know of no instance where Clearview AI’s technology has resulted in a wrongful arrest.” He cited another government study in which Clearview AI’s algorithm “correctly matched the correct face out of a lineup of 12 million photos at an accuracy rate of 99.85%, which is much more accurate than the human eye.”



Does AI discriminate against women? Australian & Swedish Study

— Exclusive

AI more likely to hire women than humans are: study

Euan Black *Work and Careers Reporter*



Updated May 17, 2023 - 6.26pm, first published at 3.41pm



Save



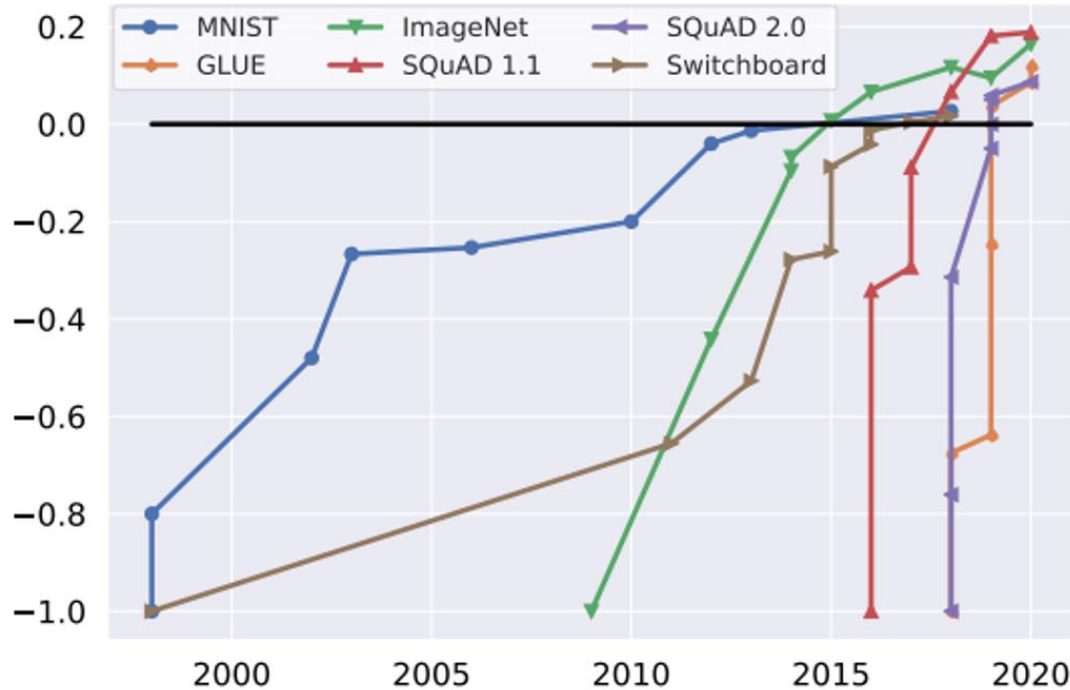
Share

Women would land more roles in tech if employers used artificial intelligence in the recruitment process, new research has found.

**AI is smarter
than us**

Is AI smarter than humans?

It Depends



In a variety of tasks, AI has become better than humans in the last years

- Mostly perception tasks

“Think of today’s AI like 10.000
interns at your disposal”

Andrew Ng, fmr. Head of Google X

Contact



Clemens Wasner
CEO at enliteAI
President at AI Austria
Board at Adra



c.wasner@enlite.ai