

# ÜRETKEN YAPAY ZEKA VE ELEKTRİK ÜRETİM SEKTÖRÜ UYGULAMALARI

## KONUŞMACI

### Onur Günday

Üretim ve Enerji Sektörü Teknoloji  
Stratejisti, Microsoft Türkiye



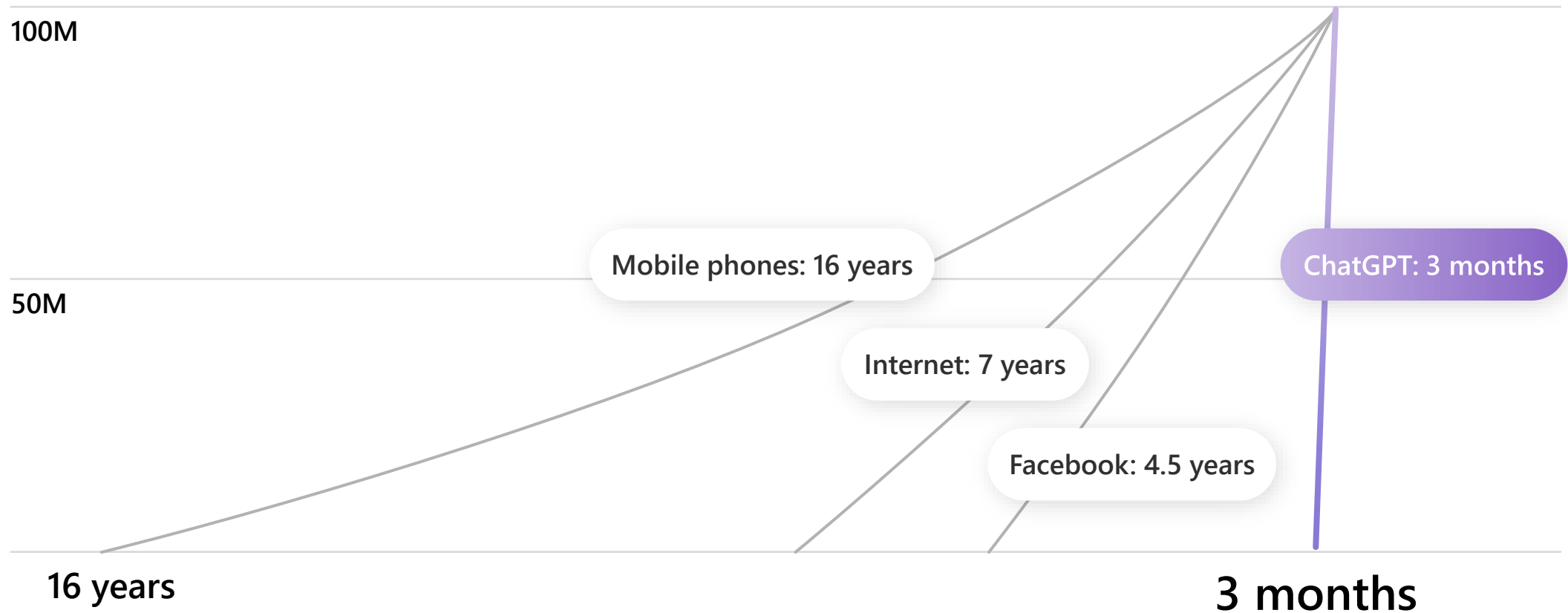
27 MART ÇARŞAMBA  
14:00 - 15:00



- Üretken Yapay Zeka Kavramı
- Elektrik Üretim Sektöründeki Potansiyeli
- Çalışan Verimliliği, Tahmin Modelleri, Bakım Optimizasyonu
- Başarı Hikayeleri ve Gerçek Dünya Örnekleri
- Yapay Zeka Uygulamalarında Etik ve Sorumluluk
- Veri Gizliliği ve Güvenlik

# Generative AI technology is here

Time to reach 100M users



# ChatGPT clears graduate level exams

BUSINESS INSIDER · 10d · on MSN

**ChatGPT is on its way to becoming a virtual doctor, lawyer, and business analyst. Here's a list of advanced exams the AI bot has passed so far.**

ChatGPT is becoming more professionally competitive by the day. We rounded up all the exams the bot has passed.



THE ECONOMIC TIMES · 13d

**ChatGPT bot clears US law school exam**

ChatGPT from OpenAI, a US company that this week got a massive injection of cash from Microsoft, uses artificial intelligence ...



NBC News · 15d

**ChatGPT passes MBA exam given by a Wharton professor**

New research conducted by a professor at University of Pennsylvania's Wharton ... chatbot GPT-3 was able to pass the final exam for the school's Master of Business Administration (MBA) program.

MSN · 15d

**ChatGPT can pass the United States Medical Licensing Exam and the Bar Exam**

ChatGPT - a recently released AI with the uncanny ability to mimic human writing - has passed some of America's most challenging professional exams, studies have shown, raising concerns it could ...

# ChatGPT clears job interview

PC Magazine · 6d

## ChatGPT Passes Google Coding Interview for Level 3 Engineer With \$183K Salary

Amazingly, ChatGPT gets hired at L3 when interviewed for a coding position,' reads a Google document, but ChatGPT itself says ...



Oleksii Kuchaiev · 1st  
Senior Applied Research Manager - NeMo  
2mo · 🌐

Very impressed by #chatgpt! In the dialogue below, it comes up with a suboptimal solution, and argues a little without admitting a mistake. Then takes a hint, admits the mistake, and fixes its solution!

Implement a function which checks returns True if the number is both prime and even, False otherwise.

Here is one way to implement a function that checks if a number is both prime and even:

```
def is_prime_and_even(n: int) -> bool:
    # Check if the number is even
    if n % 2 == 0:
        # Check if the number is prime
        for i in range(2, n):
            if n % i == 0:
                return False
        return True
    else:
        return False
```

You and 194 others

2 comments · 5 reposts



# Frequently Asked Questions



What are  
Generative AI  
Models?

Why is there so  
much excitement  
about it?

How is this a  
new era of AI

What is in it for  
me?

Major adoption  
patterns of this  
technology?

What are some  
key business  
considerations?

As a <...> how  
should I think  
about it?

Competitive  
Landscape?

What are the  
new skills?

