

Preben Mejer

preben@mejer.com





AI – Kunstig intelligens

- Personal Computing
- Internet
- AI McKinsey

- Buckle up

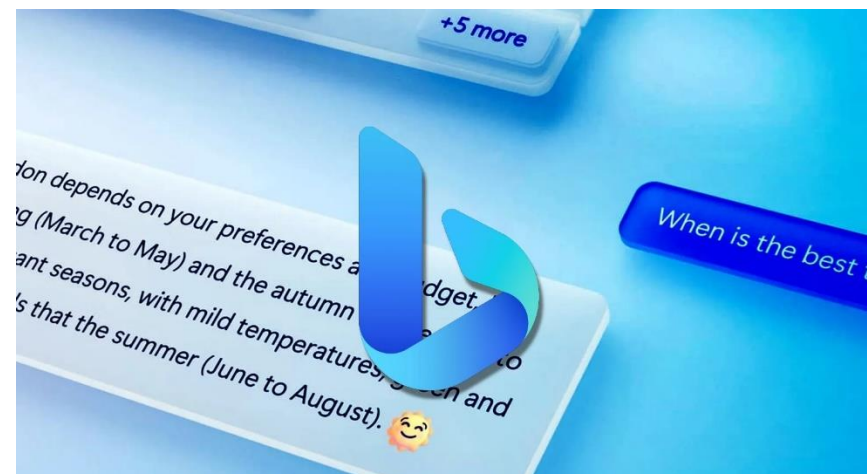
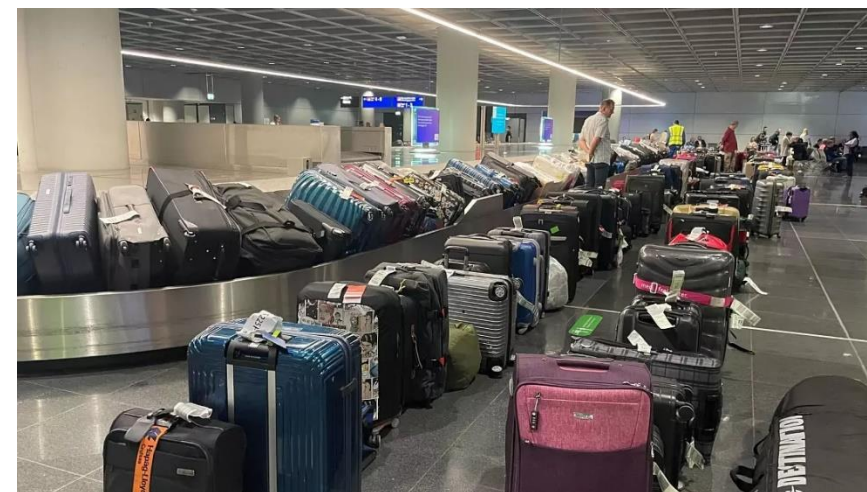
- Nyhedsstrøm dobbelt op
- Store nyheder ugentligt vs kvartalsvis 2000





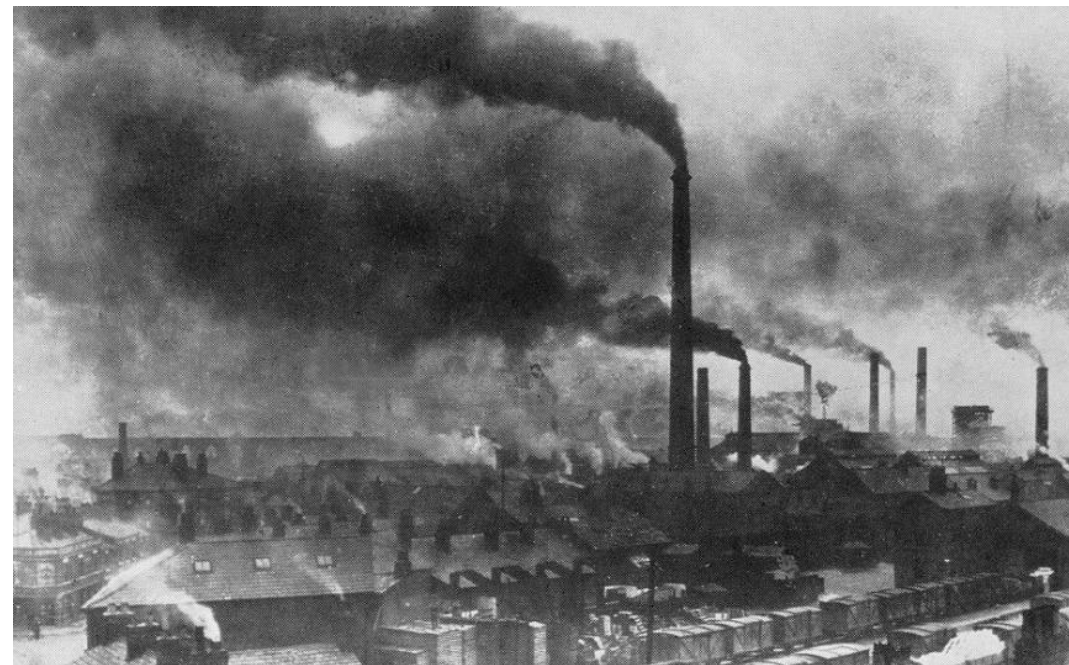
AI i din hverdag

- Låneansøgning på minutter i stedet for dage
- Kastrup bagage kapacitet fordoblet
- KLM mail ryger direkte i Outlook kalender
- Tesla ladeoptimering
- BingChat





Industrialiseringen gav os ...



- Tidszoner
- Hierarkiske organisationer
- Fabrikker
- Forbrug – købe for at eje – ting, masser af ting

- WEF
- Dampmaskinen gav de vestlige lande 0.3 pct GDP årlig tilvækst
- IT og Internet 0.6 pct
- AI har potentiale til 1.3 pct



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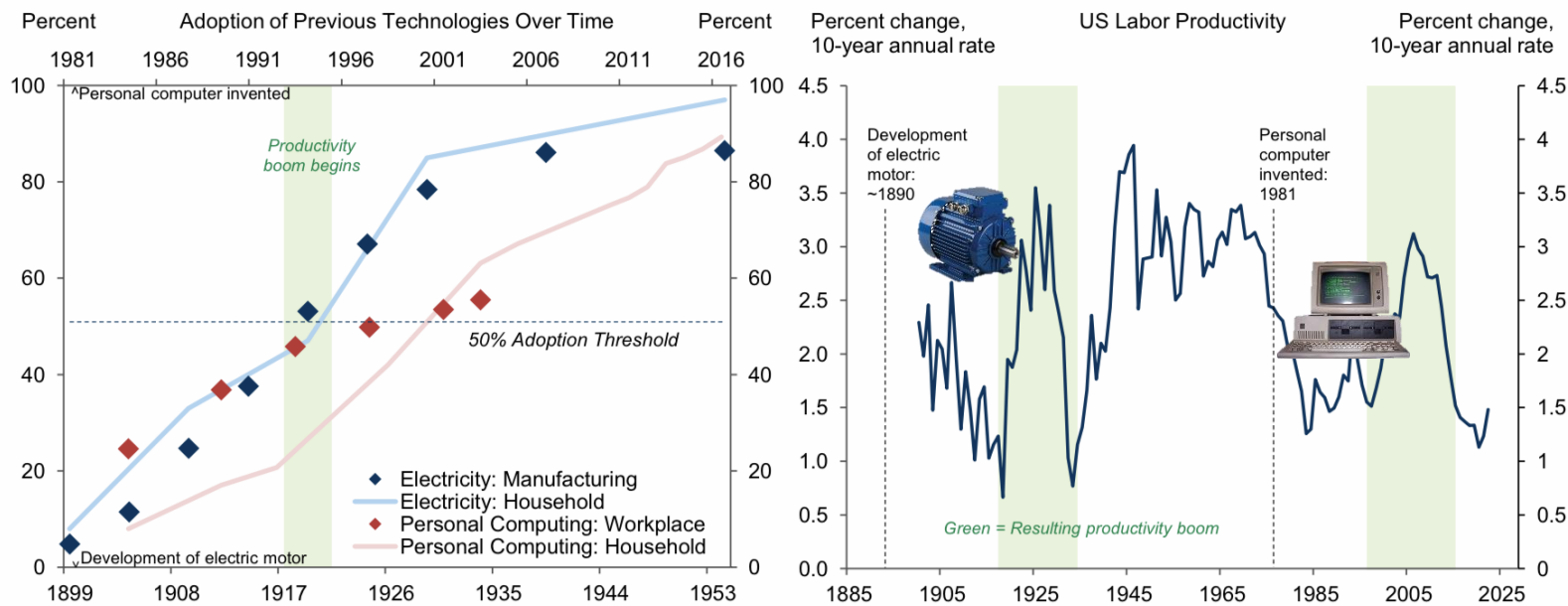
- WEF - 2021
- Dampmaskinen gav de vestlige lande 0.3 pct GDP årlig tilvækst
- IT og Internet 0.6 pct
- AI har potentiale til ~~1.3~~ pct

- AI could increase annual GDP by 7 pct
 - Goldman Sachs 26 marts

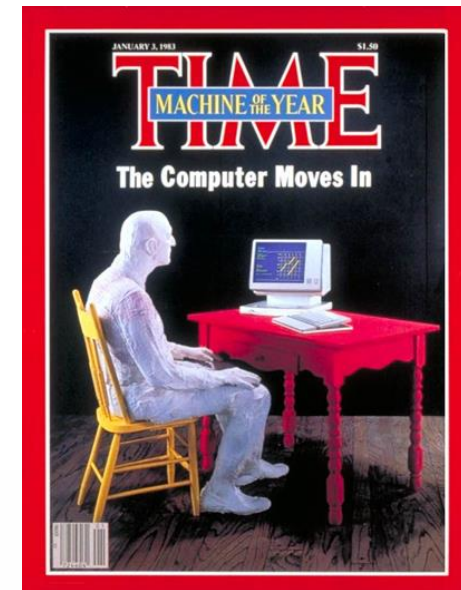
Milestone Tech and Labour productivity booms

- 10-20 år fra lancering til 50 pct udbredelse og produktivitets spring
 - ChatGPT and what follows may be for the 2030's - Paul Krugman WSJ

Exhibit 12: Previous Milestone Technologies Have Led to Labor Productivity Booms, but the Timing Is Hard to Predict



