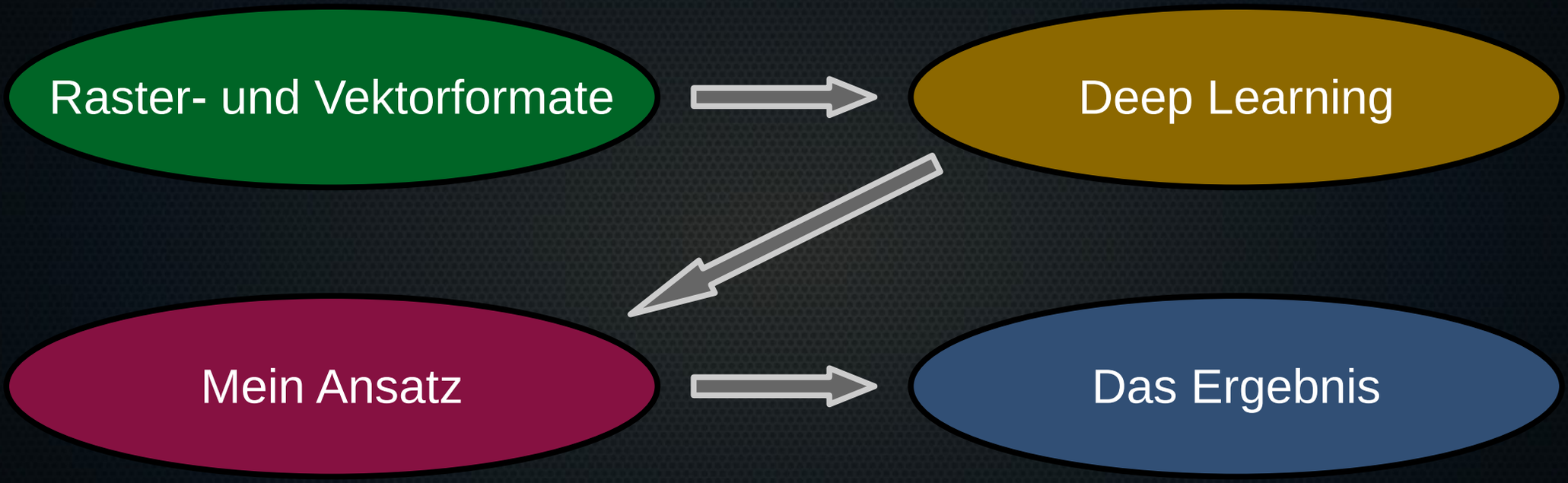
RtoV – R*aster* to V*ector*

Umwandlung von `Rasterformaten` in *Vektorformate* mit Deep Learning