What are some  
common scenarios

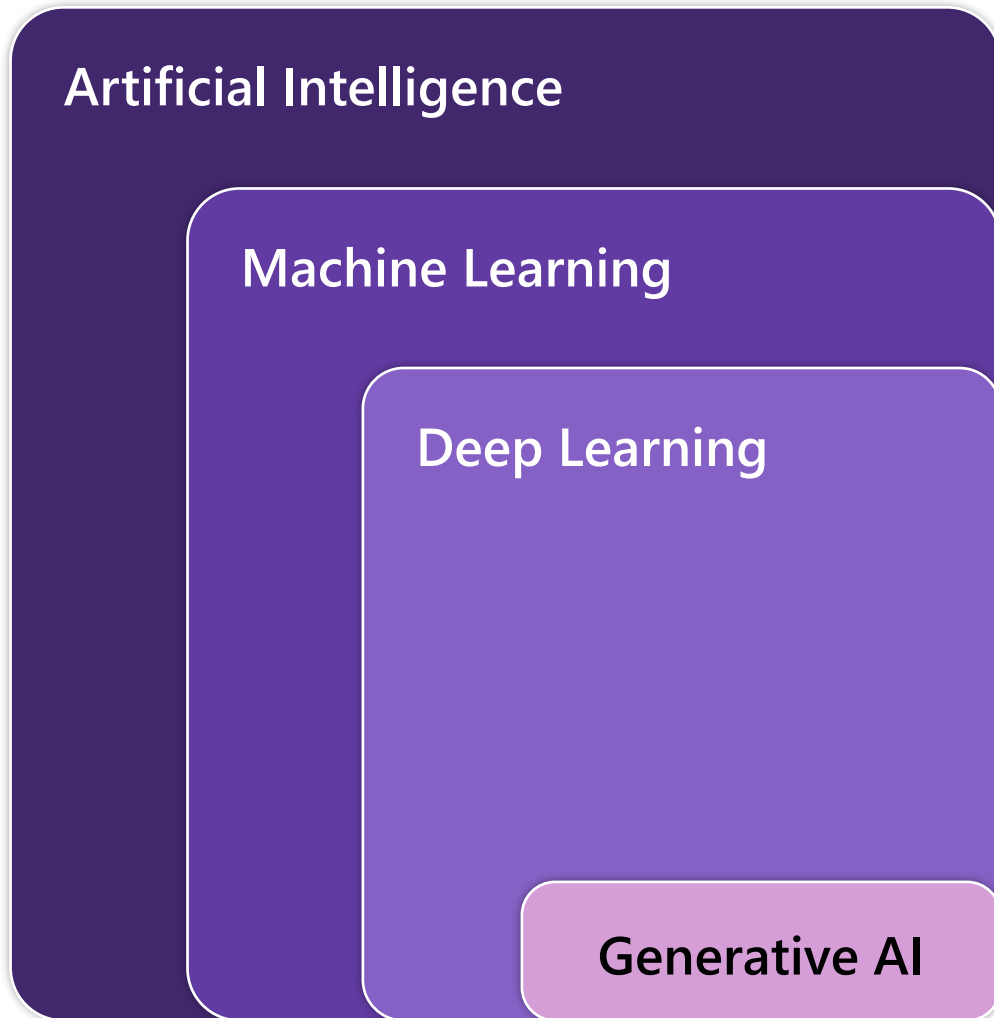
How to get  
started ?

# AI is quite simply...

an attempt to make a computer, a robot, or other piece of technology 'think' and do some things like humans.



# A brief history of AI



1950s

## Artificial Intelligence

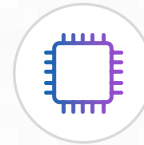
the field of computer science that seeks to create intelligent machines that can replicate or exceed human intelligence.



1959

## Machine Learning

subset of AI that enables machines to learn from existing data and improve upon that data to make decisions or predictions.



2017

## Deep Learning

a machine learning technique in which layers of neural networks are used to process data and make decisions.



2021

## Generative AI

create new written, visual, and auditory content given prompts or existing data.

# Types of AI

**General AI**

**Specific AI**

Traditional Rule-Based AI

Generative AI



# What is the difference?

## Traditional Rule-Based AI

- Rules guide the output (if-then logic).
- Not flexible. Performs only in ways it was prepared for the AI in training but cannot adapt well.
- Cannot create new things, only what it was programmed to do.
- Highly predictable and consistent.

## Generative AI

- Large amounts of different kinds of data guide the output.
- Can be very flexible if enough training and data are provided.
- Can be very creative and produce new things like art, music, images, etc.
- Not as predictable and consistent.

# Examples

## Traditional Rule-Based AI

- **SPAM email filter:** Follows specific rules to decide if an email is SPAM and puts it in a SPAM folder (or deletes it).
  - *Follows very specific rules*
  - *Cannot adapt on its own*
  - *Is not being creative or generating something "new"*
- **Thermostat:** When an environment gets too hot, it turns on the A/C; when it's too hot, it turns on the heat.
  - *Follows very specific rules*
  - *Cannot adapt on its own*

## Generative AI

- **Text summarization:** Can process text and create a new, shorter, clear summary of the original text(s).
  - *Responds flexibly based on extensive broad training*
  - *Creating something new*
- **Natural disaster prediction:** Uses many data sets to identify patterns and make predictions.
  - *Adapts to new information*
  - *Creating predictions and projections based on multiple data sets and criteria*

# Generative AI – “the next frontier in machine learning and AI”



Generative artificial intelligence (AI) describes machine learning algorithms that can be used to create new content, including audio, code, images, text, simulations, and videos

[What is Generative AI? | McKinsey](#)

Generative AI is a branch of computer science that involves unsupervised and semi-supervised algorithms that enable computers to create new content using previous content, such as text, audio, video, images and code.

[Generative AI: What does it mean in the Enterprise? | IDC Blog](#)

These systems fall under the broad category of machine learning and are synonymously known as Large Language Models (LLMs), a class of foundation models.

## Significant growth is expected for the generative AI market

*By 2030, [Grand View Research](#) anticipates the global generative AI market will reach \$109.37 billion at a CAGR of 34.6% from 2022 to 2030.*

*[Precedence Research](#) predicts that the estimated \$10.79 billion value of the global generative AI market in 2022 will grow to \$118.06 by 2032, expanding at a CAGR of 27.02% from 2023-2032.*

# GPTs (Generative Pre-training Transformers)



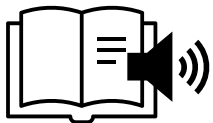
## Transformers were a generative AI breakthrough

This new class of AI models is more flexible, adaptable, and powerful than anything that has come before. They are based on neural networks used for figuring out the rules in one language and then mapping them to another.

