A legal take on Generative AI

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What is AI?

Decomplexing IT Law
What is AI? - Definitions

Artificial intelligence (AI) is a wide-ranging branch of computer science concerned with building smart machines capable of performing tasks that typically require human intelligence. While AI is an interdisciplinary science with multiple approaches, advancements in machine learning and deep learning, in particular, are creating a paradigm shift in virtually every sector of the tech industry.

“...it is math – code – computers, built by people, owned by people, used by people, controlled by people.”
(Marc Andreessen)

Artificial intelligence is the simulation of human intelligence processes by machines, especially computer systems. Specific applications of AI include expert systems, natural language processing, speech recognition and machine vision.

What is AI? - Conclusion

- Everyone says something else
- Marketing
- With a wink…:
  «Software with a function that impresses (or scares) someone.»
What is Generative AI? …and what’s «under the hood»?

From basic to „smart“ answers

User Input | Example Service | „Backend“ | Output

Search Query | Swisslex | Smart Query Engine | ChatGPT | Neural Network | Output

Prompt | Google | AI Query Engine | ChatGPT | Neural Network | Output

Data | Smart Query Engine | AI Query Engine | Output

Smart Query Engine | AI Query Engine | Output

ChatGPT | Neural Network | Output

User Input | Example Service | „Backend“ | Output
Basics: Neural Network

Math & statistics are used to represent something
Software is/runs a machine
A trained model is **time and effort**, stored in a special format
Neural Networks…
  • **predict** an outcome (given an input), or
  • **classify** an input
  • **Generative AI** draws from these principles
Example: Text
How can you calculate words?

Tokenization «machine processable»
Embeddings convey meaning
Attention convey context - Transformers

Software with a function that impresses (or scares) someone.

```python
print(tokenizer("Software with a function that impresses (or scares) someone.").input_ids)
print("----")
print(tokenizer.decode(encoded_input['input_ids']))
```

```
```
Example: Text
How can you calculate words?

Software with a function that impresses (or scares) someone.

tensor([[−0.3466, −0.4088, −0.1132, ..., −0.1751, −0.2870, 0.3591],
[ 0.4819, −0.3738, −0.3799, ..., −0.4275, −0.3385, 0.5937],
[−0.2892, −0.0717, 0.1930, ..., −0.0381, −0.9442, 0.3100],
..., 
[−0.9349, −0.0866, 0.3043, ..., −0.1895, −0.3853, 0.6743],
[−0.5929, −0.8500, −0.1707, ..., 0.8786, 0.3566, −0.5725],
[ 0.9803, 0.8566, −0.3882, ..., 0.2249, −0.7957, −0.1248]])

Size of each dimension:
torch.Size([1, 15, 768])

Example: Text
How can you calculate words?

Software with a function that impresses (or scares) someone.

Software with a function that impresses (or scares) someone.
Example: Text

How can you calculate words?

Tokenization
«machine processable»

Embeddings
convey meaning

Attention
convey context - Transformers

Words in context → humans call that a «sentence»

It is math

Pretty simple operations

How „AI“ learns …
(… and what it knows about the real world)

Language
(abstraction Layer)
(transformation layer)
(conservation layer)

Real World
(Things, Events, Feelings)

Concepts, Experience, Wisdom, …

Data
Language
(mere output)

Problem:
The real world is not captured
(at best, captured on the abstraction layer, only)

Model

Problem:
Every „signal“ (including the noise) counts as „data“.

Problem:
Signal-to-Noise-Ratio

(spoken/written words as real life event …)

Problem:
(at least: many do …)

Observe
Interact
Feel

reality check

falsify or verify

Language
(mere output)
AI is a machine

- *AI looks* like thinking but **it is not**.
- There is no mental picture.
- For LLMs, language is all there is.
- And math is an abstraction for language, pictures, sounds...

Generative AI

Generative AI is a «system» that is capable of receiving a
- **prompt** that goes into a
- **trained** (and maybe finetuned),
  - both: on the basis of **training data**,
- **model**, orchestrated by
- **software** that uses the above to generate (and not merely display)
- **output** (text, images, sounds, videos, games, 3D, code...)
…and the legal take on *Generative AI*

Legal Things People Talk About

**Facts:**
- **Input Data**
  - (Training Data, Prompts)
- **Machine**
  - (Training, Models, Weights)
- **Output Data**
  - (Text, Images, Sounds…)

- People often also talk about this
- People hardly ever talk about this
- People mostly talk about this
Legal Things People Talk About

Facts:

Input Data (Training Data, Prompts)

«Machine» (Training, Models, Weights)

Output Data (Text, Images, Sounds…)

Legal Assessment:

You must not do harm to others when creating output

Copyright, Trademarks, Patents, Designs …
No breach of Data Privacy
No breach of Contracts

What statutes to consult?

