Lecturer 02/03/2024

Lecturer 24/08/2025

Intelligent System

Lecture 1: Introduction

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“Everybody is a genius. But if you judge a fish by its ability to climb a tree it will live its whole life believing that it is stupid.”

— Albert Einstein

Self introduction
+
Subject Introduction

Syllabus

- Pengenalan Sistem Cerdas (**Week-1**)
- Identifikasi Masalah Riset (review jurnal/aplikasi) (**Week-1**)
- Representasi Pengetahuan (Graph dll) (**Week-2**)
- Metode pencarian - A* (**Week-2 |** #AI)
- Klastering – Kmeans (**Week-3 | #AI, #ML**)
- Klasifikasi - Naive Bayes (**Week-3 #AI, #ML**)
- Klasifikasi - SVM (BKPM Aji) (**Week-4 #AI, #ML**)
- Decision trees (dasar) (**Week-4 #AI, #ML**)
- Jaringan Saraf Tiruan (dasar) (**Week-5 #AI, #ML, #DL**)
- Prediksi - Long Short-Term Memory (LSTM) (**Week-5 #AI, #ML, #DL**)
- Fuzzy logic - sukamoto/mamdani/sugeno (**Week-6 #AI**)
- Decision Support System (**Week-6 #AI**)
- Expert System (**Week-7 #AI**)
- Natural Language Processing (NLP) (**Week-7 #AI, #ML, #DL, #GenAI**)

Artificial intelligen...
Field of study

Virtual reality
Topic

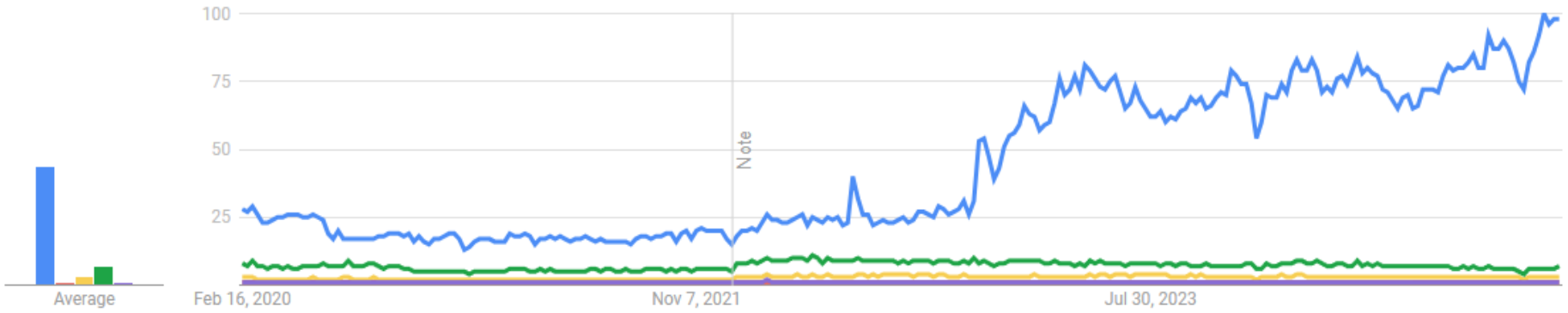
Data science
Field of study

Laravel
Topic

Big data
Topic

Worldwide | Past 5 years | Computer Science | Web Search

Interest over time

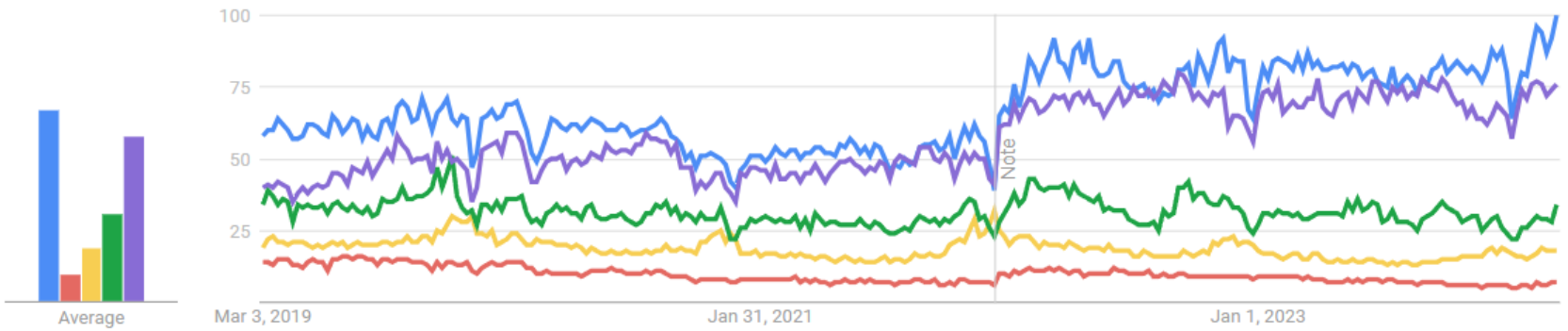


Google Trends Home Explore Trending Now

Machine learning	Codeigniter	Virtual Reality	Big Data	Data Science
Search term	Search term	Search term	Search term	Search term

Worldwide | Past 5 years | All categories | Web Search

Interest over time





The New York Times' lawsuit against OpenAI could have major implications for the development of machine intelligence

Diterbitkan: Januari 11, 2024 1.38am WIB

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In 1954, the Guardian's science correspondent reported on "electronic brains", which had a form of memory that could let them retrieve information, like airline seat allocations, in a matter of seconds.