GPT models developed by OpenAI, generate new, original content based on a delivered prompt. A prompt can be anything from text and images to music and video.

Newer models combine more than one capability. Known as multimodal models, they can understand several types of content. This lets them convert one into the other or even transform them into something completely different (like video).

### Speech



Microsoft TTS, Google TTS,  
Speechify, Vocalware,  
NeuralReader

### Music



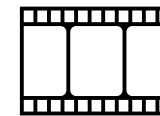
OpenAI Jukebox  
MuseNet,  
Google's MusicLM

### Image



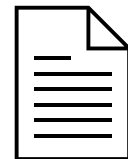
OpenAI DALL-E X, Craiyon,  
Stable Diffusion, NVIDIA  
GauGAN X, Google Imagen

### Video



Meta Make-a-Video  
Microsoft X-Clip  
Stable Diffusion Gen-1

### Text



BERT, BART, GPT-X, T0, T5,  
mT5, Bloom, Megatron  
Turing-NLG



# Foundation Models

# Large Language Models (LLMs)

# It's a paradigm shift !

Once we have foundational skills, we can apply it to gain any kind of specialization !

**Foundational**

Analytical & Application  
Literature, Math, Science  
Language & Grammar  
Reading, Writing & Speaking  
Alphabets & Numbers

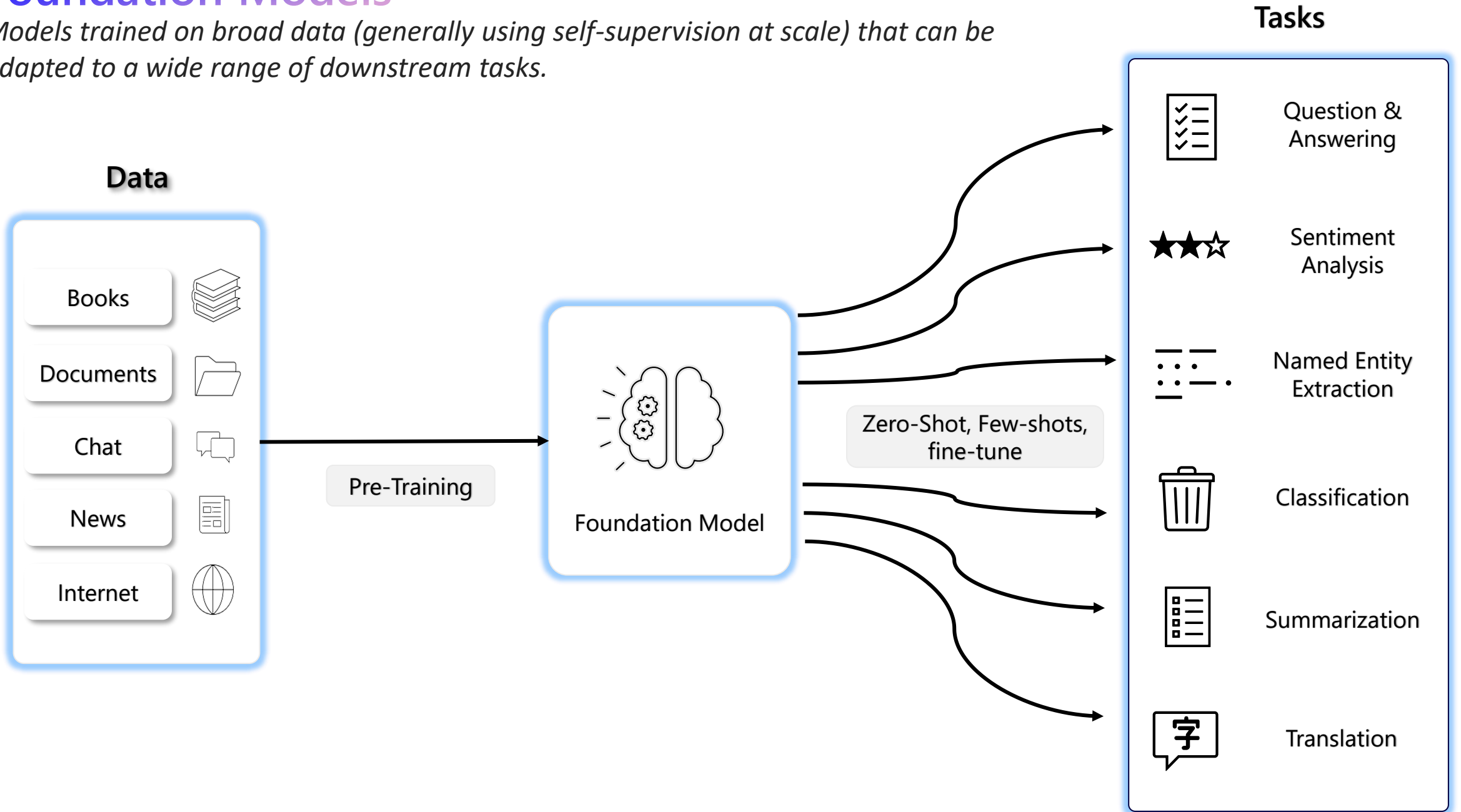
**Specialization**

Journalist, Editor, Author,  
Engineer, Doctor, Scientist,  
Product Manager, etc.



# Foundation Models

Models trained on broad data (generally using self-supervision at scale) that can be adapted to a wide range of downstream tasks.