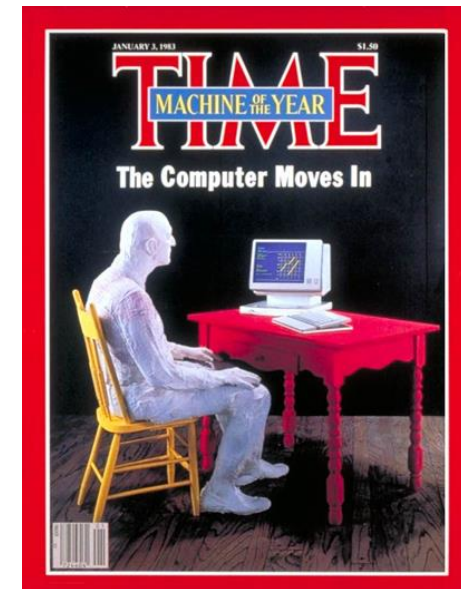
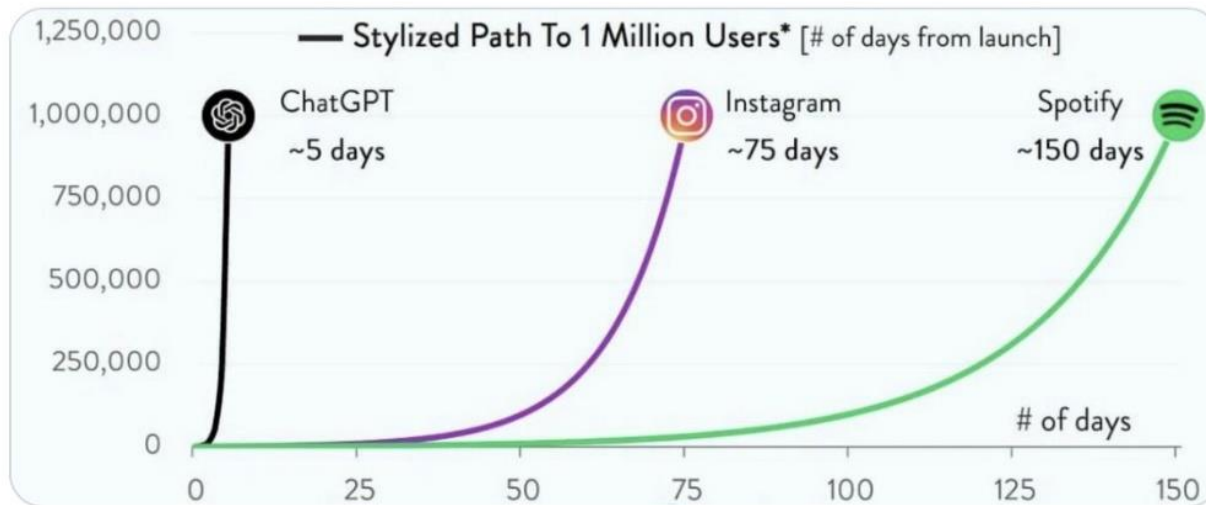
Source: US Bureau of Labor Statistics, Census Bureau, Our World in Data, Woolf (1987), Haver Analytics, Goldman Sachs Global Investment Research



Milestone Tech and Labour productivity booms

- 10-20 år fra lancering til 50 pct udbredelse og produktivitets spring
 - ChatGPT and what follows may be for the 2030's - Paul Krugman WSJ
 - Og dog ... PC'en 2 år for første mio solgt, ChatGPT 5 dage

Time different services took to reach 1 Million users. If you had any doubts that ChatGPT is going to change the way we use the Internet, look at this graph again ...





Hastighed - uptake



- Kan vi nå at reagere?



AI – Kunstig intelligens



- Above Imagination
- Nogle af de vildere ting....





AI – nu Ingen havde drømt om...



- **Kreativitet**
 - Skabe kunst, mærkværdigheder og video



Dall-E, Meta, ControlNET

AI – nu Ingen havde drømt om...



- **Kreativitet**
 - Skabe kunst, mærkværdigheder og video
- **Udødelighed**
 - Chat med Winston Churchill



Character AI – chatbots that can imitate the conversational style of anybody

AI – nu Ingen havde drømt om...



- **Kreativitet**
 - Skabe kunst, mærkværdigheder og video
- **Udødelighed**
 - Chat med Winston Churchill
- **Sprog – som aldrig før**
 - Talking to whales



To communicate with a whale in 2026
Exchange ideas and experiences
CETI – Cetacean Translation Initiative

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- **Udødelighed**
 - Chat med Winston Churchill
- **Sprog – som aldrig før**
 - Talking to whales
- **Kombinationsevne – som aldrig før**
 - Recipes from fridge



ChatGPT

Several recipes

Fruit salad, cheese omelette, ham and cheese sandwich

Fruit smoothie

For each of the items an easy recipe to whip them up

AI – nu Ingen havde drømt om...



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- **Turbo på bevægeapparatet**
 - Hoppende robotter

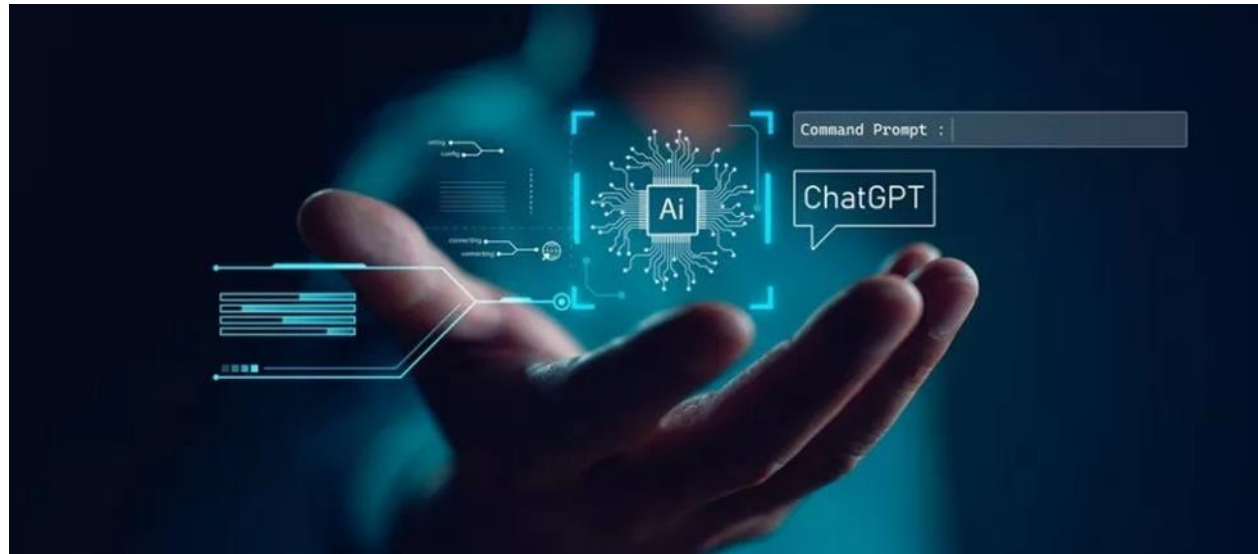


Boston Dynamics Atlas
Can run, jump, pick up and throw heavy objects

AI – nu Ingen havde drømt om...



- **Kreativitet**
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- **Turbo på bevægeapparatet**
 - Hoppende robotter
- **Glem IT som vi kender det**
 - AI baseret betjening = paradigmeskifte

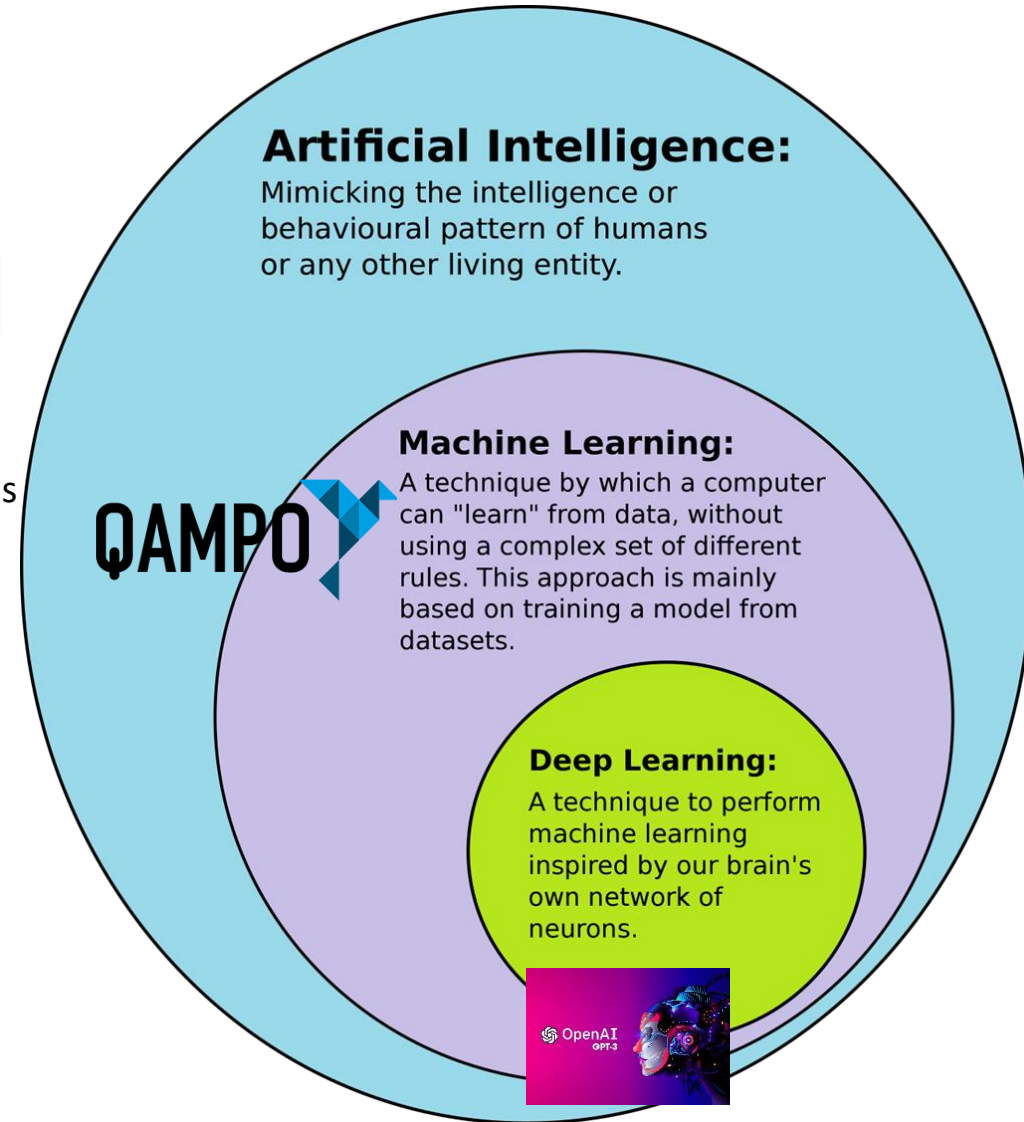




AI typer



- Machine learning
 - Machine learning algorithms based on data make predictions or decisions
- Deep learning
 - Based on neural (brain like) networks
 - Learn on data that for specific task – images for object recognition
- Generative AI
- Generative adversarial networks
 - Two neural networks, one generating new data, one evaluating
 - Generator and discriminator work together, end result look like real data
- GPT4 – Generative pretrained transformer
 - Pretrained on 175b parameters – internet – 2021 data (GPT3)
 - Transformer – can weight the significance of each part of input data
 - (BERT invented by Google)
 - Predict the next best word in a sentence
 - The first person to walk on the moon was.... Neil Armstrong
 - Images or face created based on existing
 - Any kind of text, news, poetry or translation based on 175b parameter base
 - Audio, music, sound effects, voice acting based on existing – A new Beatles album ?