CopA (URG), TmPA (MSchG), PatA (PatG), DesA (DesG), TopA (ToG), UCA (UWG), FADP (DSG), SCC (StGB), FAPS (PrSG), FAPL (PrHG), etc.

What else to consult?

Contracts!

Legal Things People Talk About

Facts:

Input Data (Training Data, Prompts)

«Machine» (Training, Models, Weights)

Output Data (Text, Images, Sounds…)

Legal Assessment:

You must not do harm to others when creating output

Copyright → work vs. software

Is the output protected?

What statutes to consult?

CopA (URG)

What else to consult?

Contracts!
### Legal Things People Talk About

**Facts:**

<table>
<thead>
<tr>
<th>Input Data</th>
<th>«Machine»</th>
<th>Output Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Training Data, Prompts)</td>
<td>(Training, Models, Weights)</td>
<td>(Text, Images, Sounds)</td>
</tr>
</tbody>
</table>

**Legal Assessment:**

- You must not do harm to others when working with input
- Copyright, Trademarks, Patents, Designs ...
- No unfair competition
- No breach of Data Privacy
- No breach of Contracts

**What statutes to consult?**
- CopA (URG), TmPA (MSchG), PatA (PatG), DesA (DesG), TopA (ToG), UCA (UWG), FADP (DSG), SCC (StGB), FAPS (PrSG), FAPL (PrHG), etc.

**What else to consult?**
- Contracts!
Legal Things People Talk About

Facts:
- **Input Data** (Training Data, Prompts)
- «Machine» (Training, Models, Weights)
- **Output Data** (Text, Images, Sounds)

Legal Assessment:
You must not do harm to **others/self** when working with input.

- «Do not disclose secrets»
- «Use it only if you have expert knowledge»
- «Get the prompts right» (education recommended)

What statutes to consult? n.a.

What else to consult? Contracts, internal policies

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Legal Things People Talk About

Facts:
- **Input Data** (Training Data, Prompts)
- «Machine» (Training, Models, Weights)
- **Output Data** (Text, Images, Sounds)

Legal Assessment:
You must not do harm to **others/self** when working with input.

Can prompts be protected? It depends…

What statutes to consult? CopA (URG)

What else to consult? Contracts, internal policies
Legal Things People Talk About

**Facts:**
- **Input Data** (Training Data, Prompts)
- **“Machine”** (Training, Models, Weights)
- **Output Data** (Text, Images, Sounds)

**Legal Assessment:**
- Is the training output protected? Hardly ever (in CH); database rights (EU)
- What statutes to consult? CopA (URG), UCA (UWG), SCC (StGB)
- What else to consult? Contracts!

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**Facts:**
- **Input Data** (Training Data, Prompts)
- **“Machine”** (Training, Models, Weights)
- **Output Data** (Text, Images, Sounds)

**Legal Assessment:**
- Is the training output protected? Not under Copyright law
- Is the training itself protected? Some protection under Unfair Comp. principles
- What statutes to consult? CopA (URG), UCA (UWG), SCC (StGB)
- What else to consult? Contracts!
Legal Things People Talk About

**Facts:**
- Input Data: (Training Data, Prompts)
- «Machine»: (Training, Models, Weights)
- Output Data: (Text, Images, Sounds)

**Legal Assessment:**

Is the training output protected?  
Is the training itself protected?  
Is the model protected?  
Hardly ever copyrightable (algorithms, simple math)

What statutes to consult?  
CopA (URG), UCA (UWG), SCC (StGB)

What else to consult?  
Contracts!

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Legal Things People Talk About

**Facts:**
- Input Data: (Training Data, Prompts)
- «Machine»: (Training, Models, Weights)
- Output Data: (Text, Images, Sounds)

**Legal Assessment:**

Is the training output protected?  
Is the training itself protected?  
Is the model protected?  
Management of risks  
Don’t do harm (liability)  
Compliance (automated decisions)

What statutes to consult?  
FAPS (PrSG), FAPL (PrHG), FADP (DSG), SCC (StGB)

What else to consult?  
Contracts!
Summing up

What to think of when being a lawyer

- Prompt (Input)
- Training Data (Input)
- Training (effort)
- Model
- Output
What to think of when being a human

• Prompt (Input)
• Training Data (Input)
• Training (effort)
• Model
• Output
• Consequences of using AI

Discuss / Engage / Contact us

Decomplexing IT Law
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