



# Artificial Intelligence Safety & Ethics



PNNL is operated by Battelle for the U.S. Department of Energy



ai FOR  
GOOD

The "ai FOR GOOD" logo is centered on the right side of the slide. It features a stylized "ai" in white with a pink square above the "i" and a blue square below the "a". To the right of "ai" are the words "FOR" and "GOOD" in white, stacked vertically. The logo is enclosed within a circular, wavy, blue and pink line art border. The background of the right half of the slide is a dark blue gradient with a network of thin, light blue lines and dots radiating outwards from the center.



# AI for good: examples of the power of AI



01 / 05

## SCIENTISTS

PNNL and Microsoft partnered and used cloud AI to identify and synthesize a groundbreaking new battery material from over 32 million candidates in just weeks, reducing development time from years to months.





# AI for good: examples of the power of AI



02 / 05

## EDUCATORS

Oregon State University found that when teachers guide students in using AI for writing, creativity ratings increased. With help, students are using AI to explore new directions.





# AI for good: examples of the power of AI



03 / 05

## COMMUNITY LEADERS

Nonprofits are using generative AI to write compelling grant proposals, create personalized donor communications, and translate information into multiple languages.





# AI for good: examples of the power of AI



04 / 05

## BUSINESS OWNERS

Small business owners are using AI to create marketing content, customer communications, and automate tasks to speed up their everyday work.





# AI for good: examples of the power of AI



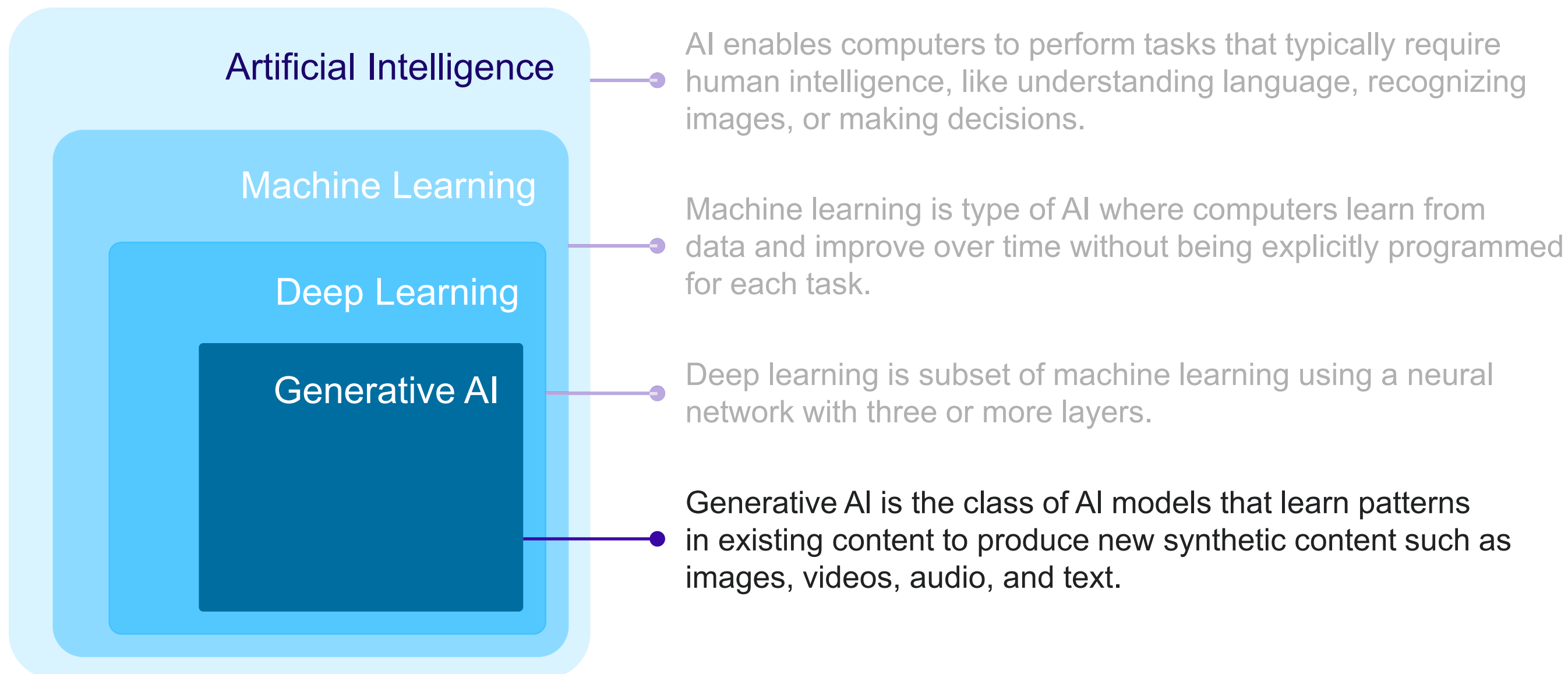
05 / 05

## PERSONAL PRODUCTIVITY

People are using AI to increase their productivity, write routine documents, or code small software projects.



# Foundational terms



# The Golden Rules

01

## Think before you share

- Never input passwords, addresses, or confidential information
- Treat AI chats like public conversations
- When in doubt, don't share it!

02

## Verify everything

- AI can make mistakes and has knowledge gaps
- **Always** verify important information
- Use multiple sources for important decisions

03






## Use AI as an assistant, not a replacement

- AI should be the starting point, not the finish line
- Review and personalize all AI-generated content
- Combine AI assistance with your own knowledge, expertise, and voice








# What AI excels at (and struggles with)



-  Automating repetitive tasks
-  Drafting and editing text
-  Brainstorming and generating ideas
-  Breaking complex problems into steps
-  Summarizing content



-  Expressing uncertainty or confidence in its answer
-  Very recent information
-  Understanding your context without explanation
-  Avoiding all errors or biases
-  Providing professional advice



# When to get human help



## **Making major life decisions**

such as career  
changes, medical  
choices, financial  
investments



# When to get human help



**AI suggests  
something  
that feels  
wrong or  
harmful**



# When to get human help



**Sensitive  
information  
is requested**

passwords,  
personal details,  
confidential data



# When to get human help



**Legal,  
medical,  
or financial  
advice is  
needed**

always consult  
qualified  
professionals



# When to get human help



**AI claims  
certainty  
about  
uncertain  
topics**

future predictions,  
complex  
decisions



# Thank you



ai FOR  
GOOD



60  
YEARS of  
SCIENTIFIC  
BRILLIANCE  
@PNNL