Penulis



Mike Cook
Senior Lecturer, Department of Informatics, King's College London

The New York Times

Artificial Intelligence › A.I. Faces Quiz How the A.I. Race Began Key Figures in the Field One Year of ChatGPT

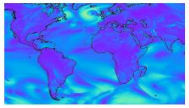
Scientists See Promise in Deep-Learning Programs

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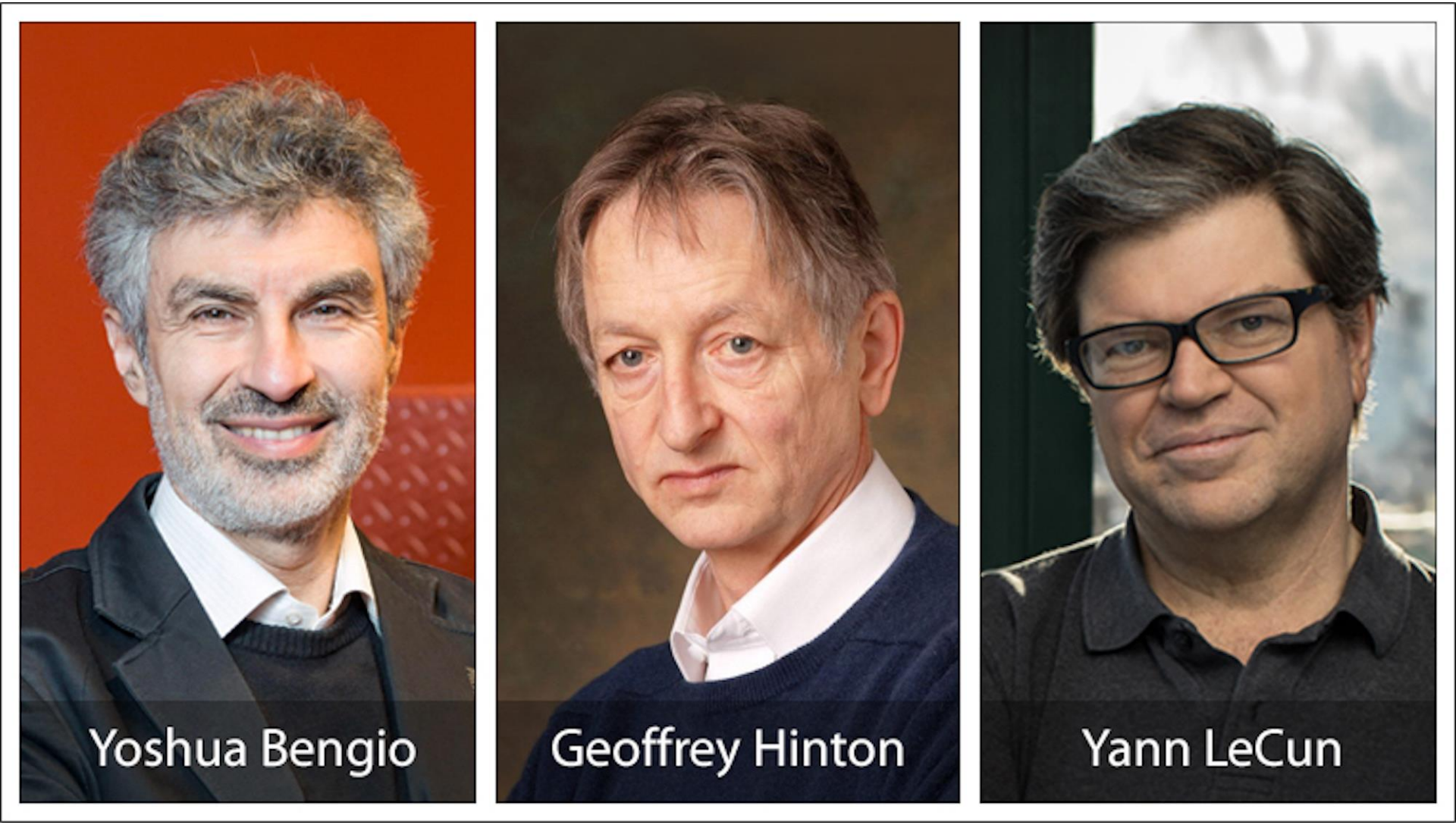
Deep Learning