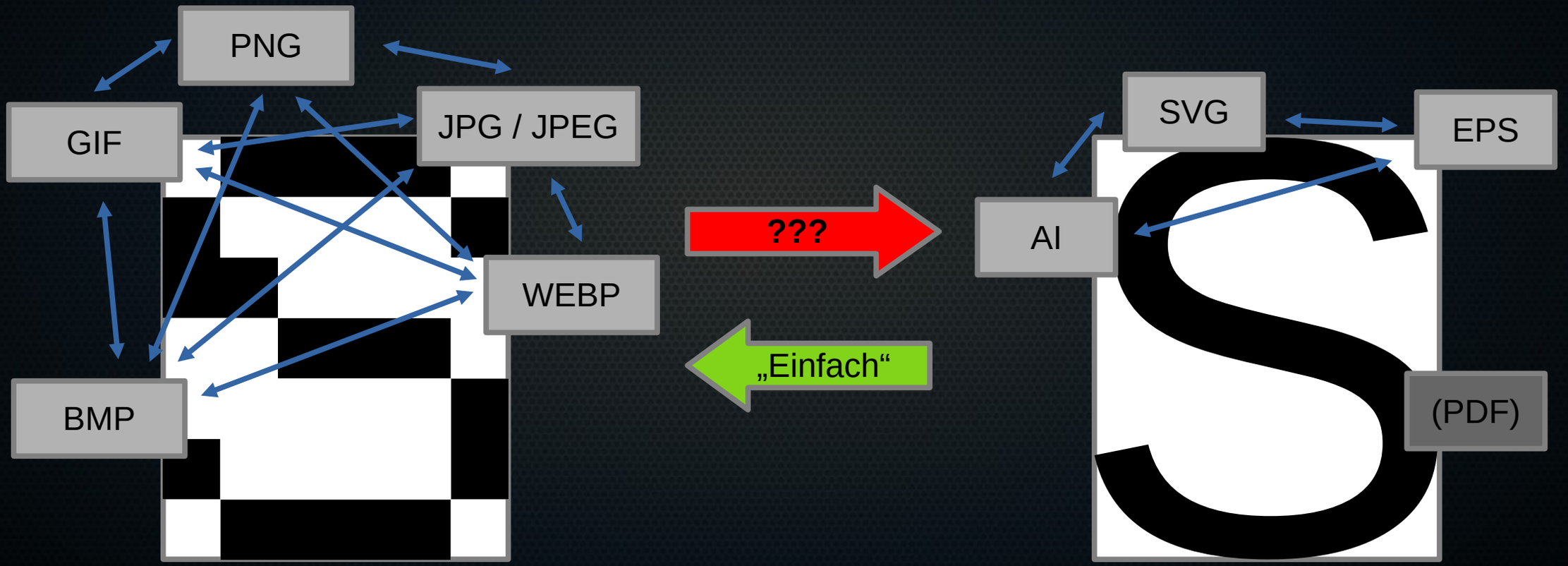
Übersicht


Raster- und Vektorformate
Deep Learning
Mein Ansatz
Das Ergebnis

Über `Raster-` und *Vektor*formate

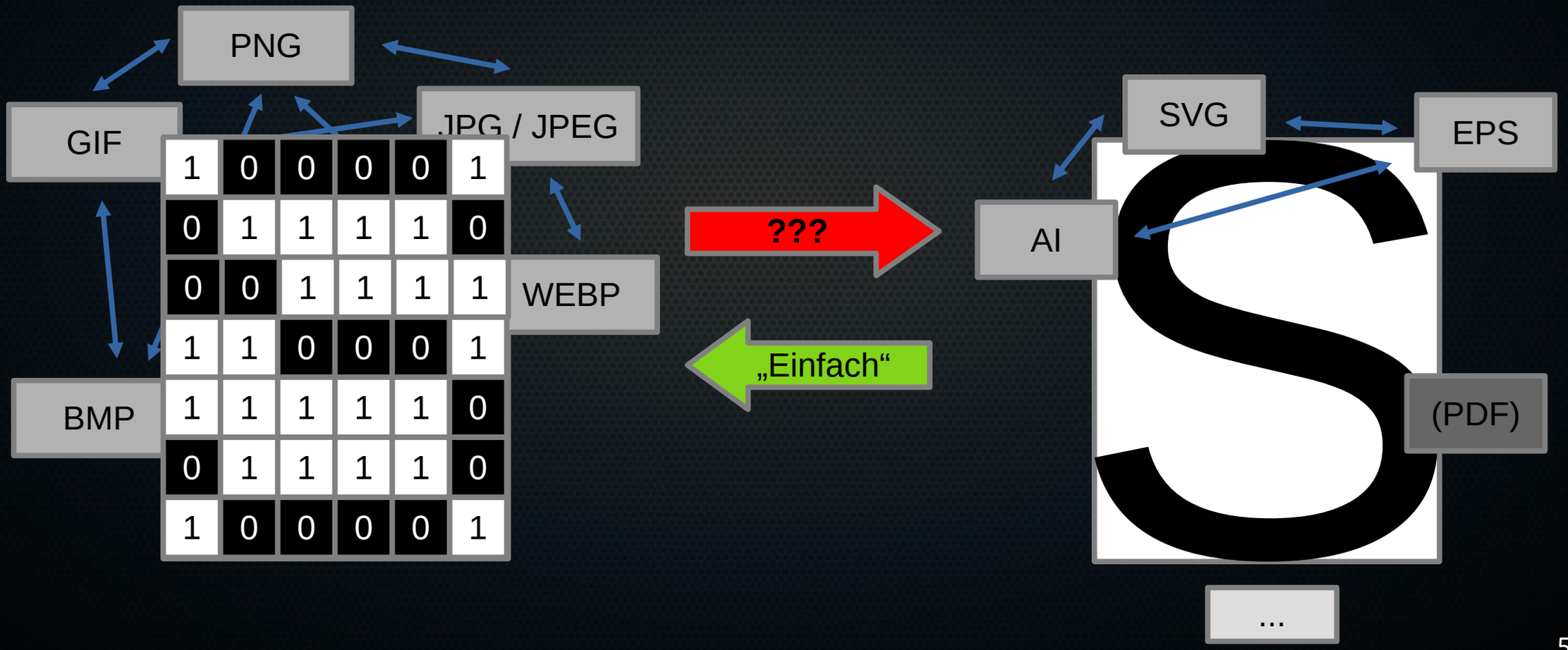