# Now, we only need to **prompt** the model...



## Few-Shot


Today at 4:32 AM

The following is a list of companies and the categories they fall into:

Apple: Technology  
Trader Joes: Groceries  
Fedex: Logistics

What is the category of the below company

BMW:


 GPT3 Today at 4:32 AM  
Automobiles

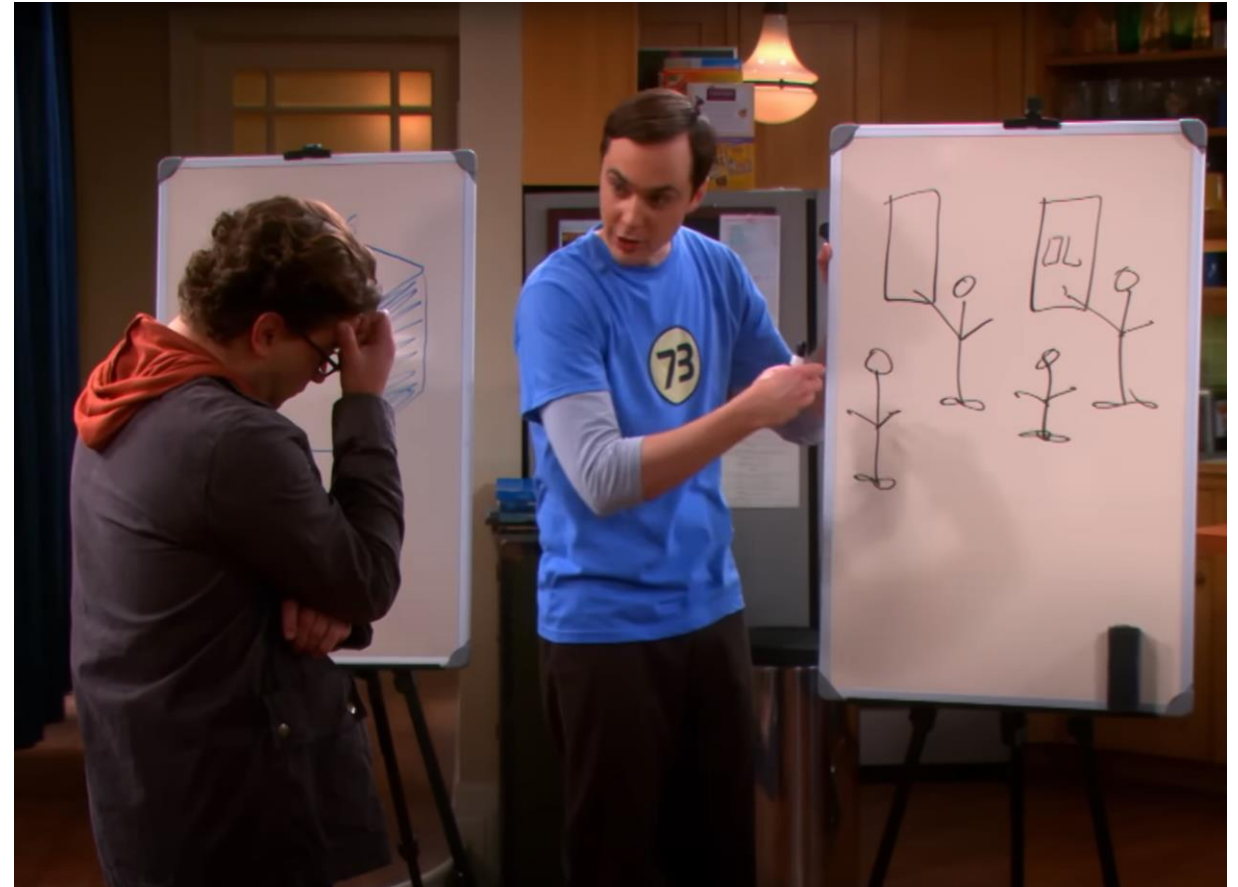
## Zero-Shot

Today at 4:34 AM

What is the category of the below company

Target:

 GPT3 Today at 4:34 AM  
Retail



**These techniques are especially useful when its hard to source data!**



The background is a dark, almost black, space filled with intricate, glowing patterns. These patterns consist of numerous thin, white lines that curve and swirl, creating a sense of motion and depth. Interspersed among these lines are many small, bright white dots, some of which appear to be part of a larger, faint grid or network. The overall effect is reminiscent of a complex data visualization or a digital landscape. The text 'Infinite possibilities' is overlaid on the left side of the image, rendered in a clean, white, sans-serif font.

**Infinite possibilities**

# AI in different Industries

## Retail



- Automated customer service agents
- Expert shopping advisors and product recommendations
- Price optimization
- Cashierless checkout
- Supply and logistics, fleet management

## Federal government



- Intelligent case management of application and delivery of benefits
- Intelligence systems: defense, terrorism, investigations
- Urban, transportation, or environmental monitoring and planning

## Insurance



- Program advisors and recommendation systems
- Smart business innovation and automation
- Automated claims processing
- Financial crime management

## Life sciences



- Clinical trial management and recruitment
- Pricing and revenue management
- Drug discovery
- Automated human resources

## Education



- Adaptive learning
- Student engagement tracking and analysis
- Financial aid management and compliance

## Telecommunications



- Automated threat intelligence and prevention systems
- Smart networking
- Automated customer service agents

# AI Horizontal Applications

## Software Development and Design



- Autocompletion of code
- Explain the functionality of code they did not write
- Provide guidance on which classes or libraries of code
- Improve the consistency of code
- Simplify code
- Explore alternative solutions to coding challenges,
- Generate unit tests
- Translate code from one language to another
- Write documentation such as user stories and success criteria
- Accelerate debugging

## Product Development and Design



- Product ideation; design physical objects
- Simulate options
- 3D Modelling
- Innovate - unlock new products that weren't possible before
- Improve legacy designs
- Optimize designs for materials efficiency (minimizing waste), simplicity (fewest parts) and speed of production.
- Automated content – product descriptions, summarized regulation literature; product documentation

## Customer Service



- Automated customer service 24/7
- Present customized/ personalized recommendations
- Use more engaging customer surveys – conversational
- Offer more relevant content across multiple channels
- Analyze customer feedback
- Engage in multiple languages

## Marketing and PR



- Draft blogs, social media content,
- Lead generation/ identification
- Dynamic content across multiple channels
- Marketing optimization (A/B Testing, SEO Strategies]
- Automated marketing workflows – nurturing campaigns
- Marketing analytics – dynamic audience targeting
- Dynamic customer journey mapping
- Personalized outreach (virtual assistants)

## Sales



- Create sales enablement materials like sales scripts, brochures, sales playbooks
- Q&A interface for CRM Systems; extract insights
- Personalized sales emails
- Product recommendations based on purchase history, browsing behavior and stated preferences
- Automate repetitive tasks – creating proposals, email templates, and other sales materials.
- Create customized sales training materials
- Sales analytics – predictive pricing, negotiation