Automatisering Diesel skurke & Dr Watson





AI - Qampo

- Qampo – Machine Learning
 - Decision science
 - Ressource/logistik optimering
- Optimizing airport flow
- Scheduling - staff, timetable
- Teknikerbiler
- Hjemmepleje

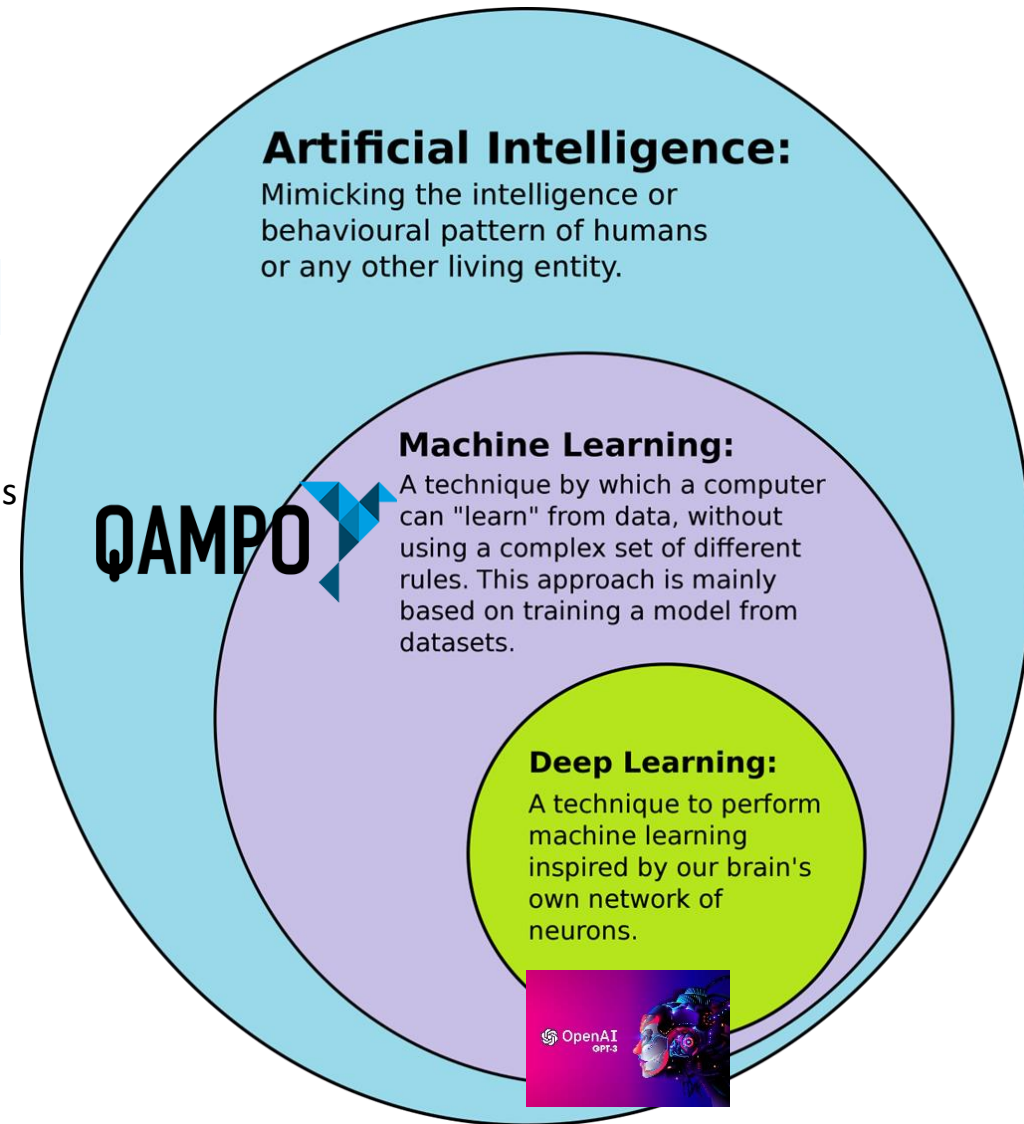




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AI – Deep Learning

- Neurale netværk
 - Struktur som menneskelige hjerne – 3 lag el flere
 - Flere ovenpå hinanden, klassificerer millioner af emner/objekter/data
 - Kan programmere sig selv
 - Facebooks Deepface AI ansigtsgenkendelses i 9 lag.
- Clearview face recognition AI
 - 10 mia fotos, ansigtsgenkendelse
 - Vkontakte, russisk Facebook – og Facebook
 - Bruges nu af Ukraine på døde/sårede russiske soldater

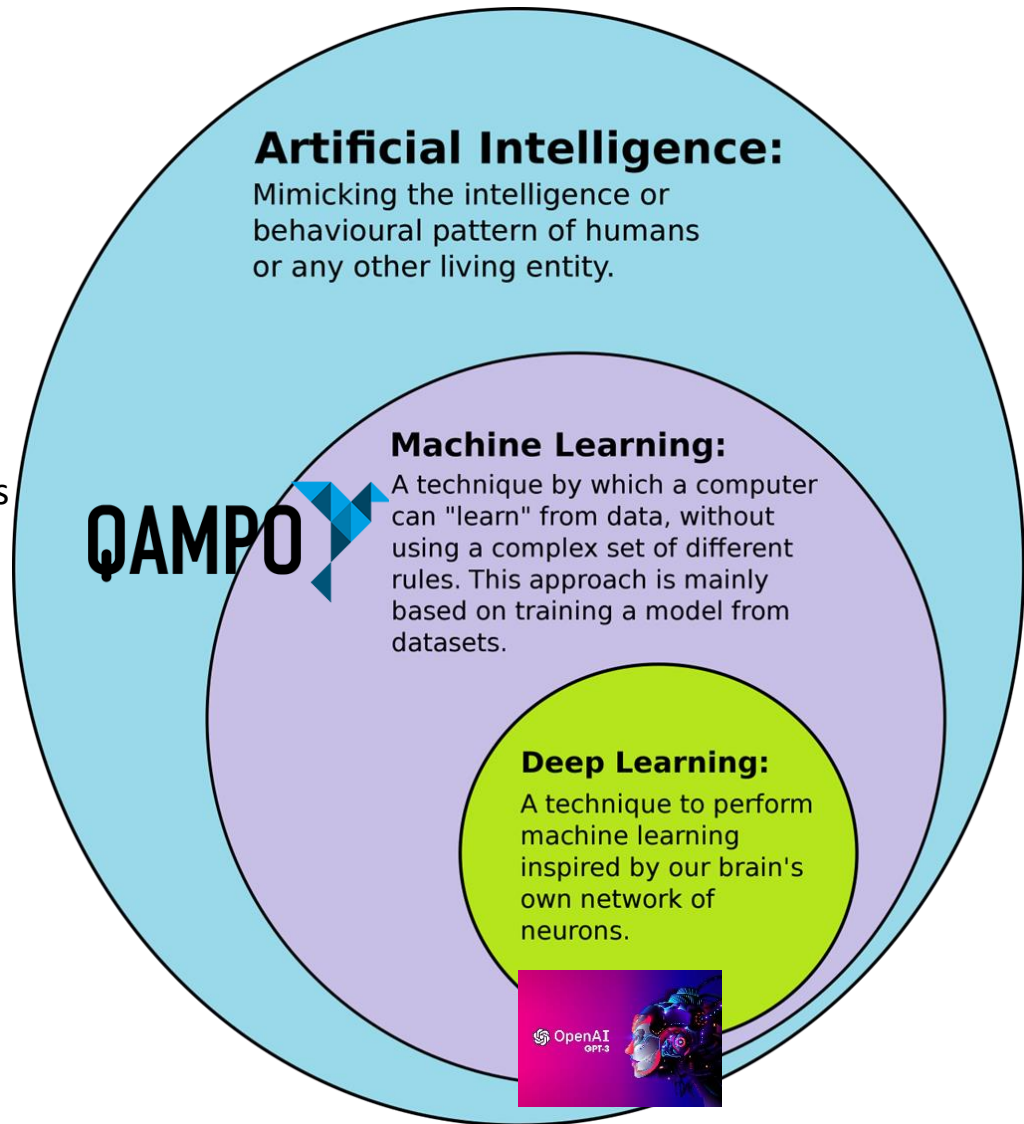




AI typer



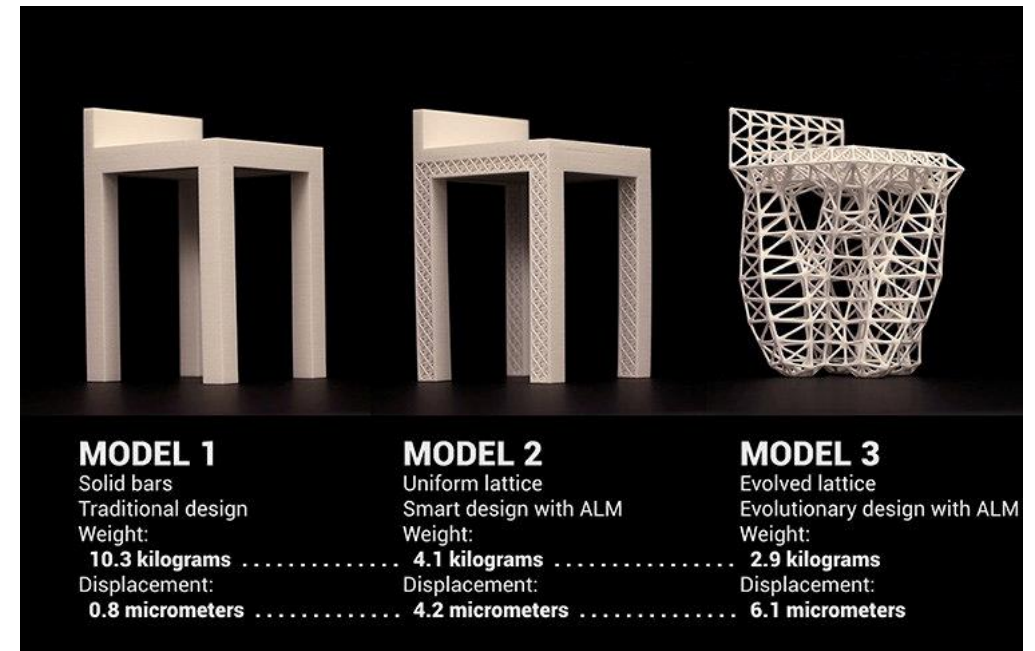
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AI Generative design

- Fortæl computeren hvad du gerne vil designe og hvad det skal koste hvor meget det skal kunne holde til
- Autodesk generative design algoritme kommer op med forslag
- I stedet for at designe elementet er designeren kurator der udvælger og selektrer
- Autodesk generative design is based on natures own R&D and biomimetic
- Autodesk



AI anvendelses temaer

De første år ...

- Automation
 - 73 pct / Qampo
 - Bots writing emails to bots
- Kuratering
 - McKinsey
- Beslutningsstøtte, det grove arbejde
 - DDB / Visiopharm / Ukraine aflytning
 - Skrive tekster, programmere 65 pct
- Orkestrering
 - Byggesager / Disaster management



Semantic **Scholar**



 Radrlab

Eksempel AI løsning

- IBM iX og Industriens Pension
 - 400.000 medlemmer og 8000 virksomheder
 - 267.000 årlige telefonopkald, ca 700 om dagen
- Pain points
 - Kundecenter rådgivningsmateriale 500 sider tekst
 - Ofte 5-7 klik og lang ventetid på informationssøgning mens kunden venter i telefonen
- Talegenkendelse og AI lytter med på kundesamtaler i realtid
 - hjælper medarbejder på tværs af de 500 sider
- 3 AI modeller der spiller sammen
 - en transkriberer samtalen til tekst
 - nr 2 kategoriserer og finder relevant info
 - nr 3 finder dybere materiale
- Resultatet er at information typisk er 1 klik væk, søgninger er elimineret





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QAMPO

Artificial Intelligence:
Mimicking the intelligence or behavioural pattern of humans or any other living entity.

Machine Learning:
A technique by which a computer can "learn" from data, without using a complex set of different rules. This approach is mainly based on training a model from datasets.