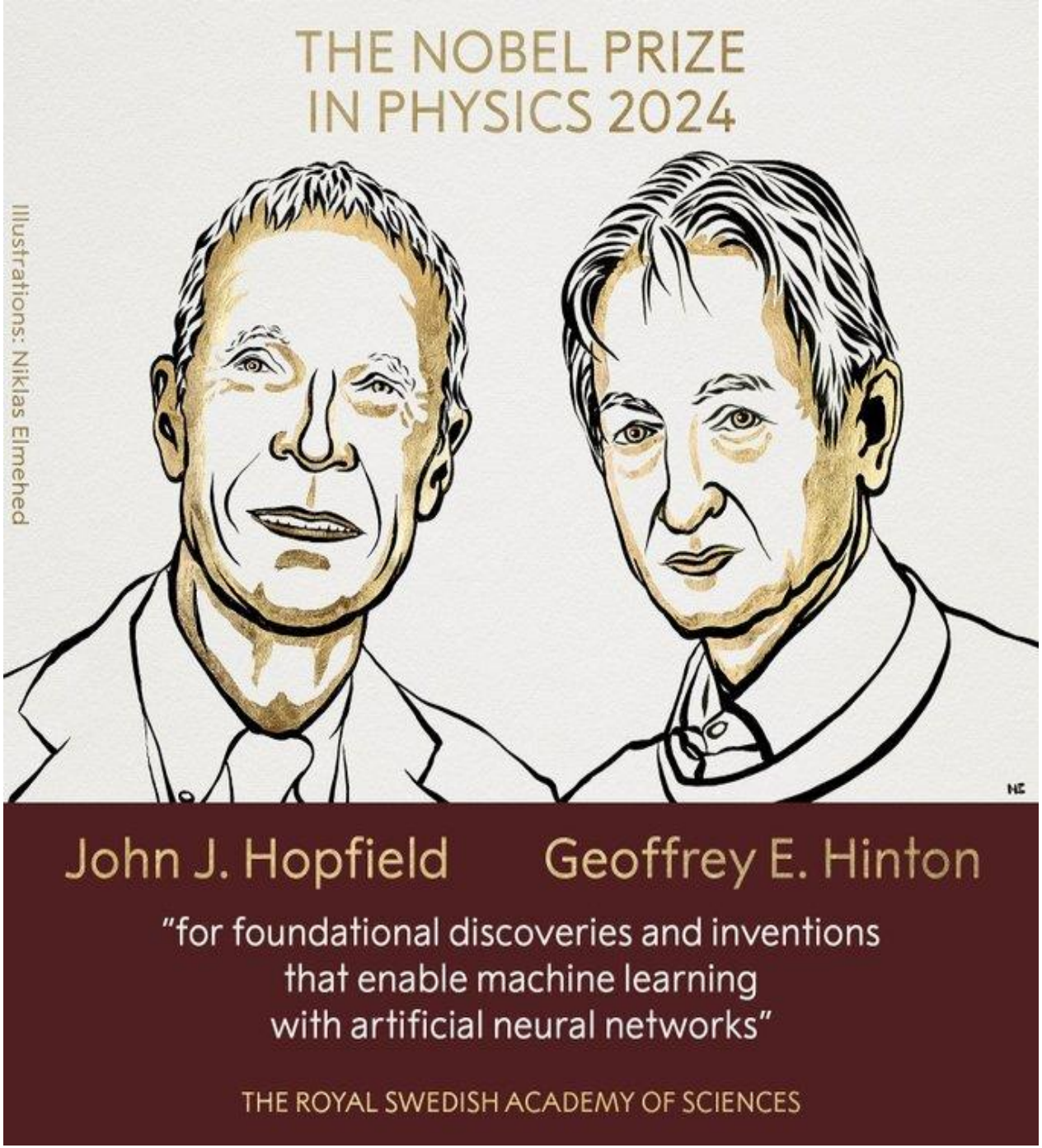
BUSINESS
Google DeepMind's AI Weather Forecaster Handily Beats a Global Standard
BY GREGORY BARBER



BUSINESS
Fei-Fei Li Started an AI Revolution by Seeing Like an Algorithm
BY STEVEN LEVY



In 2018, LeCun, Yoshua Bengio, and Geoffrey Hinton, received the Turing Award for their work on deep learning. The three are sometimes referred to as the "Godfathers of AI" and "Godfathers of Deep Learning".


THE NOBEL PRIZE
IN PHYSICS 2024
Illustrations: Niklas Elmehed
John J. Hopfield
Geoffrey E. Hinton
"for foundational discoveries and inventions
that enable machine learning
with artificial neural networks"
THE ROYAL SWEDISH ACADEMY OF SCIENCES

Outline

- Basic Concept:
  - Artificial Intelligence (AI),
  - Machine Learning (ML),
  - Deep Learning (DL)
- Deep Learning and Applications in CV
- Conclusion

1.1
Artificial Intelligence in General

What is Artificial Intelligence?

- The exciting new effort to make computers think ... *machines with minds*, in the full and literal sense (Haugeland, 1985)



The Example of AI?