# AI Horizontal Applications

## Supply Chain



- Dynamic Demand Forecasting and Inventory Management
- Bottleneck-free Workflow enabler with summary for logistics planner
- Fleet Optimization
- Sustainability Simulator and Tracker
- Training Assistant
- Provider of mutual understanding in multinational/multicultural environment

## Finance



- Dynamic forecasting and reporting
- Portfolio optimization and Risk management
- Fraud detection
- Optimize Operations
- Personalized customer solutions
- Customer support and engagement
- Document analysis for improved decisions
- Automated report generations
- Synthetic data generations
- Automated Invoices
- Automated Expense classification

## Procurement



- Contract analysis and management
- Fraud detection
- Compliance
- Vendor Analysis
- Vendor Negotiations
- Predicting Costs
- Automated content generation – vendor communications
- Auto RFP

## IT



- Automated IT service desk
- Infrastructure as a code
- Test Generation and automation for resilience workflows
- Incident analysis response
- Proactive Incidence Management
- Automated report generations
- Security services
- Network optimization

## HR



- Create Job Descriptions, Competency guides, Learning outlines and, Onboarding and Transition Tools
- Create skills models, experience models, and candidate profiles for recruiting
- Analyze and improve pay, salary benchmarks and rewards
- Performance management and feedback
- Coaching and leadership development
- Individual Coaching, Mental Health, and Wellbeing

# AI is accelerating the energy transition

**JPT** JOURNAL OF  
PETROLEUM  
TECHNOLOGY

## AI Paves the Way for a Sustainable Energy Future

The use of artificial intelligence in the clean energy sector increases the availability and accessibility of clean energy, making it a more viable and cost-effective alternative to traditional energy sources.

THE WALL STREET JOURNAL

## How AI Might Change the Way We Supply and Consume Energy

Building better batteries. Improving policy-making. Matching supply and demand more accurately. Artificial intelligence may make it easier to arrive at a greener future.

**MarketWatch**

## Microsoft's Nadella: AI is taking the computer age from 'the bicycle to the steam engine'

 **REUTERS**

## BHP taps Microsoft, AI, to improve recovery at top copper mine

WORLD  
ECONOMIC  
FORUM

## This is how AI will accelerate the energy transition

**TC** **TechCrunch**

## Microsoft's Azure AI Studio lets developers build their own AI 'copilots'

**VentureBeat**

## Microsoft announces generative AI-powered Copilot 365 to 'change work as we know it'

**Forbes**

AI will save between \$290 billion and \$390 billion annually for mineral raw producers

**EY** Building a better  
working world

Why artificial intelligence is a game-changer for renewable energy

# AI will reinvent the energy and resources industry

## Empower your Workforce



Build an inclusive and collaborative culture that attracts, engages, and retains employees who are empowered to do their best work

## Operate for the Future



Increase operational profitability and productivity by securely connecting and maximizing existing assets

## Accelerate to Net zero



Achieve net-zero commitments through emissions reductions, grid decarbonization, and renewable energy optimization

## Unlock Sustainable businesses



Create new business models with ESG-first innovations that serve customers and stakeholders, expand your market position, and increase growth opportunities

# Top use cases for generative AI in the Power and Utilities Industry

Predictive analytics  
and maintenance

Workforce  
management &  
dispatch optimization

Energy forecasting

Intelligent grid

Distributed energy  
resource orchestration

Unlocking clean fuels

Customer support

Cybersecurity

# Use cases for Renewables & Generation





# Overview: Use Cases

## Use Case 1

Leveraging AI for Predictive Maintenance

## Use Case 2

Streamlining Demand Response with AI

## Use Case 3

Optimizing Energy Trading with AI

## Use Case 4

AI Driven Customer Support

## Use Case 5

Workforce Management & Dispatch Optimization

## Use Case 6

Enhancing Cybersecurity with AI

# Use Case 1: Leveraging AI for Predictive Maintenance

## Description



Continuously analyze the condition of connected assets, equipment and sensors, leveraging AI models that assess equipment status, operational characteristics and identify the probability of failures. Ingest data such as, historical maintenance records, real-time IoT equipment data, sensor data, etc. Anticipate potential failures and optimize maintenance scheduling, reducing unexpected outages

## Benefits



**Reliability:** Enhance system reliability by preventing unexpected asset failures

**Reduce Costs:** Prolong equipment life through proactive maintenance schedules

**Workforce and Culture:** Maintenance can be planned efficiently around workforce schedules – Maximize uptime and fewer productivity lags

**Safety:** Prevent accidents and safety issues resulting from equipment failure

## Example of ChatGPT Prompts

1. What is the recommended maintenance schedule for transformer X based on historical data and failure rates?
2. Identify the top 5 equipment units that need immediate maintenance.
3. Provide a maintenance priority list for substations in region Y.
4. Which assets have the highest likelihood of failure in the next 6 months?
5. What are the common factors contributing to transformer failures in region X?

# Use Case 2: Streamlining Demand Response with AI

## Description



Analyze real-time energy consumption patterns, weather forecasts, and grid conditions to accurately predict energy demand. Leveraging machine learning models, AI can identify patterns and predict peak demand periods, helping to strategize demand response initiatives

By integrating with systems controlling DERs and load shedding mechanisms, AI can automate the execution of demand response strategies, ensuring a balanced load during peak times

AI can also facilitate communication with customers involved in voluntary demand response programs, sending notifications during peak demand times to encourage energy conservation

## Benefits



**Grid Stability:** Maintain balance and prevent outages during peak demand periods, enhancing the reliability of power supply

**Cost Savings:** Minimize the risk of peaking generation which can be very expensive

**Workforce and Culture:** Allows engineers to focus on strategic operations while AI handles complex demand prediction

**Safety:** Prevent accidents and safety issues resulting from equipment failure

## Example of ChatGPT Prompts

1. What demand response strategies should we implement during the upcoming heatwave to reduce peak demand?
2. Analyze consumption patterns and recommend energy-saving initiatives for our industrial customers
3. How can we effectively use our DERs to optimize demand response during peak hours?