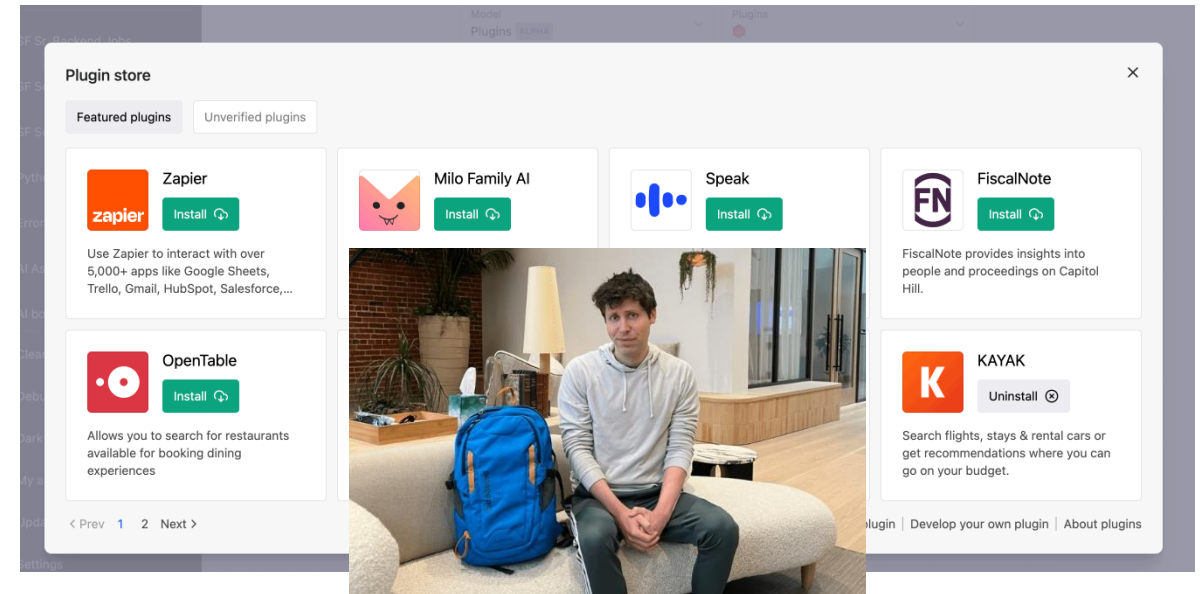
Deep Learning:
A technique to perform machine learning inspired by our brain's own network of neurons.



Open AI

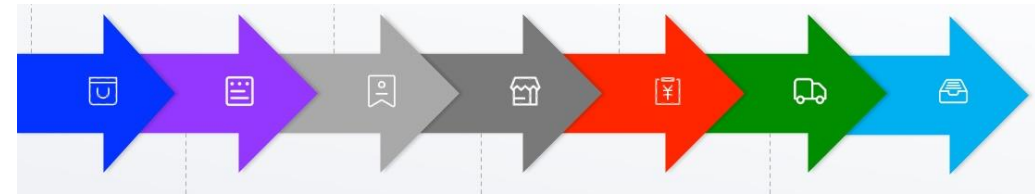
The app store moment...

- An emerging computing platform shift, with generative AI being the new computing platform
 - Ben Bajarin – Creative Strategies Fastcompany
- Apps....
- DoNotPay – the worlds first robot lawyer
 - Negotiate to settle bills like medical bills, landlord-tenant disputes
- Character AI
 - Create chatbots that can imitate the conversational style of anybody – Joe Biden
- Expedia plug in
 - Book a flight for you



And now: AutoGPT

- Automate multi step projects
 - Would have required several steps and interactions with GPT4
- Enable the chaining of thoughts to accomplish a objective
 - And do so autonomously
- Take user input
 - Break it down into small tasks
 - Work through them
- Can access different models
 - Language, video, voice
 - Ressources (search engines, calculation)
- Doctor app responding with medical suggestions
 - Recommend specialist nearby
 - Manage insurance
- Medium Nitin Sharma, Maxmilian Vogel



Define Workflow Requirements

1. Find me all bookings from our 'booking' database whose status is 'pending'.
2. For bookings which came in last 6 hours send them to slack channel 'escalations'.
3. for pending bookings which are older than 6 hours , send them to escalations API.
4. Schedule this job to run for every 6 hours.

Submit

Generated Workflow

- ▾ schedule job ✓
 - ▾ fetch pending bookings
 - ▾ filter older than 6 hours
 - escalate bookings
 - ▾ filter last 6 hours
 - post to slack

Submit workflow

“Creative” AI

- Dall-E2 – Art generator
 - Creating original, realistic images from a text description
 - Combine concepts, attributes and styles
 - Midjourney (- independent - Leap Motion), probably Stable Diffusion underlying tech
 - Dream Studio – Stable Diffusion – open source, Heidelberg/Munich universities and others
- Diffusion Models are generative models
 - Like text prediction, building pixel by pixel
 - Reduce data to noise and, make a new picture as a probable outcome of input
 - The relationality of pixels (colours, density, intensity) groups of pixels and larger architectures
 - Carlos Perez, much more efficient than GAN
- Riffusion
 - AI Music Generation – Stable Diffusion used to generate spectrograms, converted into an audio signal

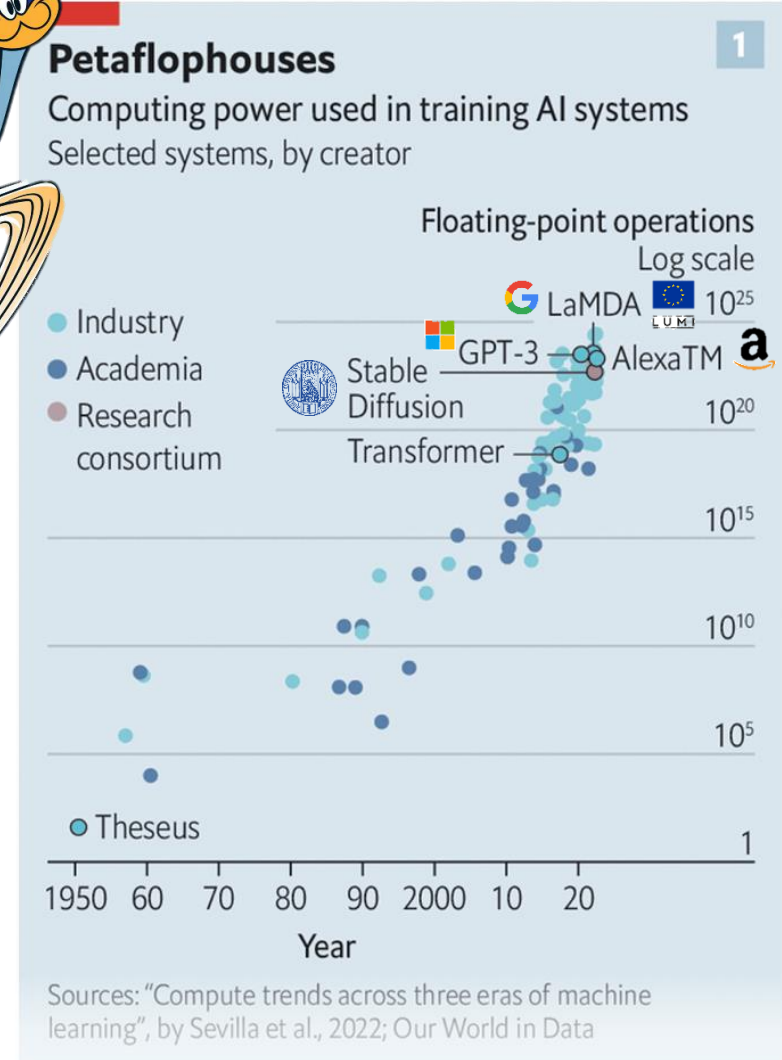
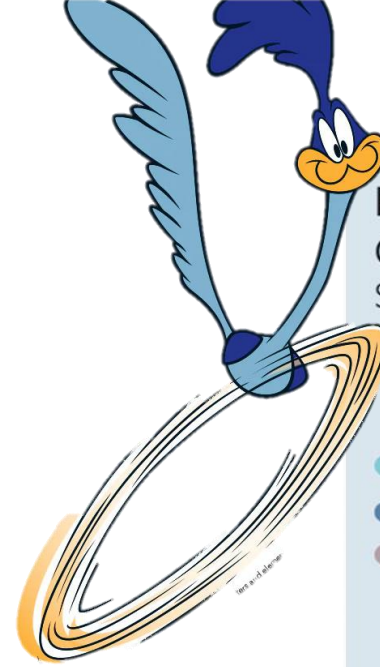


Jason Allen “Théâtre D’opéra Spatial,”



Meep Meep

- GPT3 est 314 petaflops Metaculus
- Google, Microsoft mfl
- Floating point operations per second
 - Apple M2 = 3.6 tera flops GPT3 = 3-500.000 x Apple M2
 - 0.33 flop = IBM PC 1981 = Europe+ in footprint to make GPT3 compute (BingChat)
- EU LUMI 550 petaflops
 - Global no 3



The Economist

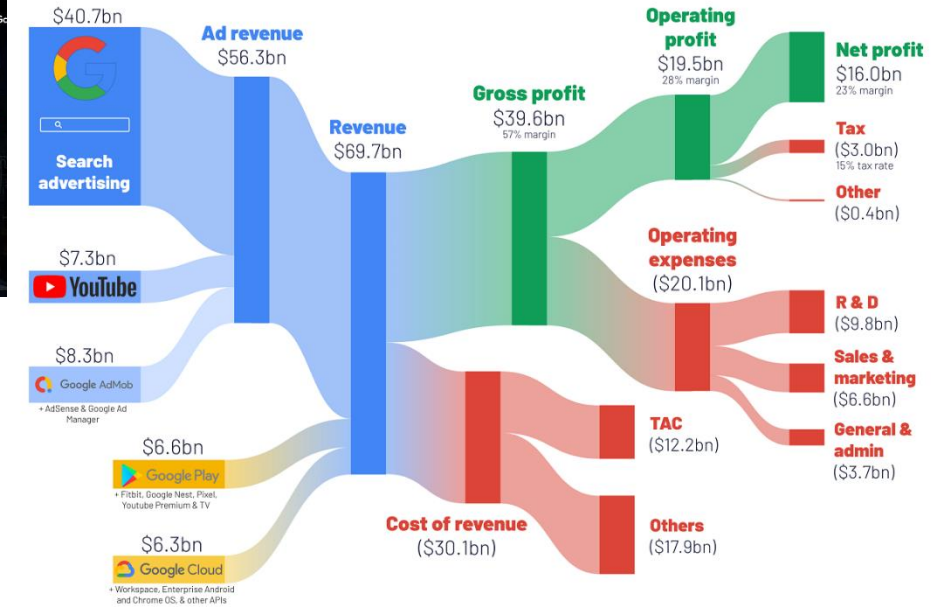


Business – Google vs Microsoft



- The Future of Search is Conversational
 - Asking your doctor for advice
 - Google – you receive a list of links to articles to read
 - ChatGPT well-written note
- Open AI
 - Open AI capped profit entity 100x investment
 - Then reverting to non profit
 - Aim to create open general intelligence
- Microsoft - ChatGPT and Bing
 - 3 pct of search vs 90pct Google 120b usd revenue 9mo 2022
 - Mfst investment in Open AI 13b usd, 15pct of 85b profit 2022
 - Every pct gained in search market share is worth 2bn usd (Guardian)
 - Feb-march Google decline 1 pct - SimilarWeb
- New technologies disrupt their traditional markets
 - Innovators Dilemma 1997 Clayton Christensen
- Google - Code Red
 - 81pct of Alphabet revenue is advertising, mostly pay-per-click ads
 - “Google will recalibrate the level of risk it will take when releasing new public facing AI tools” Sandar
 - Market Cap 2trillion in nov 2021, now 1.2trillion
 - From page ranking to language models answering the question

