WIPO
Unlocking the Potential of AI: IP Strategies for a Thriving Innovation Ecosystem

AI Primer

April 30, 2024

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What is AI?

AI (artificial intelligence)
creating systems capable of performing
tasks that typically require human intelligence

ML (machine learning)
algorithms to learn from data on specific tasks without
explicit programming

Components

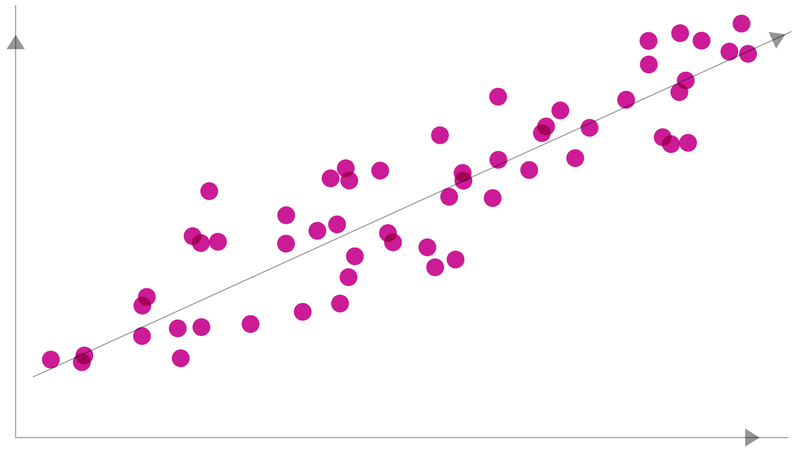
model

data

algorithm

compute

Linear regression and neural networks



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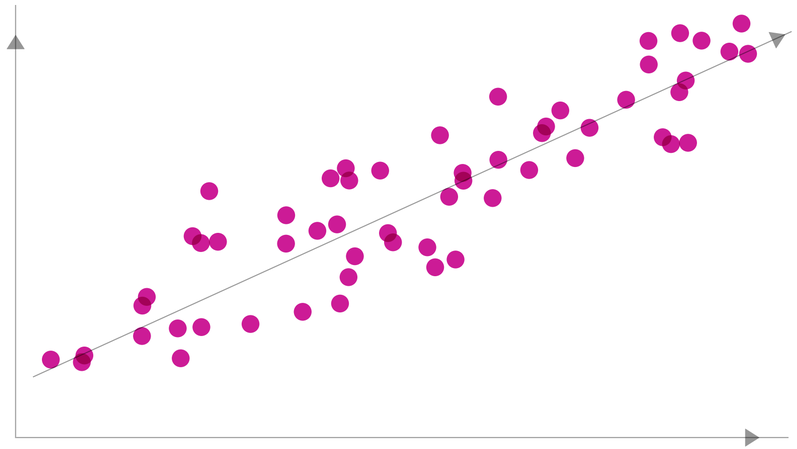

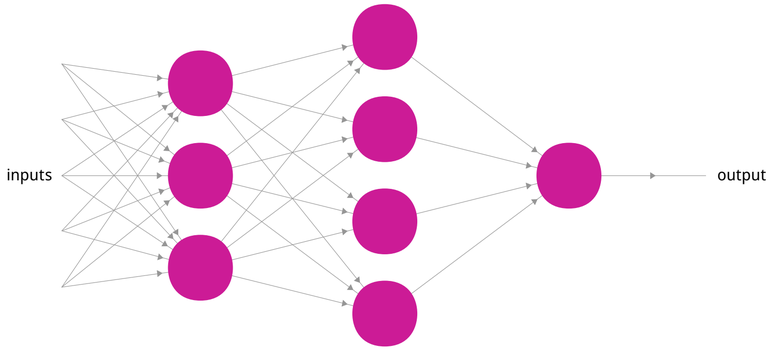

Scale is everything

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Twenty years ago:

thousands of parameters and data points

Scale is everything

Twenty years ago:

thousands of parameters and data points

Today:

trillions of parameters and all of the internet

What is Generative AI?

AI — makes decisions or predictions

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Generative AI — **creates** text, photos, music, ...

Large Language Models (LLMs)
What do they do?

To be|

context

predicted next word

Large Language Models (LLMs)
What do they do?

To be or|

context

predicted next word

Large Language Models (LLMs)
What do they do?

To be or not|

context

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Large Language Models (LLMs)
What do they do?

To be or not to|

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Large Language Models (LLMs)
What do they do?

To be or not to be:|

context *predicted next word*

Large Language Models (LLMs)
What do they do?

To be or not to be: that is the question:

context

predicted next word

Language is everywhere

Genius is one percent inspiration and ninety-nine percent perspiration.
(Thomas Edison)

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```
def add5(x):
    return x+5

def dotwrite(ast):
    nodename = getNodename()
    label=symbol.sym_name.get(int(ast[0]),ast[0])
    print '    %s [label="%s' % (nodename, label)
    if isinstance(ast[1], str):
        if ast[1].strip():
            print '= %s"];' % ast[1]
        else:
            print '"]'
    else:
        print '"];'
        children = []
        for n, child in enumerate(ast[1:]):
            children.append(dotwrite(child))
        print '    %s -> {' % nodename,
        for name in children:
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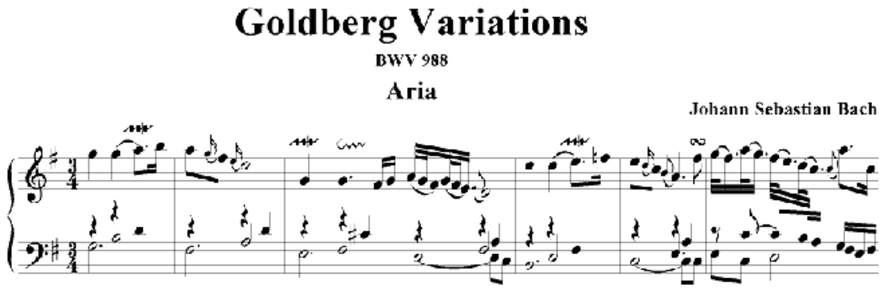

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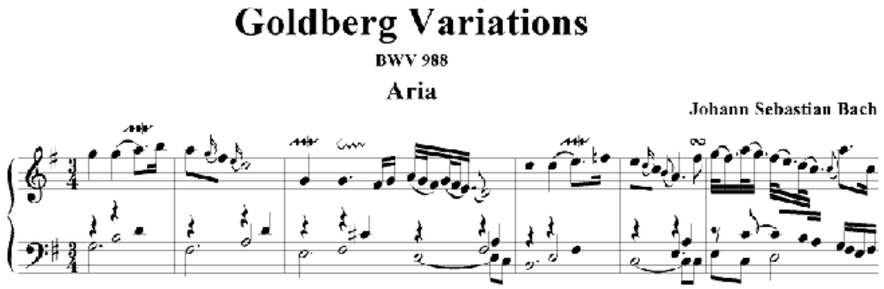


```
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CC(C)CC1=CC=C(C(C)C(=0)0)C=C1
CC(C)CC1=CC=C(C=C1)C(C)C(=0)0
```

What is AI good/bad at?

Good

decision tasks

text creation

summarization

trained on **everything**

Bad

ethics/social norms

true/false

logic

arithmetic

What the future may hold

AI as an inventor

currently:

great tool for absorbing large amounts of knowledge

special architectures and extensive prompt engineering are still required

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possible future:

more and more capable, less and less human input is required; “design a drug that cures cancer”