AlphaGo [1]





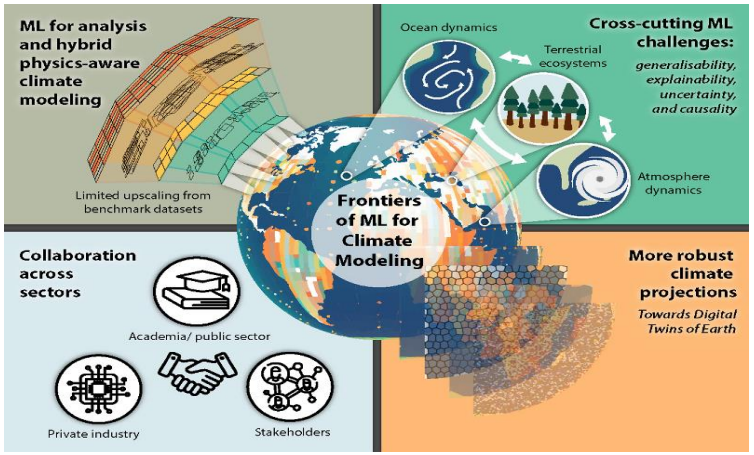


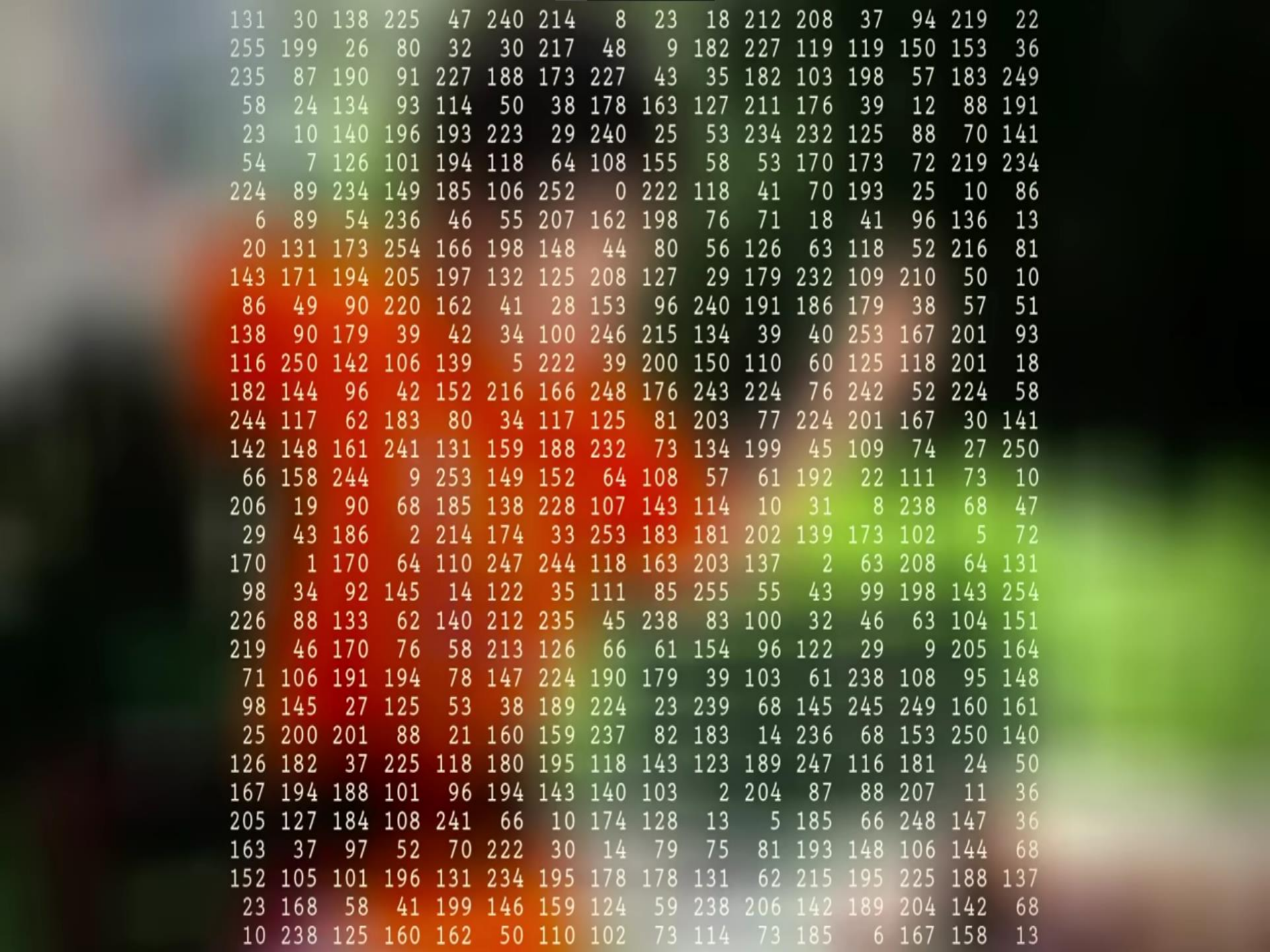


Image Source: drivingvision

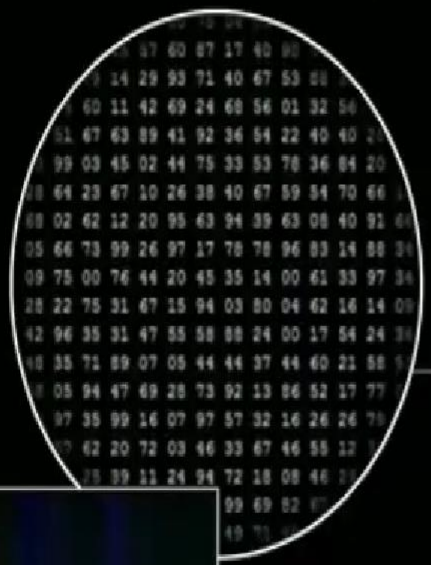
[1] Silver, D., Huang, A., Maddison, C. *et al.* Mastering the game of Go with deep neural networks and tree search. *Nature* **529**, 484–489 (2016). https://doi.org/10.1038/nature16961

How does AI actually see?


Sydne


131 30 138 225 47 240 214 8 23 18 212 208 37 94 219 22
255 199 26 80 32 30 217 48 9 182 227 119 119 150 153 36
235 87 190 91 227 188 173 227 43 35 182 103 198 57 183 249
58 24 134 93 114 50 38 178 163 127 211 176 39 12 88 191
23 10 140 196 193 223 29 240 25 53 234 232 125 88 70 141
54 7 126 101 194 118 64 108 155 58 53 170 173 72 219 234
224 89 234 149 185 106 252 0 222 118 41 70 193 25 10 86
6 89 54 236 46 55 207 162 198 76 71 18 41 96 136 13
20 131 173 254 166 198 148 44 80 56 126 63 118 52 216 81
143 171 194 205 197 132 125 208 127 29 179 232 109 210 50 10
86 49 90 220 162 41 28 153 96 240 191 186 179 38 57 51
138 90 179 39 42 34 100 246 215 134 39 40 253 167 201 93
116 250 142 106 139 5 222 39 200 150 110 60 125 118 201 18
182 144 96 42 152 216 166 248 176 243 224 76 242 52 224 58