Raster-/Bitmap-/Pixel-Formate

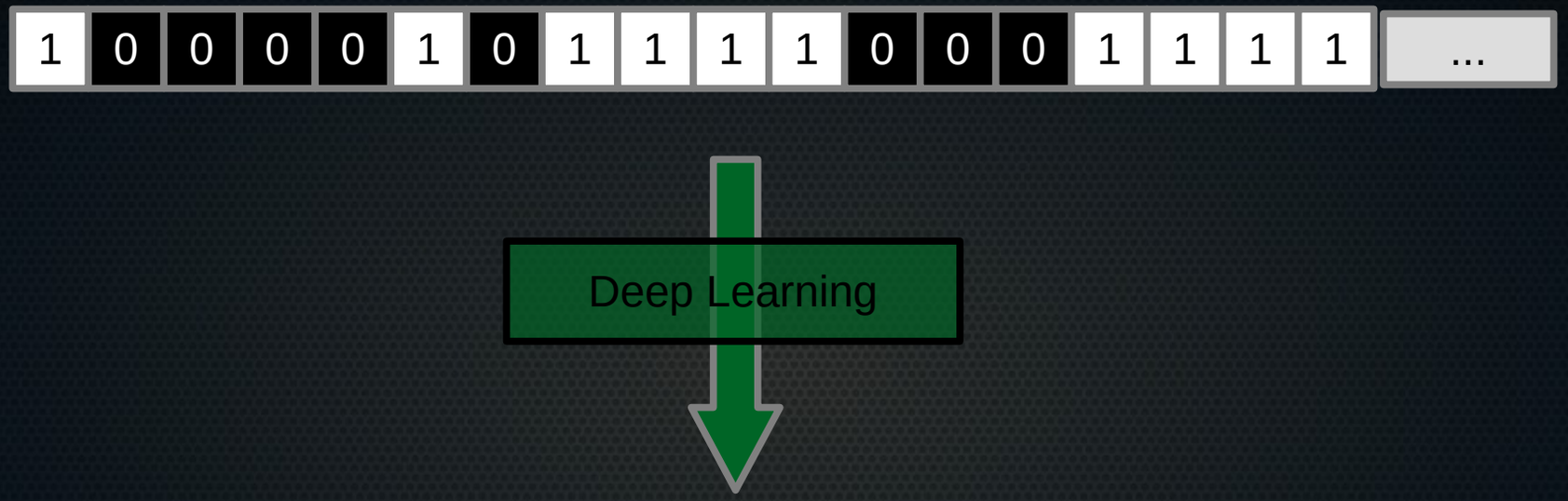
Vektorformate



Raster-/Bitmap-/Pixel-Formate

Vektorformate