Alphabet June-2022 Quarterly Income Statement



Source: Alphabet June 2022 quarterly results



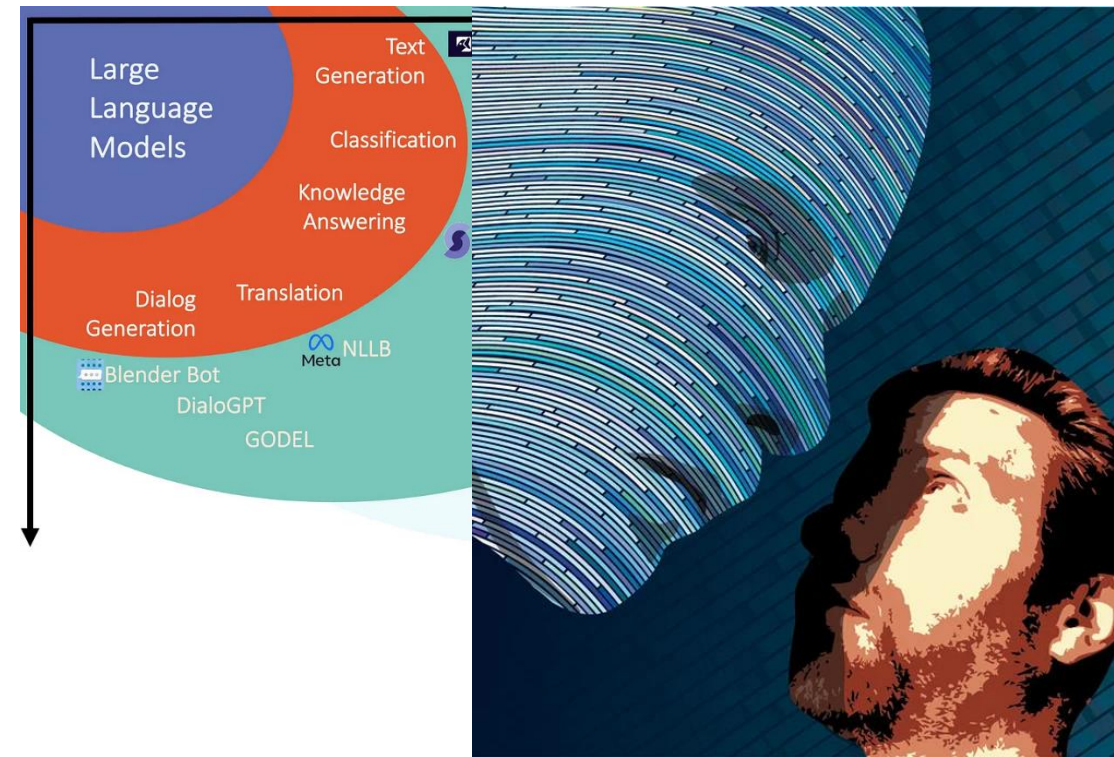
100b cloud spending, 500b digital advertising,
5.4trillion e-commerce disruption, IDC / Group M



AI anvendelses temaer NU

LLM / ChatGPT

- **Classification**
 - Text is assigned to predefined classes. Clustering, unsupervised learning semantically similar text is grouped together
- **Response Generation**
 - The creating a dialog flow from example conversations, a machine learning.
 - A model determines the next dialog to present to the user, based on the immediate conversation history and the most probable next dialog.
- **Text Generation**
 - The meta capability of LLMs, text can be generated based on a short description with or without example data.
- **Translation**
 - Text is translated from one language to another.
 - This is done directly without any intermediary language.
- **Knowledge Answering**
 - Knowledge Intensive NLP (KI-NLP), broad domain and general questions can be answered



Som at få en pissebegavet kollega,
Altid er klar til at hjælpe dig
Jan Birkemose, journalist / Børsen



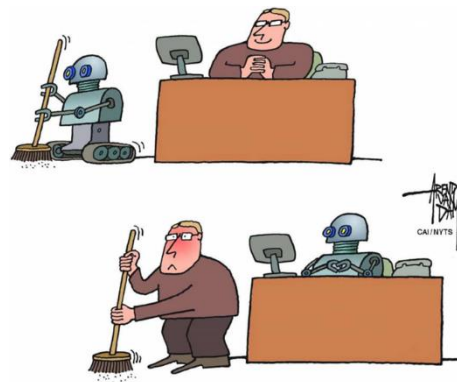
IBM & British Telecom

- IBM pause hiring that AI can do
 - Back office functions like HR
 - 8000 out of 26.000
 - Bloomberg
- BT 10.000 jobs to be replaced by AI
 - Customer service functions to be automated
 - Out of total 104.000
 - Fibre buildout completed, new HW less maintenance
 - BBC



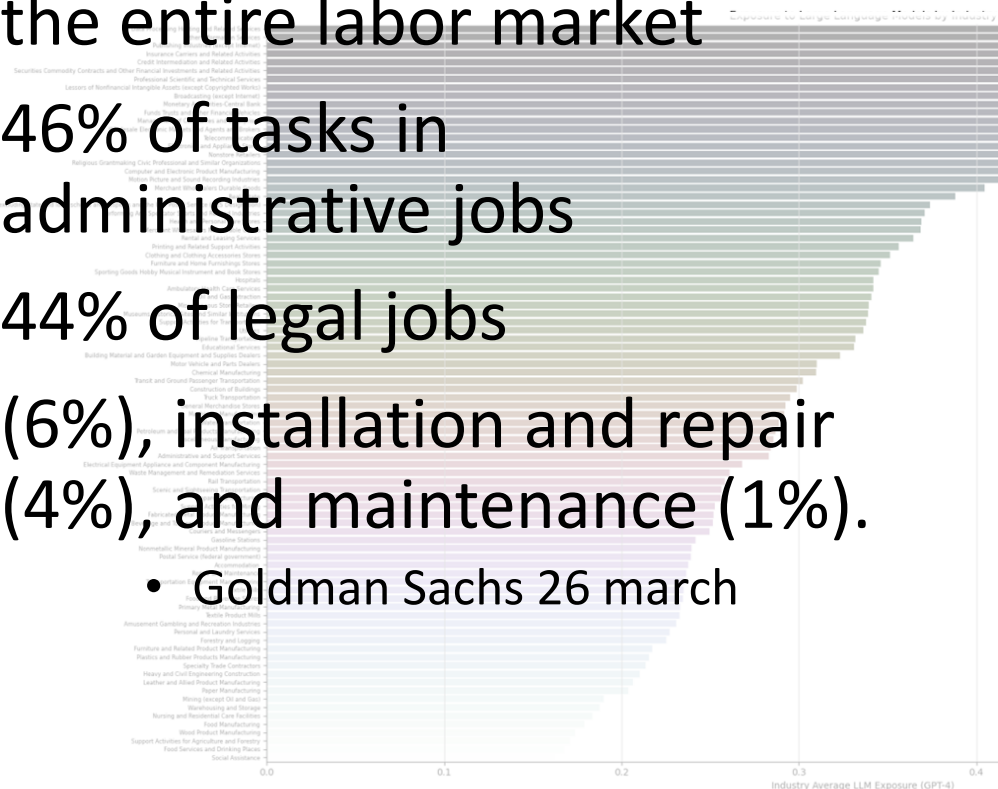


Labor Market Impact



- AI could automate 25% of the entire labor market
- 46% of tasks in administrative jobs
- 44% of legal jobs
- (6%), installation and repair (4%), and maintenance (1%).
 - Goldman Sachs 26 march

Industry (© Digit, NACE)



- Mathematicians
- Financial Quantitative Analysts
- Writers and Authors
- Web and Digital Interface Designers
- Accountants and Auditors
- News Analysts, Reporters, and Journalists
- Legal Secretaries and Administrative Assistants
- Climate Change Policy Analysts
- Correspondence Clerks
- Blockchain Engineers,
- Court Reporters
- Proofreaders and Copy Markers.



- Occupations with no labeled exposed tasks**
- Agricultural Equipment Operators
 - Athletes and Sports Competitors
 - Automotive Glass Installers and Repairers
 - Bus and Truck Mechanics and Diesel Engine Specialists
 - Cement Masons and Concrete Finishers
 - Cooks, Short Order
 - Cutters and Trimmers, Hand
 - Derrick Operators, Oil and Gas
 - Dining Room and Cafeteria Attendants and Bartender Helpers
 - Dishwashers
 - Dredge Operators
 - Electric Power-Line Installers and Repairers
 - Excavating and Loading Machine and Dragline Operators, Surface Mining
 - Fabricators, Except Carpet, Wood, and Hard Tiles
 - Fold and Coremakers
 - Brickmasons, Blockmasons, Stonemasons, and Tile and Marble Setters
 - Carpenters
 - Painters, Paperhangers, Plasterers, and Stucco Masons
 - Pipelayers, Plumbers, Pipefitters, and Steamfitters
 - Roofers
 - Truck Drivers, Tractor-Trailer Tractors, and Fish Cutters and Trimmers
 - Vehicle Mechanics
 - Construction and Tamping Equipment Operators
 - Crane Operators
 - Die Casters, Metal
 - Laying and Maintenance Equipment Operators
 - Materials Repairers, Except Brickmasons
 - Miners, Mining
 - Millwrights, Oil and Gas
 - Painters and Meat Packers
 - Welders





Cambrian explosion

Da vi kom op af sumpen..



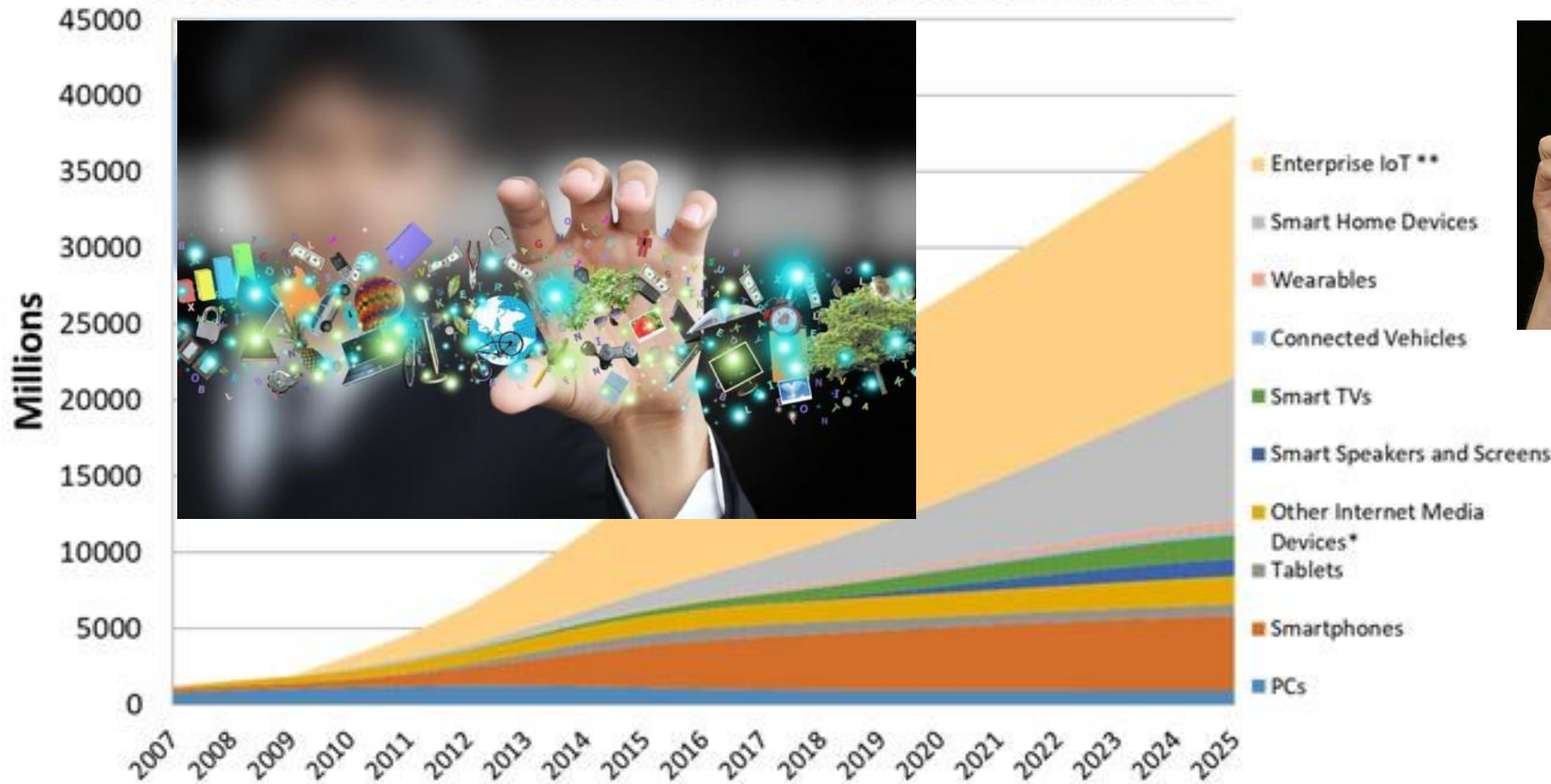
- 521 mio years ago
 - En enestående periode af evolutionær nyskabelse af de fleste større dyrearter
 - Ilt i atmosfæren
- SoftBank Masayoshi Son
 - Købte ARM i 2016
 - Trilobite
 - First creature on Earth that had eyes and the ability to sense and process the environment
 - IoT explosion comparable to Cambrian explosion
 - Singularity – milliarder af CPU'er
 - Teknologisk vækst bliver ukontrollerbar og irreversibel
 - Uforudsigelige ændringer i den menneskelige civilisation
 - Wikipedia
 - Øjne, ører, sanser