# Use Case 3: Optimizing Energy Trading with AI

## Description



Leverages machine learning models to analyze various factors that influence energy prices such as market data, weather forecasts, and real-time generation and consumption trends. These models help predict future energy prices, enabling utilities to strategize and decide when to buy or sell energy for maximum cost-effectiveness. AI systems can also automate the trading process based on the predictions and defined strategies, enhancing efficiency and profitability

## Benefits



**Renewable Integration:** Facilitate better integration and utilization of renewable energy sources

**Financial Efficiency:** Optimize energy trading strategies for cost savings and improved financial performance

**Decision Making:** Trading teams can rely on real-time data and accurate predictions to make informed decisions

## Example of ChatGPT Prompts

1. What is the optimal time to buy or sell energy today?
2. Recommend hedging strategies to minimize price risk for our energy portfolio
3. How can we maximize profits from our renewable energy assets in the current market conditions?

# Use Case 4: AI Driven Customer Support

## Description



AI can be utilized to automate customer support functions. Analyze customer queries to understand context and provide accurate, personalized responses. Advanced AI chatbots can handle a wide range of customer queries, from outages and billing to energy usage and conservation tips. Using natural language processing and large language models, AI can deliver a human-like interaction experience, making the process more engaging for customers

## Benefits



**Improved Support:** Round-the-clock, instant, personalized customer service

**Cost Savings:** AI can handle routine queries, reducing the need for extensive human customer support teams

**Workforce Development:** Customer service teams can handle complex customer interactions, while AI handles routine tasks

**Customer Satisfaction:** Improved customer service leads to higher customer satisfaction and loyalty

## Example of ChatGPT/Customer ChatBOT Prompts

1. How can I reduce my energy bill during the summer months?
2. What programs or incentives are available for residential customers to install solar panels?
3. Can you provide a detailed explanation of the charges on my latest energy bill?

# Use Case 5: Workforce Management & Dispatch Optimization

## Description



Optimize workforce scheduling and dispatching by analyzing numerous factors like real-time grid conditions, employee skill sets, and historical dispatch data. Using predictive analytics, AI can estimate future workforce requirements and plan accordingly, helping to balance workloads and minimize response times.

## Benefits



**Operational Efficiency:** Better resource allocation and scheduling leading to more efficient operations.

**Cost Savings:** Reduce fuel costs and overtime expenses.

**Reliability and Customer Satisfaction:** Faster response times enhance overall service reliability and improved customer satisfaction

## Example of ChatGPT Prompts

1. What is the most efficient route for our crews to restore power during the current outage event?
2. Prioritize work orders based on outage severity and location.
3. How can we optimize workforce allocation during storm season to ensure quick restoration?

# Use Case 6: Enhancing Cybersecurity with AI

## Description



AI cybersecurity systems can continuously monitor network activity, recognize typical patterns, and detect anomalies or deviations that may indicate potential cyber threats. Using advanced machine learning models, AI can learn from previous cyber attacks to enhance detection capabilities and adapt to evolving threats

## Benefits



**Increased Security:** AI-driven detection systems can identify and respond to cyber threats in real-time

**Security Awareness:** Reinforces a culture of security awareness and best practices across the workforce

**Safeguard Reliability:** Secure operations contribute to overall system reliability

## Example of ChatGPT Prompts

1. Identify any unusual patterns in our system data that may indicate potential security breaches.
2. Are there any signs of unauthorized access to our control systems in the past week?
3. Monitor and report any anomalies in the communication between our grid equipment and control centers

# Renewables & Generation - I

Business Area	Process	Open AI Use Case	Description
Engineering, Procurement & Construction	Engineering and Design	Co-Pilot for Design	Search, summary and analysis of technical documentation, norms, regulation, permits, biodiversity impact,... Use of past Design and engineering information
	Procurement & Supply Chain	Tendering Documentation Support	Search, summary and analysis of technical documentation for bids evaluation and RFP definition/generation
	Permits Management	Permit Search	Analyze, summarize and consult documentation related to permits. Automatic generation of legal documentation and forms
	Construction Planning	Co-Pilot for Project Management	Assistant to summarize docs, risk plan, sentiment, quality... and generate progress report
Asset Operations & Maintenance	Wind, Solar & Hydro Control Room	Co-Pilot for Control Room	Virtual assistance to access/search/summarize technical documentation, procedures and grid status. Support in communication/generating commands for field operations (work orders descriptions, technical instructions,...). Support in creating reports. Support in reacting to alarm in SCADA/BMS
	Workforce Management	Co-Pilot for field engineers	Virtual assistance to access/search/summarize technical documentation, procedures and work orders, generation of work report and use of voice to access data/processes. It enables to consult info with voice, analyze and summarize documentation, capture and classify information and generate documentation
	Asset Inspection	Synthetic images	Creating synthetic images of defects to train AI/ML visual inspection models



# Renewables & Generation - II

Business Area	Process	Open AI Use Case	Description
Trading & Energy Management	Sales and Origination	Co-Pilot for Bids	Analyze RFPs, identify requirements and search in technical, regulation and historian of proposal to generate responds.
	Energy Management	Co-Pilot for sellers	Support sales engagement, analyze documentation, create sales documentation and contacts, support in negotiation. Bot to respond to questions and status.
	Trading	Co-Pilot for traders	Assistant to search for documentation, ask trends, insights and market intel,...
Corporate Functions	HR	CVs Analysis	Support in analyzing CVs (internal/external) for new positions and to assist in finding the best candidate unbiased
	HR	Employee Assistance	Virtual assistant to get access to employee relevant information (vacations, processes, payrolls,...) using natural language.
	Cybersecurity	Security Analysis	Analyze security threads, incidents and logs
	SW Development	Codex- GitHub CoPilot	Generative AI for coding
	Communication	Conversational search on public web-site	Conversational assistant to improve customers/retailers experience in accessing content and information in the public web (i.e: New Bing experience)

## AI Assistant

Q - Summary for altamont pass windfarm for nov 2020

### Executive summary:

During November 2020, Altamont Pass asset produced 2730.14 MWh of electricity with an actual wind speed of 5.43 m/s, resulting in a reported capacity factor of 23.12%. The asset experienced a total alarm duration of 133.71 hours with 56 alarm counts. The total reference energy of the asset was 3442.98 MWh with a time-based availability of 97.63% and an energy-based availability of 97.52%. The owner energy loss was 0.32 MWh, and the service provider energy loss was 78.57 MWh.

### Key takeaways:

1. Altamont Pass asset produced 2730.14 MWh of electricity during November 2020.
2. The asset had an actual wind speed of 5.43 m/s during the same period.
3. The reported capacity factor of the asset in November 2020 was 23.12%.
4. Altamont Pass asset experienced a total alarm duration of 133.71 hours with 56 alarm counts.
5. The time-based availability of the asset was 97.63% during November 2020.
6. The energy-based availability of the asset was 97.52% during November 2020.
7. The service provider energy loss was significantly higher than the owner energy loss, at 78.57 MWh and 0.32 MWh respectively.