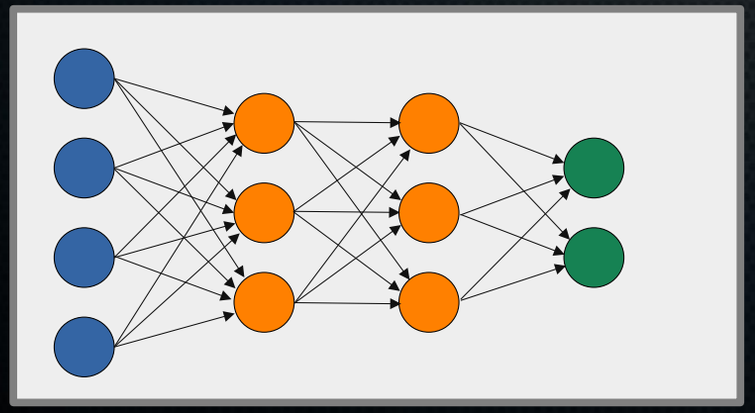


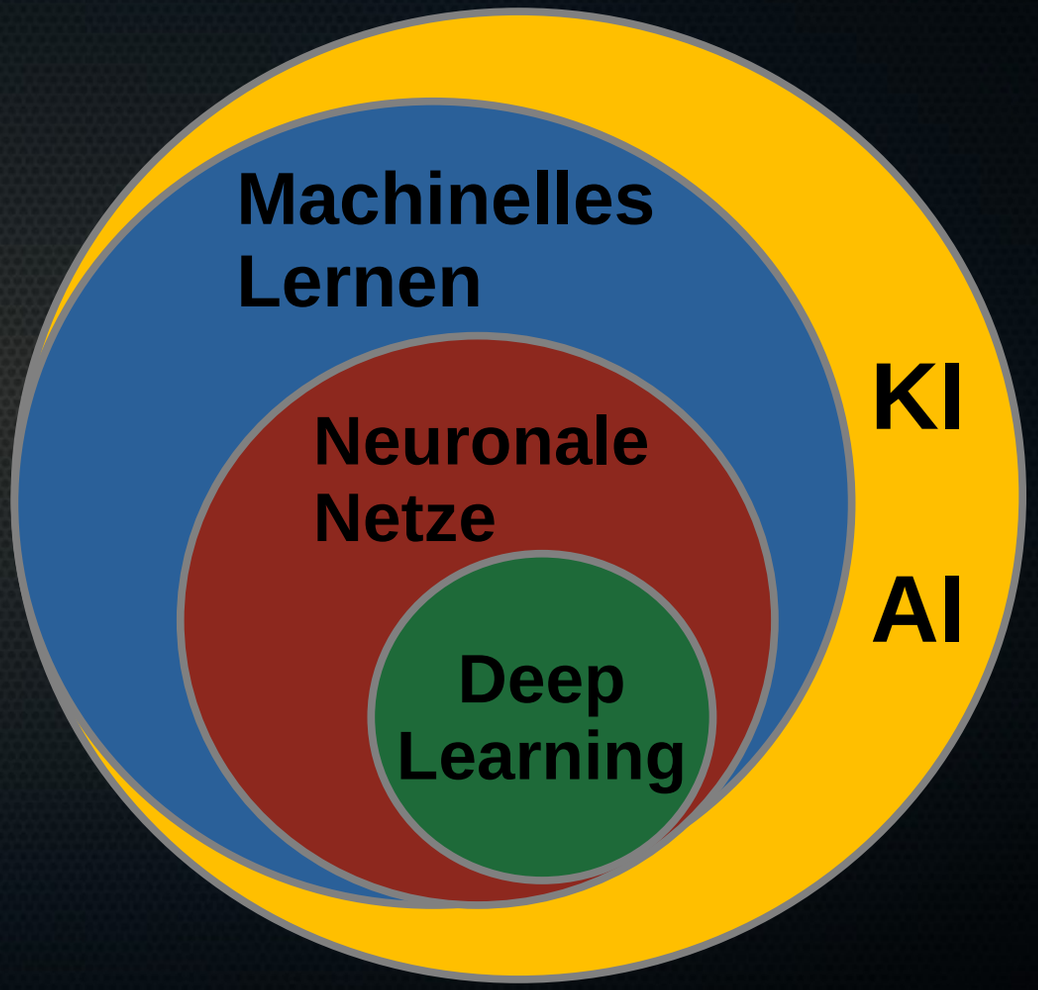

1 0 0 0 0 1 0 1 1 1 1 0 0 0 1 1 1 1 ...
Deep Learning
S

Deep Learning

Deep Learning