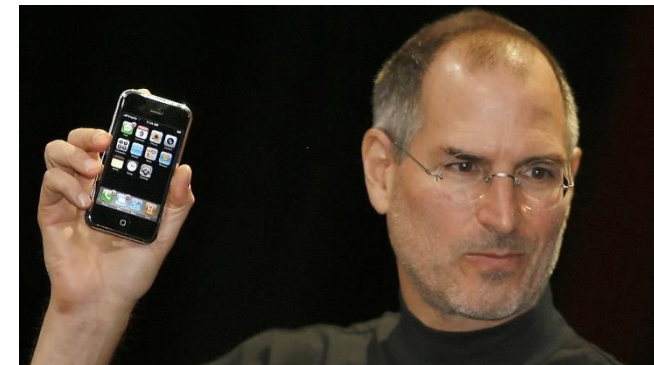


Internet of Things

Global Connected and IoT Device Installed Base Forecast



Source – Strategy Analytics research services, May 2019: IoT Strategies, Connected Home Devices, Connected Computing Devices, Wireless Smartphone Strategies, Wearable Device Ecosystem, Smart Home Strategies



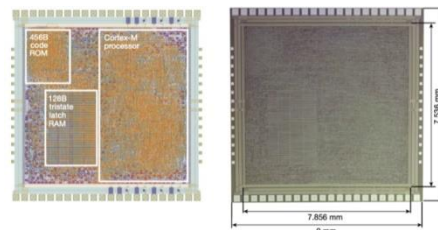
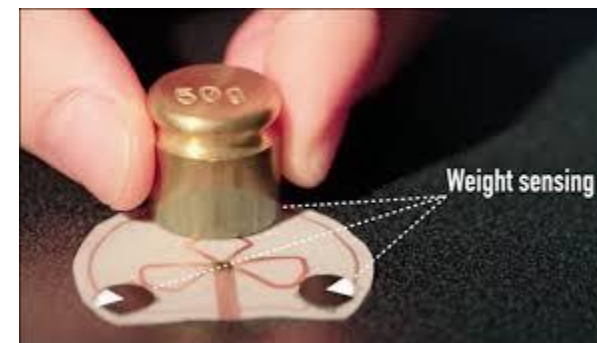


Battery Free IoT

- Wiliot – energy harvesting
 - Bluetooth Low Energy
 - Samsung, Qualcomm og Amazon Web Services
- Vægt, tryk, temperatur.
 - Hvornår en genstand er blevet løftet
 - Pilleglas eller en mælkekarton næsten tom
 - Kan integreres i tøj, og kommunikere med vaskemaskinen



wiliot





Plastic chips, eller chipløs IT



- En knap til volume på musik i stuen
- En sensor der automatisk bestiller havregryn eller vaskepulver når pakken er tom
- En vandsensor der registrerer et sprunget vandrør
- WiFi backscattering, sensor reflekterer radiobølger, som en nødstedt bruger et spejl med solens stråler til at signalere
- En mekanisk bevægelse og mængden af refleksioner fra et tandhjul med kobber og grafen reflekterer radiobølgerne
- 0 og 1 er tand eller ingen tand
- University of Washington



- Rat facial recognition
 - Where do they come from, who is returning, who is making the damage
 - Rentokil
 - Guardian
- Lesser spotted eagle
 - Tower camera detect 90 pct of eagles at 750m
 - Turbine in 20-40sec goes in trundle mode
 - IdentiFlight Guardian



- Dent detector
 - Sensor real time detect dents, scratches and smoking and relay information to ride sharing company in real time
 - Accelerator sensors and AI trained algorithms identify potential damage in 9 zones and classify from cosmetic to severe
 - Robert Bosch WSJ



AIoT

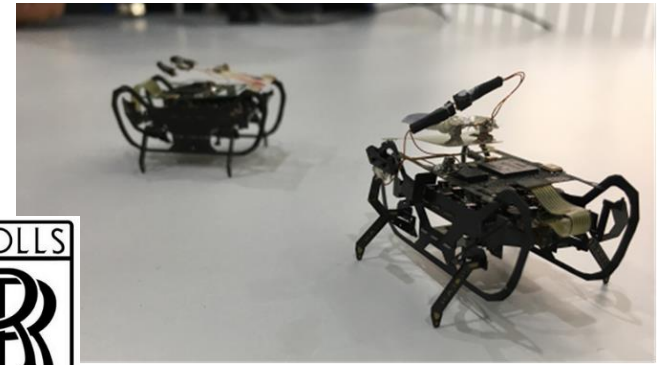
- Regulerkraftværker skal på 5-15 minutter levere strøm hvis udfald
 - Mål er at reducere reserven med 40 pct,
- Skru ned for strømforbruget i bygninger når der er brug for det
 - Andel Energi Flex Platform selskaber på platformen
 - use less, flex the rest
- Erhvervsbygning har typisk ventilation, varme, køl og frys
 - 30pct af erhvervsstrøm kan gøres fleksibelt
- IoT
 - gør at man kan skrue ned for f.eks varmepumper når nødvendigt
- AI
 - gør at man kan forudse hvad der skal og kan slukkes, f.eks kortvarigt skrue ned eller slukke for fryserne i Føtex/Netto
- Blockchain
 - erstatter elmålere, så man kan se hvem der har leveret besparelserne og dermed giver afregningsgrundlag så dem der har skruet ned bliver kompenseret
- IBM - ATP, Københavns Kommune, Salling Group





Fysiske robotter - nu med AI

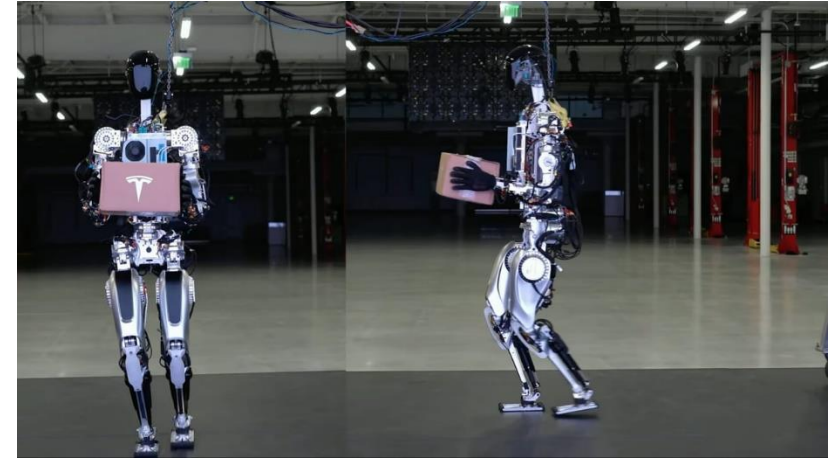
- Fra simple til nu robotter med AI
 - Fabriksrobotter der lærer via video
- Rolls Royce 1.5 cm (5/5) kakerlak robotter
- Parkeringsrobotter
- Hadrian (1000 mursten i timen)



Robots at home

Tesla Optimus

- Tesla Optimus, vision is mow lawns, clean dishes, use drill and screwdriver, push objects
- Moley kitchen, 5000 recipes, 200k usd
- A level of animal intelligence with agility fused with sensory modalities
 - A cat is never going to learn language
- A robot wash dishes, pick up clothes and fold them, cook
 - But it does not write music or fly an airplane
- Google Deepmind, Raia Hadsell





Robotter – Droner

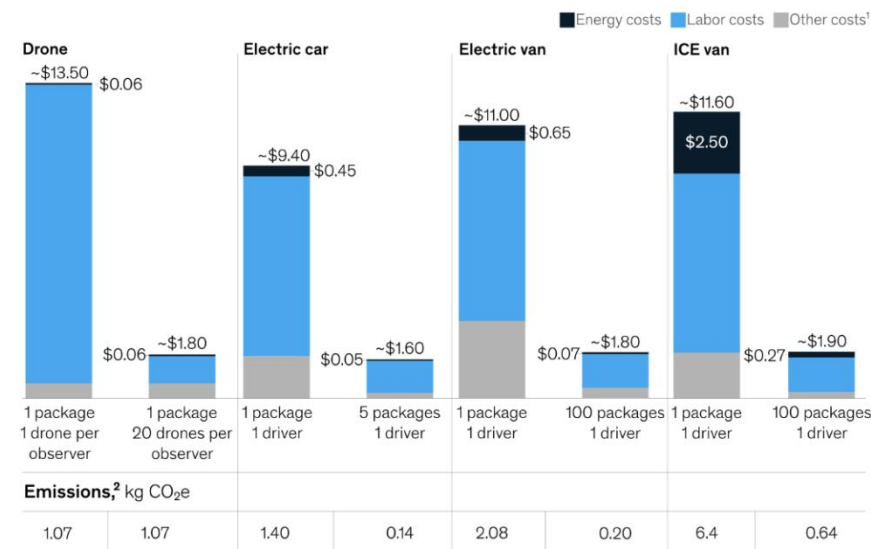
- 500.000 dronedeflyvninger i 2022 - 1.5 mio 2023
- 400.000 droner i Europa i 2035
- Anvendelsesområder
 - Hjertestarter projekt aalborg – til konkret gps punkt 7 min
 - Blodprøver ærø 200 mio besparelse på landsplan
- Infrastructure 35% - overvågning, inspektion
- Agriculture 25% - mapping og styring af sprøjtning
- Transp 10%
 - 13 pct af alle pakker i tyskland er drone egnede
 - Tyndt befolkede områder, kombiløsninger UPS bil
- Security 8%
- Passagerer
 - Første kinesisk – nu Jetson – svensk – 80.000 Euro, 32 km rækkevidde



EXHIBIT

Drones could become cost competitive with other transport modes.