Ask AI



Altamont Pass	PA-01	Power Curve	2019-09-08
Altamont Pass	PA-02	Generator Bearing A	2019-07-16
Altamont Pass	PA-02	Nacelle Temperature	2019-02-18
Altamont Pass	PA-03	Power Curve	2019-04-10



“If you were to predict average daily turbine production manually, you'd need a full team of experts, which would take a week to compile. With AI, we get an answer in seconds.”

—Ali İnal, Deputy GM, IT and Digital Business, Enerjisa Üretim

**Challenge:** Enerjisa Üretim faced limitations in using traditional energy production and maintenance planning methods. Incorrect predictions in maintenance of a unit could halt an entire power plant, leading to financial loss and safety risks.

**Solution:** Enerjisa Üretim partnered with Senkron.Energy Digital Services to revamp their infrastructure with cloud-native applications. They effectively centralized their data in Azure Data Lake and introduced Senkron ROC, a state-of-the-art Remote Operation Center leveraging the Azure OpenAI, Azure IoT Hub, Digital Twin, and Machine Learning, enabling real-time monitoring and advanced analytics.

**Impact:** Enerjisa Üretim optimized operational efficiency and predictive maintenance. It transitioned nearly 90% of its workload to the cloud, and successfully manages remote operations through Senkron ROC. The result is reduced downtime and a more secure future in energy management.

**Products:** Azure, Azure Data Lake, Azure Digital Twin, Azure IoT Hub, Azure Machine Learning, Azure OpenAI Service, Microsoft Sentinel, Microsoft 365 E5, Microsoft Defender for IoT, Microsoft HoloLens, Power Apps, Power Automate, Power BI

ENERJISA ÜRETİM



## Enerjisa Üretim revolutionizes energy management with Microsoft Azure and AI

Customer: Enerjisa Üretim

Industry: Energy

Size: 1000 -9, 999 employees

Country: Türkiye

Publish date: 11/2023

[Watch the full story here](#)



Partner: Senkron.Energy Digital Services

Senkron.Energy creates inspiring energy technologies empowered by data and industry know-how for all who share the planet.



# Ontario Power Generation (OPG) leverages the power of AI with ChatOPG



*"Our team has been working closely with Microsoft and combined with their integrated suite of AI tools within Microsoft 365, will provide a step change in productivity and efficiency. This is a new age of innovation!"*

– Jason Wight, CIO and SVP of IT Innovation

## Challenge

OPG is working to equip employees with the tools they need to improve the efficiency and productivity of their work.

## Business Impact

The company has teamed up with Microsoft to develop an AI-powered chatbot for employees called ChatOPG. The chatbot is designed to provide information, answer questions, and act as a personal assistant at work. Adopting AI technology has helped OPG drive operational efficiencies by improving productivity, safety, and performance among employees.

[Learn more](#)



# ENGIE brings AI to renewable energy platform, helps decarbonize energy production with Azure

[Learn more](#)



*"We looked at a range of providers before we moved to the cloud. But we chose Azure because of its Time Series Insights capability—it really swung the decision for us."*

– Head of Darwin Delivery

## Challenge

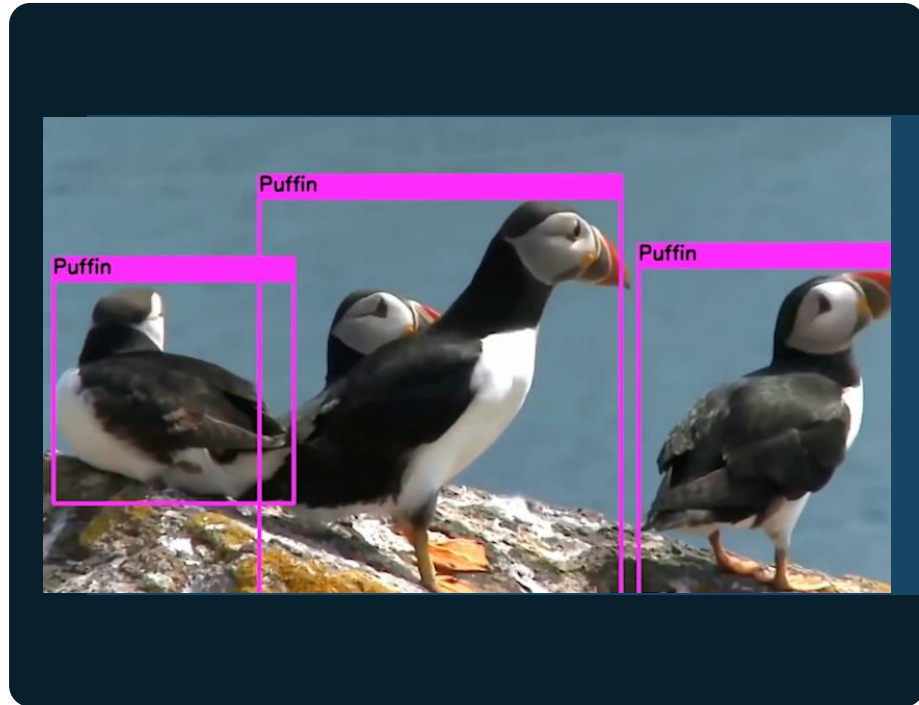
ENGIE needed to modernize its operational performance software, Darwin, to cost-effectively monitor and control their fast-growing renewable capacity while furthering decarbonization initiatives.

## Business Impact

ENGIE implemented Microsoft Azure Time Series Insights, Azure IoT Edge, and Azure IoT Hub to equip ENGIE with data and AI-driven analytics to enable insight-driven decisions based on real-time, historical, and AI-modeled data.

Since its implementation, ENGIE has reduced unexpected plant operation disruptions, furthering their mission toward increased renewable energy production and reduced carbon emissions across the globe.

# UK wind power provider monitors puffin colonies with AI



Offshore wind provides consistent low-carbon energy but is known to have effects on wild bird populations. SSE Renewables, a global leader in offshore wind, completed a live trial off the coast of Scotland using remote cameras connected to an AI tool in the Microsoft cloud to automatically detect and count puffins at a local colony—down to the individual bird. SSE Renewables can use this data to adapt operations to reduce negative impacts on local ecosystems, and meet regulatory requirements, as their production footprint expands.