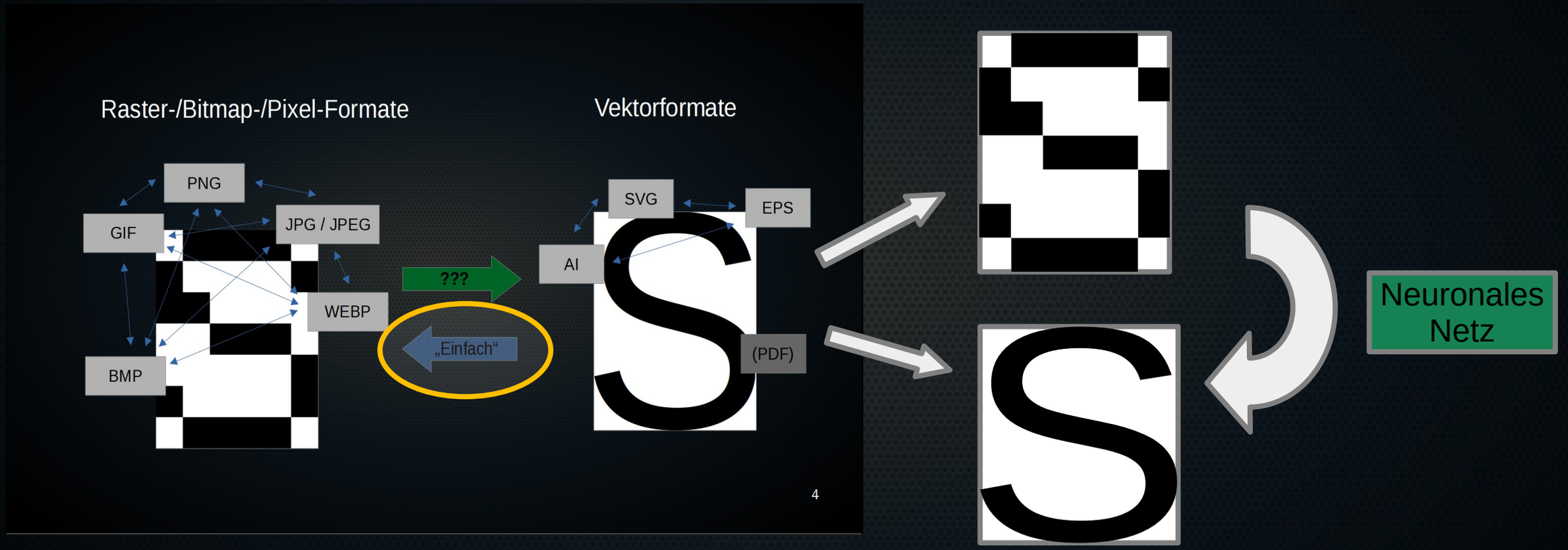
- Unterkategorie von maschinellem Lernen
  - Unterkategorie von KI
- Neuronale Netze
  - „Deep“ => Mehrschichtig