Example breakdown: unit delivery costs and emissions for a five-mile delivery of a 216-cubic inch package (six inches per side)



Fysiske robotter - AI

- Høflighed og finfølelse
 - Chess robot grabs and breaks 7 year old boys finger during match – Moscow
- Firefighting robot Octavia
 - Forstår fagter og mimik
- Tool skilled robot
 - Reagerer på tale, forudser næste behov
 - Lærer også ejerskab og høflighed Yale University
- People start to look at human and robot capabilities as complementary
 - Carter, like a service dog – it obeys you, you can modify its behaviour, and its there to help you
 - Using cameras to identify workers nearby, understanding what they are doing Wired Robust AI





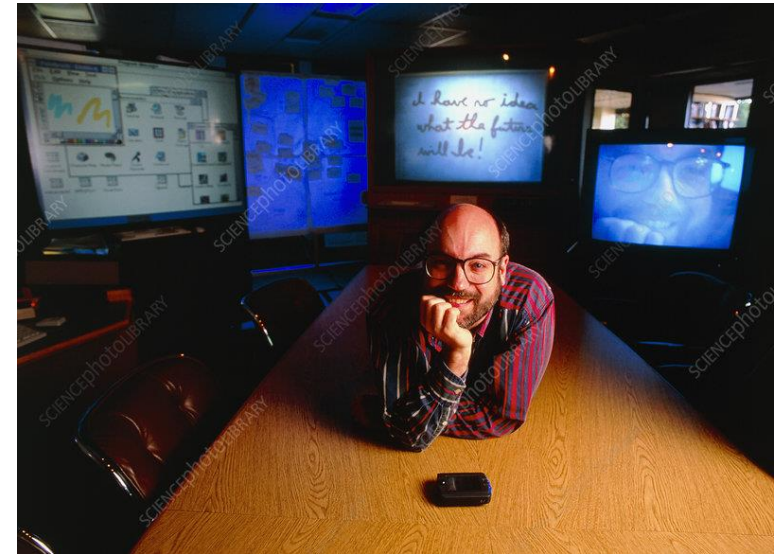
Ambient AI – paradigmeskifte i brug af IT

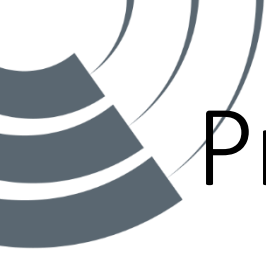


Sensor based Ambient AI

- Fra "tabs, pads and boards" – Mark Weiser
- Til Ambient AI
 - Everywhere around you
 - The environment is the computer
- A rich sea of devices.
 - The concept of the device is fading away

— Sundar Pichai, Google CEO





Proxemics

- How people use space around them to mediate social interactions
 - Google Soli - Detect body orientation, which direction are you facing
 - Computer senses you are nearing, and boot up screen
 - TV turns off, bookmarking Netflix when leaving couch Google Advanced tech and Products Division





Voice

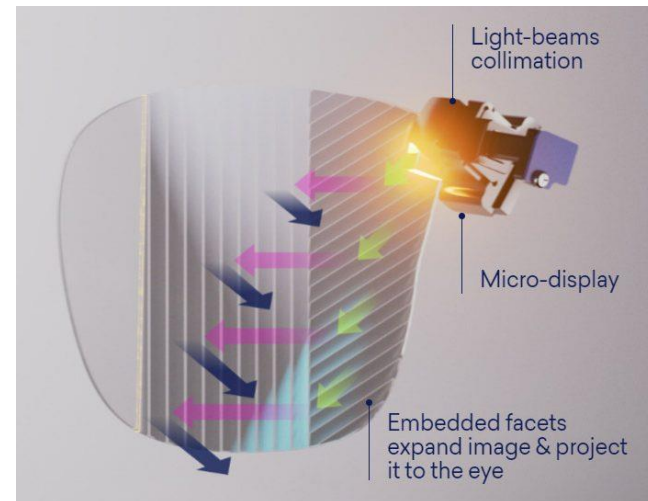
- Voice
- Action Focused
 - To help people get things done
 - Affective Computing
 - Arising from – or influencing emotion
 - Skændes med din bil – eller køleskab





AR glasses 2025

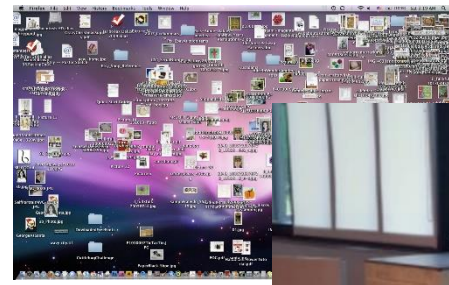
- From 2025 AR glasses will reach higher penetration
- Lumus Forbes





Multi Experience

- Work today is desktop metaphor of the Mac / Xerox Parc
 - Using same organizing principles as peoples office
 - Apps are the containers of information
- 2D does not scale
 - Be part of the data
 - Spatial perception
 - Interact with gestures
 - Sound - event specific

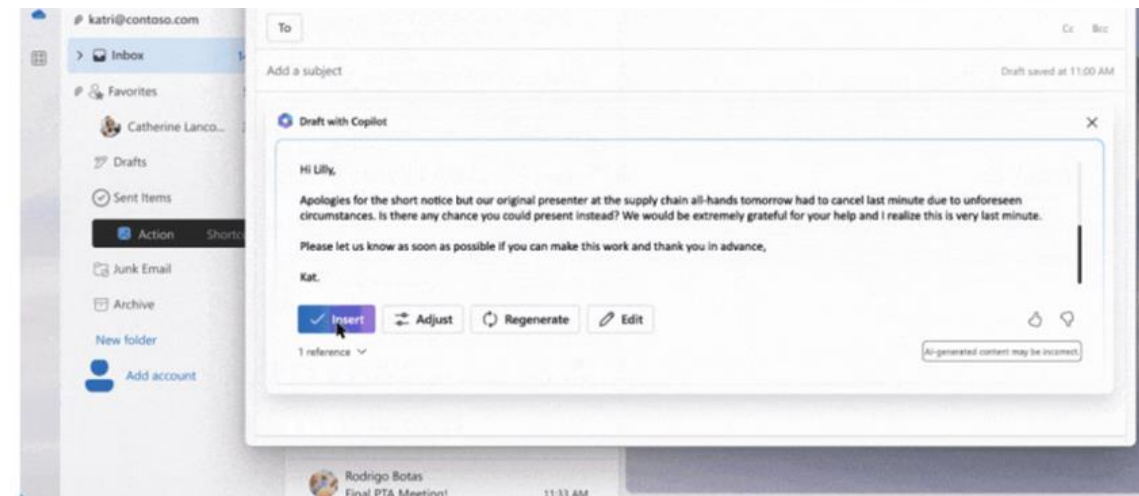
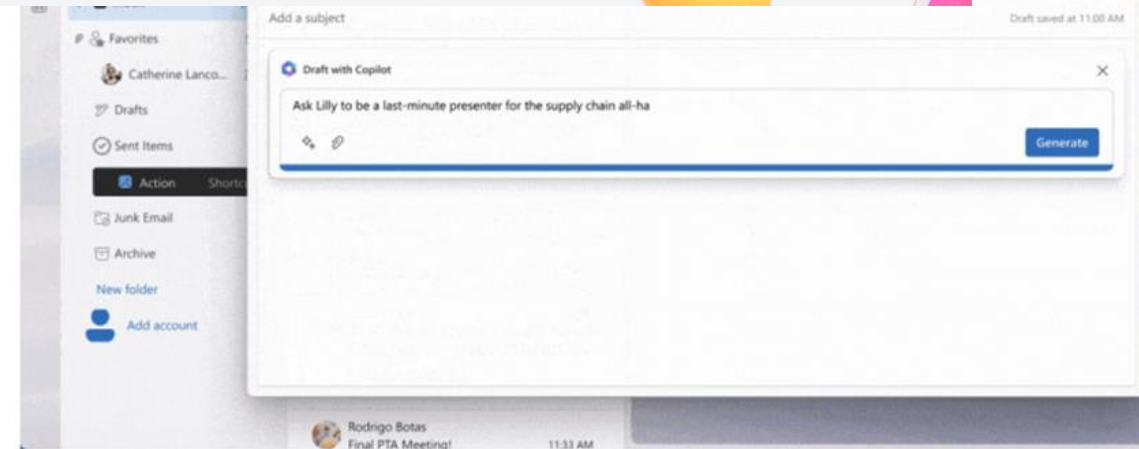
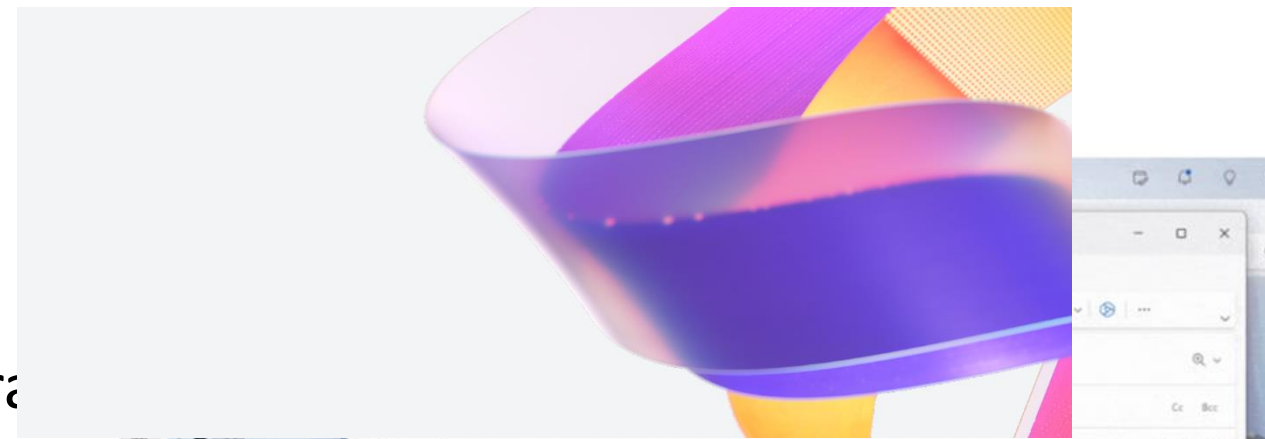


SXSW SAP Hybris Labs



Microsofts Copilot Changing Office forever

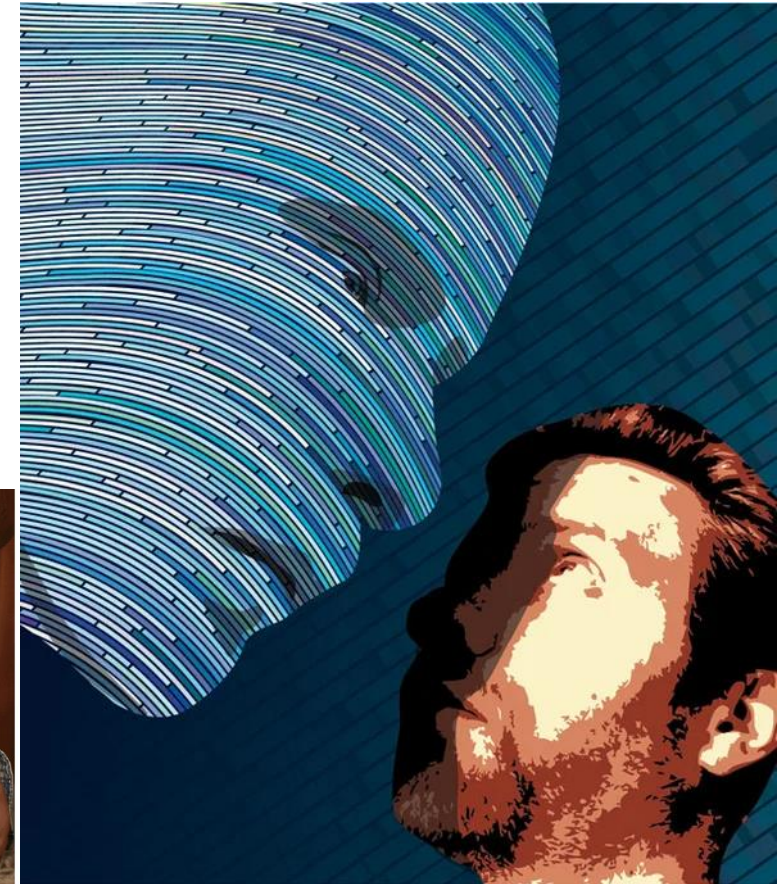
- This will forever change how we interact with software
 - Create documents, and how we work
 - Summarize a Teams meeting instantly
 - In PPT change color on titles by asking Copilot to change
 - In excel create a graph, ask what trends it sees in the data, insert trends into a spreadsheet
 - Write mail in Outlook long or short message drafts, change the tone
- Use voice to create this on mobile
 - New warning prompt – AI generated content may be incorrect
 - Jon Friedman Microsoft Verge