## Eliminate manual monitoring

Save employee time needed to review video footage or travel to the field

## Share insights to drive decision making

Stakeholders can access real-time dashboards from anywhere



# E.ON inspects power lines with drones and artificial intelligence based on Microsoft Azure



*"We are responsible for ensuring that the lights go on in German households. Meeting this responsibility and maximizing our quality of service is our top priority. That's why we rely on drones as well as modern cloud technology based on Azure to maintain our power grids."*

– Sam Julian, Head of Data Engineering & AI Solutions

## Challenge

E.ON inspects more than 700,000km of power lines throughout Germany. Much of this work is done manually and requires a huge amount of effort. They want to make this process more efficient and safer using digital solutions.

## Business Impact

To replace some of these manual processes, E.ON introduced virtual inspections with drone images and artificial intelligence. Together with the three distribution system operators, they developed their own virtual inspection solution - drones were used to take pictures, and artificial intelligence analyzed the images, sorted and evaluated them using key Azure services.

[Learn more](#)

**With great power comes great responsibility!**

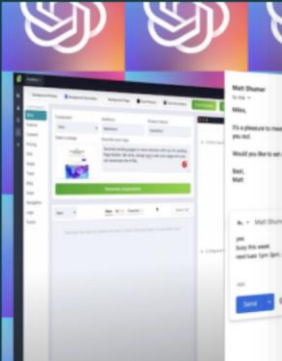






# Propaganda as a service may be on the horizon as AI models are trained on vast amounts of data

Kyle Wiggers



## Russian hackers are using ChatGPT to write malicious pieces of code

This can help them steal your personal data and much more.



Ameya Paleja

Created: Jan 16, 2023 05:20 AM EST

### CULTURE



# Microsoft's Responsible AI principles



Fairness



Reliability & Safety



Privacy & Security



Inclusiveness

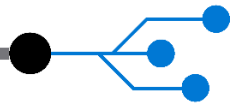


Transparency



Accountability

# Risk Categories



**RISK**

**Misuse:** Use of API to generate content to influence, control, or harm others

**Quality:** Harm to individuals or businesses due to unintended outputs or overreliance

CLASS	CLASS DESCRIPTION
Political Use	API is used to conduct a persuasion campaign to promote a political position or candidate
Disinformation	API is used to conduct a disinformation campaign
Spam, astroturfing	API is used to conduct an astroturfing campaign to promote a product or push some other commercial interest
Hate, Harassment	API is used to conduct a campaign of hate or harassment
Malware, Ransomware, Spyware	API is used to produce malware, ransomware or spyware
Sexually Explicit Content	API is used to produce sexually explicit content

# Responsible AI Mitigations

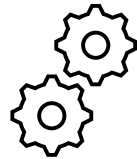


## Customer



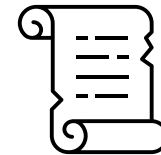
- ☆ Structure user interactions.  
Limit the length, structure, and source of inputs and outputs
- ☆ Control user access
- ☆ Transparency and overreliance mitigations in UI/UX

## Technical



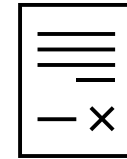
- ☆ Content Filtering
- ☆ Asynchronous abuse detection
- ☆ User-based throttling
- ☆ User-based shutdown

## Process & Policy



- ☆ Limited Access
- ☆ Abuse reporting channel
- ☆ Feedback channel
- ☆ Incident Response

## Documentation & Legal



- ☆ Terms of use
- ☆ Transparency Note
- ☆ Design Guidelines

# AI from a career perspective



# Future of jobs in the new era



McKinsey & Company

[https://www.mckinsey.com/mgi/our-research/...](https://www.mckinsey.com/mgi/our-research/)

## Generative AI: How will it affect future jobs and workflows?

Web Sep 21, 2023 · Generative AI: How will it affect future **jobs** and workflows? 00:00 / 25:53 First a pandemic . . . Roberta Fusaro: Before we dive into the findings of McKinsey Global ...



Forbes

[https://www.forbes.com/sites/ashleystahl/2021/03/...](https://www.forbes.com/sites/ashleystahl/2021/03/)

## How AI Will Impact The Future Of Work And Life - Forbes

Author: Ashley Stahl

- AI will probably not make human workers obsolete, at least not for a long ...
- AI Is becoming standard in all businesses, not just in the world of tech. A ...
- Medical: The potential benefits of utilizing AI in the field of medicine are ...
- Automotive: We're already seeing how AI is impacting the world of ...



The World Economic Forum

<https://www.weforum.org/agenda/2023/09/how-to...>

## Experts on how to harness the power of AI for better jobs | World ...

Web Sep 20, 2023 · A new report from the World Economic Forum, Jobs of Tomorrow, highlights AI's impact on job tasks. **AI has the capacity to enhance job quality and foster job growth if managed responsibly.** These real-world examples showcase how AI's potential can be ...



# Role landscape and emerging paths



## Examples of role evolution

**Software Engineers:** Increased focus on integrating and developing AI applications

*Expand to include training, tuning, and maintaining quality of AI Models*

**Program/Project managers:** leveraging AI to automate, optimize and analyze

*Expand to strategic decision-making around AI-driven initiatives and products*

**IT Professionals:** managing AI infrastructure, ensuring data security

*Expand to data governance and ensuring ethical use of AI technologies*

**Design and UX Professionals:** using AI to create user-centric design

*Expand to understanding user behavior through AI analytics*

**Data Scientists and Analysts:** creating and maintaining AI models

*Expand to interpreting complex AI-driven insights and formulating AI strategy*

**Business managers and strategists:** AI-driven insights for decision-making and innovation

## Emerging roles

Prompt engineers

AI ethicists

AI educators

AI auditors

AI trainers

Content creators/validators

## New skills on the block

- Writing effective prompts
- Prompt engineering
- Security in AI – Fraud detection
- AI Ethics and Responsible AI
- Behavioral, Emotional intelligence

# Microsoft Cloud AI you can trust

Your data is your data

Your data is not used to train the OpenAI foundation models without permission

Your data is protected by the most comprehensive enterprise compliance and security controls

[Read more about Microsoft's commitment to responsible AI.](#)



**Thank you**