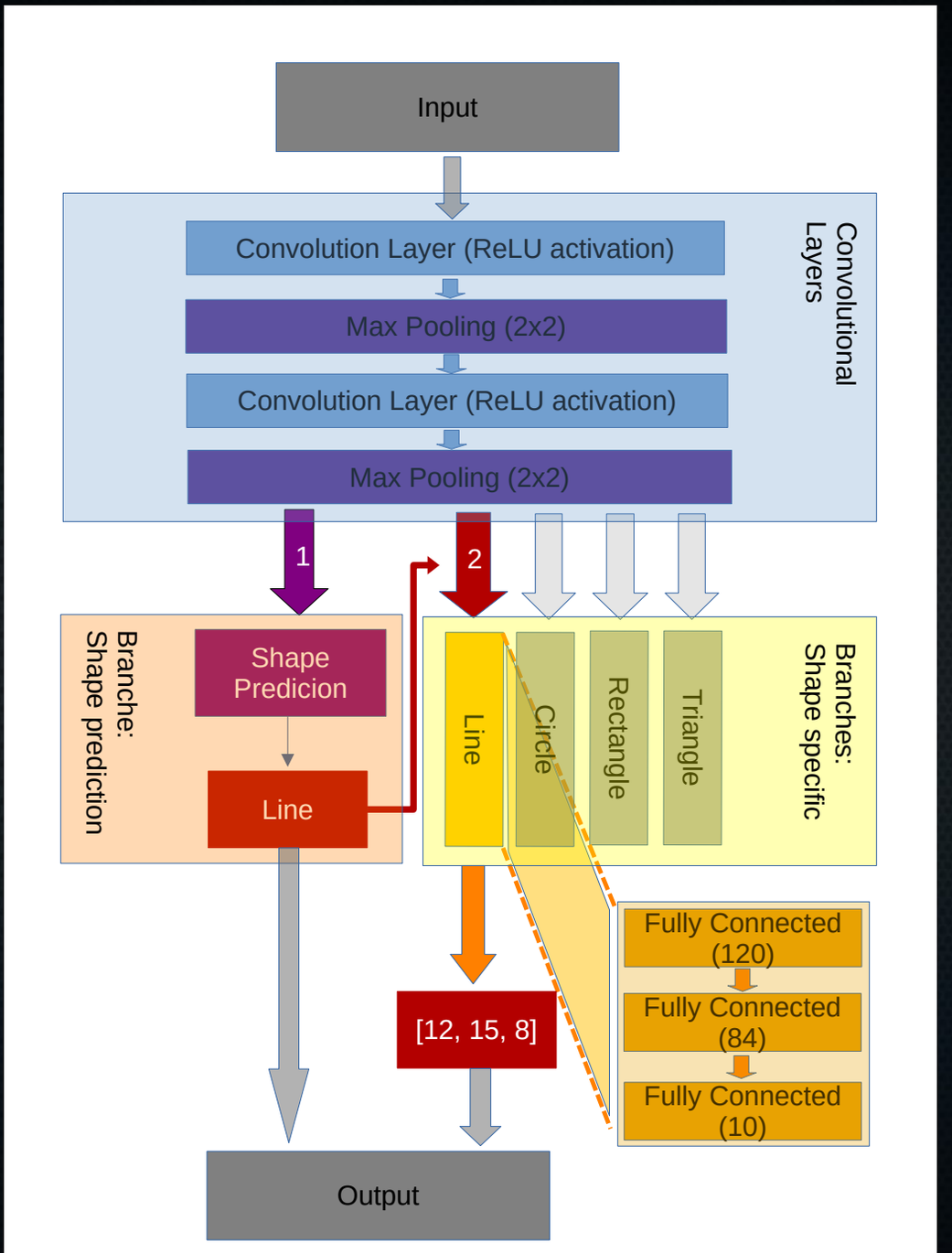




Mein Ansatz

Mein Ansatz


Raster-/Bitmap-/Pixel-Formate
Vektorformate
PNG
GIF
JPG / JPEG
WEBP
BMP
???
„Einfach“
SVG
EPS
AI
(PDF)
4
Neuronales Netz


Input
Convolutional Layers
Convolution Layer (ReLU activation)
Max Pooling (2x2)
Convolution Layer (ReLU activation)
Max Pooling (2x2)
1
2
Branche: Shape prediction
Shape Predicion
Line
Branches: Shape specific
Line
Circle
Rectangle
Triangle
Fully Connected (120)
Fully Connected (84)
Fully Connected (10)
[12, 15, 8]
Output

Das Ergebnis

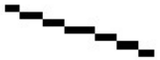
Line
[2, 3, 13, 30, 1, 0]

Line
[4, 10, 11, 17, 1, 0]

Line
[30, 4, 18, 4, 1, 0]

Line
[15, 16, 11, 12, 0, 0]

Line
[28, 9, 13, 7, 1, 0]



Line
[19, 22, 10, 10, 1, 0]

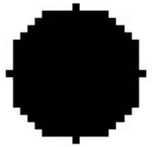
Triangle
[27, 22, 8, 3, 6, 7]

Triangle
[14, 15, 17, 10, 15, 13]

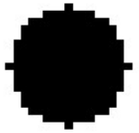
Line
[24, 18, 9, 0, 1, 0]

Line
[22, 21, 7, 7, 3, 0]

Circle
[14, 16, 9, 0, 0, 0]



Circle
[12, 15, 8, 0, 0, -1]



Rectangle
[13, 3, 9, 20, 0, 0]

Rectangle
[10, 4, 11, 20, 1, 0]

Circle
[11, 10, 5, 0, 0, 0]

Circle
[10, 10, 3, 0, 2, 1]

$$MSE(x, y) = \frac{1}{n} \sum (x - y)^2$$

$$CE(x, y) = \sum x \cdot \log y$$

Documentation

RtoV Source Code