244 117 62 183 80 34 117 125 81 203 77 224 201 167 30 141
142 148 161 241 131 159 188 232 73 134 199 45 109 74 27 250
66 158 244 9 253 149 152 64 108 57 61 192 22 111 73 10
206 19 90 68 185 138 228 107 143 114 10 31 8 238 68 47
29 43 186 2 214 174 33 253 183 181 202 139 173 102 5 72
170 1 170 64 110 247 244 118 163 203 137 2 63 208 64 131
98 34 92 145 14 122 35 111 85 255 55 43 99 198 143 254
226 88 133 62 140 212 235 45 238 83 100 32 46 63 104 151
219 46 170 76 58 213 126 66 61 154 96 122 29 9 205 164
71 106 191 194 78 147 224 190 179 39 103 61 238 108 95 148
98 145 27 125 53 38 189 224 23 239 68 145 245 249 160 161
25 200 201 88 21 160 159 237 82 183 14 236 68 153 250 140
126 182 37 225 118 180 195 118 143 123 189 247 116 181 24 50
167 194 188 101 96 194 143 140 103 2 204 87 88 207 11 36
205 127 184 108 241 66 10 174 128 13 5 185 66 248 147 36
163 37 97 52 70 222 30 14 79 75 81 193 148 106 144 68
152 105 101 196 131 234 195 178 178 131 62 215 195 225 188 137
23 168 58 41 199 146 159 124 59 238 206 142 189 204 142 68
10 238 125 160 162 50 110 102 73 114 73 185 6 167 158 13

INTERPRETATION







TESLA LIVE

How AI works or doing operations?