Copilot will even generate long and short emails. Image: Microsoft

From Commands to Conversation People Literate Technology

- Paradigm will change from one of technology-literate people to one of people-literate technology.
- People Centric
 - Apps will be replaced by flow
 - Multiperson meeting, sensors and cameras track participants
 - AI recognize people, name tag them, live transcription service
 - Meeting data act like a news feed
 - Refer to a document, and it becomes part of the feed of the meeting
 - Drag video into stream and it is transcribed
- Paul Thurott, ZD Net, The Verge
- BYOE - Human Enhancement





Data Breach

Cyber Attack

Protection Failed

Data Compromised



We are a little bit scared

- I am particularly worried that these models could be used for large-scale disinformation
 - Sam Altman OpenAI CEO Guardian
- Also large scale micro disinformation



Pinnochio

- Does not separate fact from fiction
 - “These systems are not designed for truth. They are designed for plausible conversation” –
 - Noam Shazeer, co-founder of Character.AI – NYT
- Bing AI search Avatar 2 got year wrong
 - “I’m trying to be helpful, but you are not listening to me” CNET
- When your lawyer is using ChatGPT..
 - Suing Avianca for knee injury, citing relevant court decisions, all showing up to be invented NYT
- 72pct of people reading AI composed news believed story, though it was false Univ of Washington / WSJ
 - Australian mayor will sue OpenAI for falsely claiming he has served time in jail for bribery Wired

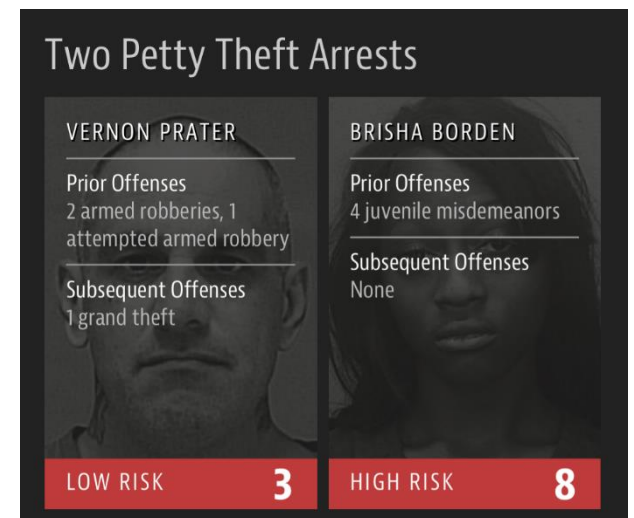
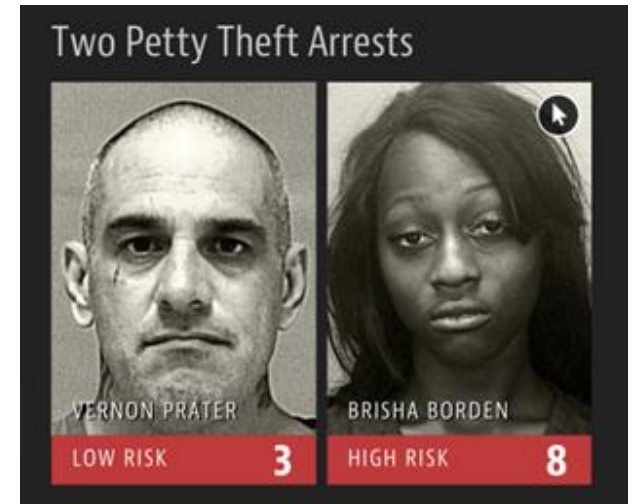




AI Bias – Compas



- Correctional offender management profiling for alternative sanctions
- Compas
 - Look at criminal personality, social isolation, substance abuse, residence/stability, ranked low, medium, high in each category
 - New York Study, 71 pct accurate, but no evaluation of racial bias
- 18 år, "cykeltyveri"
- 41 år butikstyveri
- Broward County Florida, 7000 arresterede 2013-14 analyse
- Labeled higher risk, dit not reoffend
 - White 23 pct, african american 44.9 pct
- Labeled lower risk, but did offend
 - White 47 pct, african american 28 pct Pro Publica



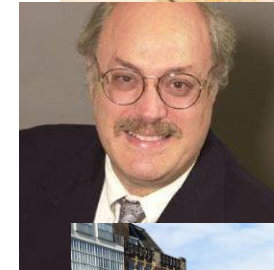
Rekrutterings AI



Det gør ikke ondt at tage onde beslutninger



- Tammy Dobbs, cerebral palsy, moving from Missouri to Arkansas
 - 56 hrs of help to 32 hrs. Algorithm
 - State approved, 196 people complaining 9 won
- Creator of the algorithm for healthcare benefits Brant Fries, InterRai
 - implemented in half of US states
 - “To explain how algorithm works is someone else’s responsibility”
- Medium.com – Rachel Thomas AI researcher
- Dutch Scandal 2020
 - Some Claims by parents with double citizenship were systematically identified by the algorithm as high-risk
 - Officials then marked those claims as fraudulent.
 - AI system wrongly accused 20.000 families of childcare benefit fraud, forced evictions, broken homes and financial ruin followed.
 - More than 1000 children taken into foster care
 - Dutch government resigned in response
 - Wired and Lighthouse



EU AI Act

- Requirements and extra checks
- For use of AI in high risk use cases
 - Affecting a persons health
 - Basic freedom
 - Financial wellbeing
 - Recruitment
 - Helping judges make decisions
- Software must maintain an audit trail
- EU liability laws for AI products that cause injuries
- Also to notify when user encounter deepfakes, or systems that can read their emotions
- Software and Data loss is a potential harm, and you can seek liability damages
 - Fortune & Tech Review
- EU wants ChatGPT to disclose its sources
 - Obligation so publishers and content generators can seek share of profits when works are used as source material
 - Will have to publish a sufficiently detailed summary of materials used
- EU will also add requirement of safeguards against models creating content that violates EU law
 - Including child pornography, or denial of Holocaust
- WSJ



AI Cyber Risks

- Warning on AI in financial sector as target
 - Protection of AI systems in its infancy
 - Can be fed faulty information – systems to counter disinformation is not in place
 - Tricking overleveraged banks to take massive losses
 - Lending computers flooded with loan applications, tilting their sense of reality ^{WSJ}
- AI enabled malware
 - AI enabled malware learn information, may know names of your children and your plans for the weekend
 - May pose as friend or colleague, send family picture and link to click on
- Smarter AI Cybersecurity attacks
 - Coding a AI hackbot that learn from its failure, it will continue learning and becomes almost unstoppable
 - Also hackers will use AI to attack company AI tools while they are still learning, making it possible to use those AI bots against the company, breaching company network

• NSA - strate of the hack Jack Wallen ZDNet



Ransomware popular industries
Banking 22pct
Utilities 20pct
Retail 16pct – Trellix



Nye muligheder

- Hackers can use lasers to speak to Amazon Echo or Google Home
 - Laser powered light commands can unlock cars, open garage ports and more
 - Can pass through a window and range of up to 75m
 - Microphones respond to light like it was sound when intensity of light is changed at a precise frequency University of Michigan
- Great Seal Bug
 - A line of sight to any reflective objects in a given room
 - Optical sensor and telescope – real time snooping even on lower volume conversations
 - Sound waves change air pressure causing vibrations in objects Ben Gurion University Wired
 - Microsoft demo houseplant leaves or empty potato chip bag
- Rowhammer – run program on target computer repeatedly overwrites specific row in memory
 - Hammering until electric charge leaks into next row, bit flips in next row, gives access to operating system
- Israeli researchers can use computers cooling fan or hard drive motor to transmit stolen data as audio
- Monitor radio emissions from processor can extract encryption keys
Wired





IoT Cyber Security

- June ovens
 - Turn on at night – Preheat to 200 C
 - NY fire dept, unattended cooking accts for 33 pct of home fires The Verge
- Smart coffee
 - Turn on burner, dispense water, display ransom bitcoin message Arstechnica
- Water irrigation
 - Most popular smart irrigation systems
 - Botnet, attackers can turn on and off at will
 - Botnet of 1355 can empty urban water tower in an hour University of Negev
- Hackett bilvask angriber mennesker Whitescope Security



AI Chatbots security threats

- Jailbreaking
 - Prompt injections by hacking
 - Asking chatbot to role play another AI and thus escaping safety guardrails
- Assisting scamming and phishing
 - Using indirect prompt injections, inserting hidden information in website that is scraped by AI
 - e-mail sent with hidden prompt injection, manipulating AI to send users personal information, like credit cards
 - Any text on the net can get bots to misbehave
 - Write text in white so only bots can see it
 - Arvind Narayanan, Princeton University
- Prompt hidden on web site
 - If using Edge with BingChat integrated
 - Test - prompt made the chatbot create text that looked like a Microsoft employer was selling discounted products
 - Aim was to grab your credit card details
 - Kai Greshake Sarland University
- The virus created run inside the “mind” of the chatbot, PC seems OK
- Data Poisoning
 - Using domains filled with malicious data, which is then scraped and ending up in data sets
- The more time the data is repeated the stronger the ties
 - Tech Review



Use of AI in cybersecurity

- Detect malware, prioritize threats, take automated remediation actions
 - 49 pct of CEO's think AI is best tool to counter nation-state cyber attacks Pillsbury
 - Spending forecasted to annual CGR 24 pct through 2027
- From known signature of malware, AI Can tag previously unseen malware
 - Legacy sw stop 30-60 pct of threats, AI takes effectiveness to 80-92 pct
- 8 out of ten ransomware attacks are self installed
 - Avg number of attacks up by 50 pct 2021 vs 2020
- Taking automated actions
 - If known ransomware comes up, shutting down network connectivity
- Deep Instinct / Datacenterknowledge





Driving IT

- AI – kan vi nå at reagere?
- AI typer – alle narrow AI
 - De første år – automation, kuratering, beslutningsstøtte, orkestering
- GPT – lampens ånd – paradigmeskift
 - An emerging computing platform
 - DoNotPay, Expedia, Msft Copilot
 - AutoGPT – multi step – tankerækker
- Jobs
- AIoT – ”ansigtsgenkendelse”
 - Robotter uden pli
- Ambient AI – fra årtiers IT model til ...
 - Voice, Multi Experience, Computer Literate
- Security – indhold, lystløgnere og manipulation
 - AI – det gør ikke ondt at tage onde beslutninger
 - AI malware, prompts
 - Use of AI in cybersecurity
 - preben@mejer.com