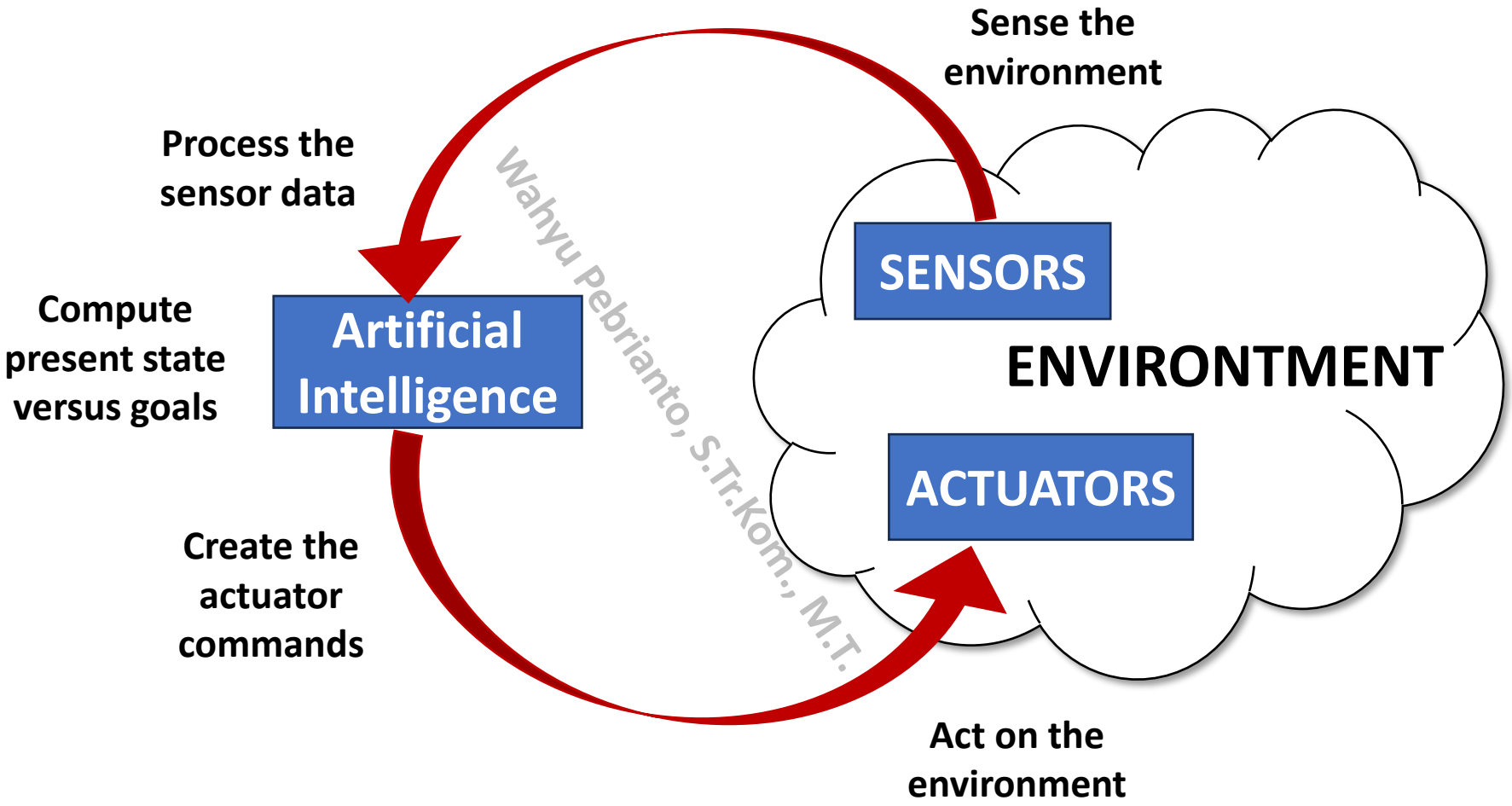
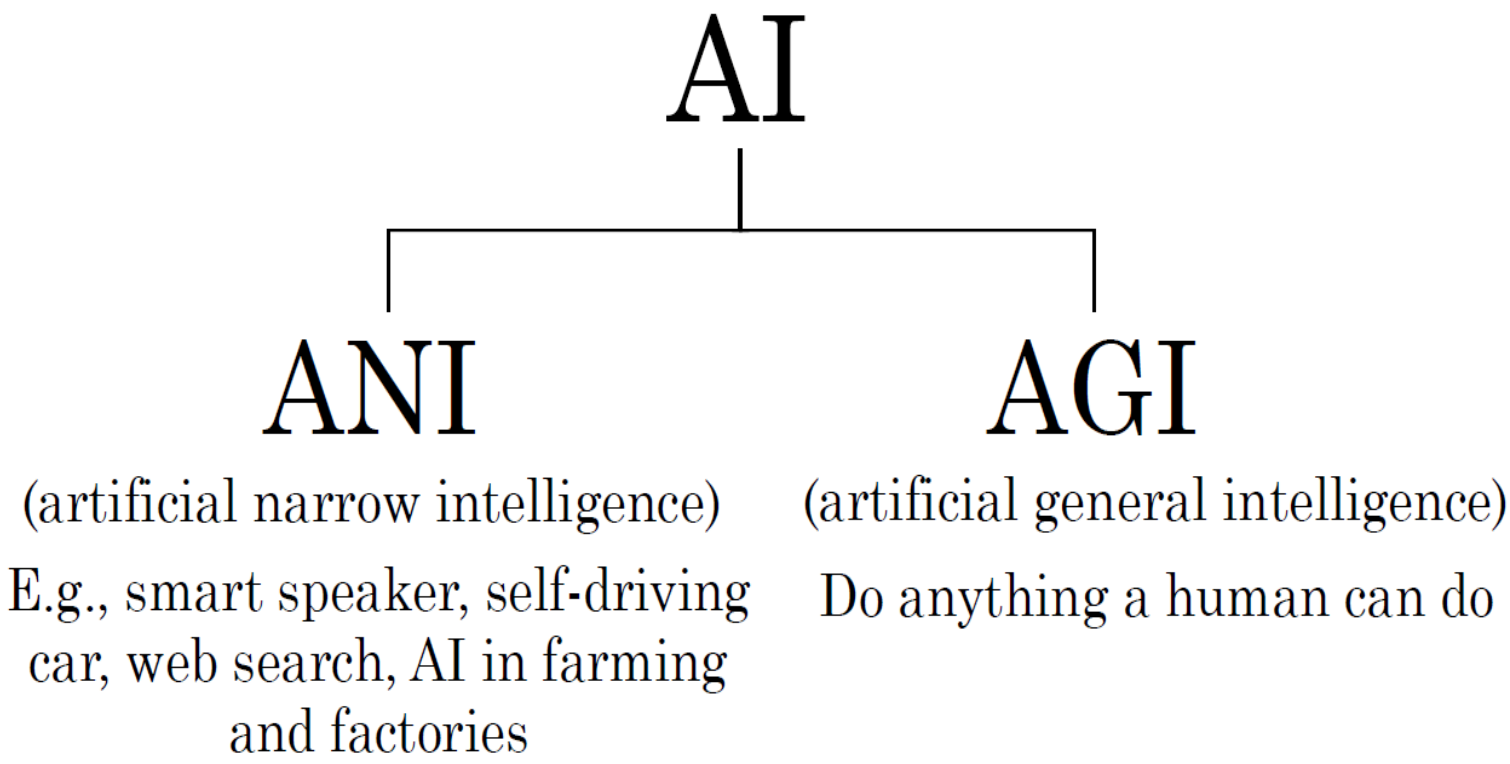


Image by **Wahyu Pebrianto**

Uncovering the Mystery



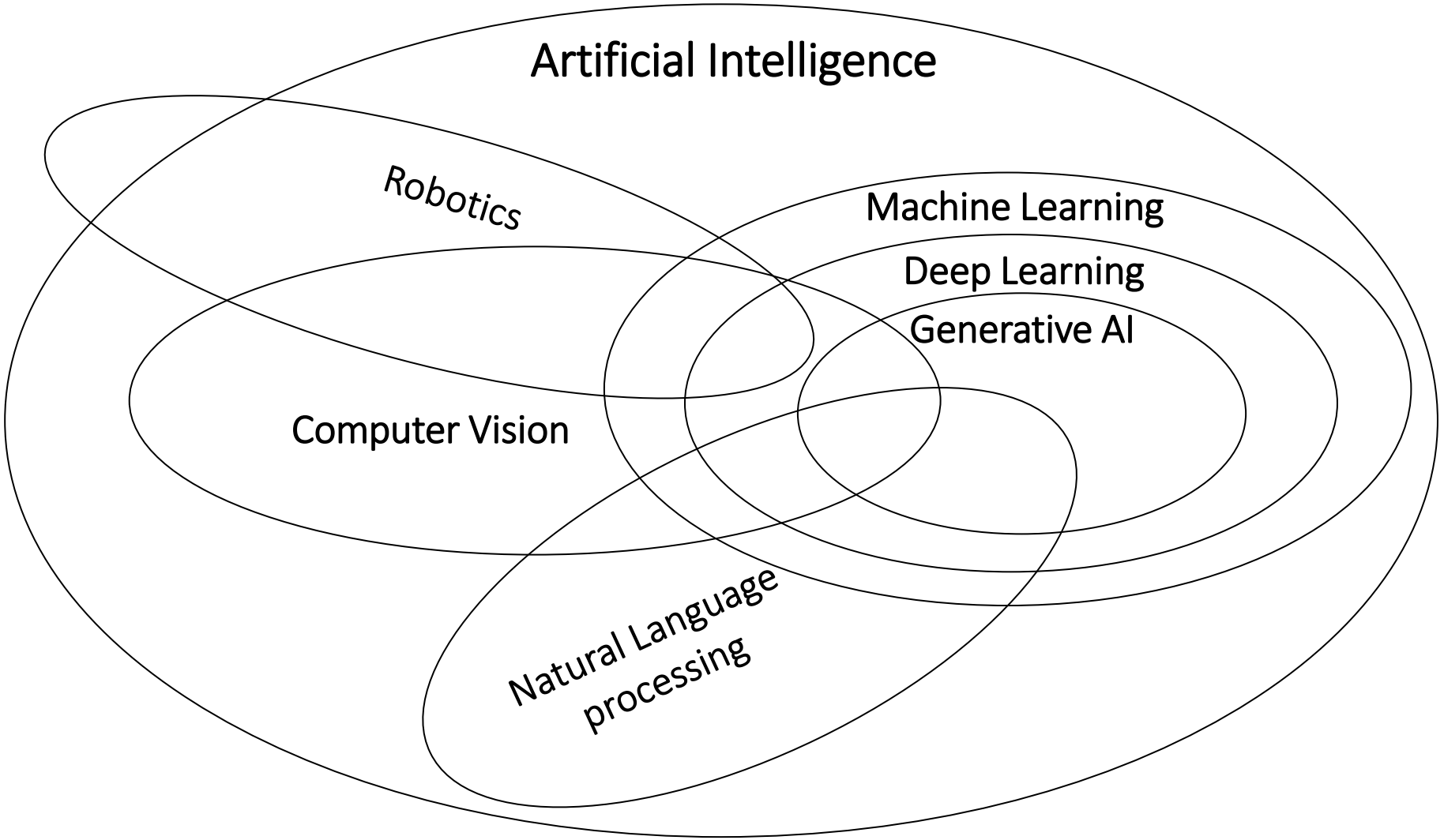
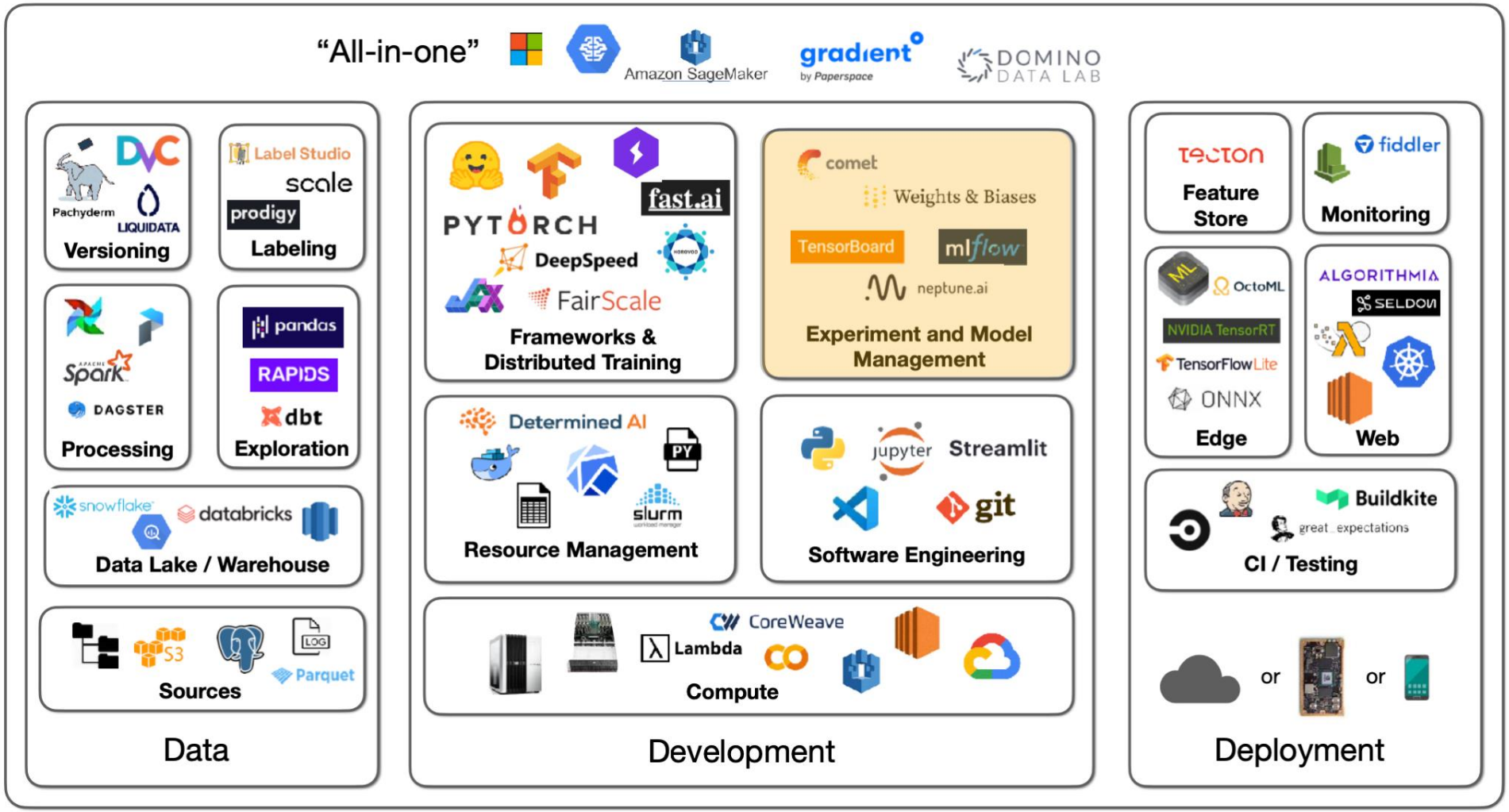


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"All-in-one"
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gradient by Paperspace
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Pachyderm
LIQUIDATA
Versioning
Label Studio
scale
prodigy
Labeling
Spark
DAGSTER
Processing
pandas
RAPIDS
dbt
Exploration
snowflake
databricks
Data Lake / Warehouse
S3
Parquet
Sources
Data
PYTORCH
fast.ai
DeepSpeed
FairScale
Frameworks & Distributed Training
Determined AI
slurm
Resource Management
comet
Weights & Biases
TensorBoard
mlflow
neptune.ai
Experiment and Model Management
jupyter
Streamlit
git
Software Engineering
CoreWeave
Lambda
Compute
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tecton
Feature Store
fiddler
Monitoring
OctoML
NVIDIA TensorRT
TensorFlow Lite
ONNX
Edge
ALGORITHMIA
SELDON
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or
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