# **OVERVIEW OF MACHINE LEARNING**

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#### WHAT IS MACHINE LEARNING?

- Essentially, these are computer programs which improve from experience over time.
- It is a subfield of artificial intelligence.
- But, artificial intelligence involves learning. Yes, things are blurry.



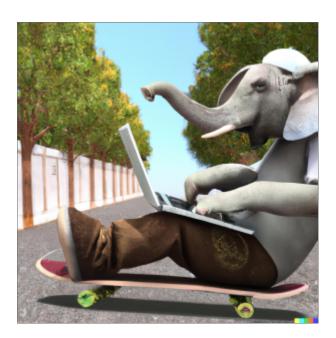
Alternate view?

### **EXAMPLE OF MACHINE LEARNING**

- **DALL-e** (open source)
  - Blog post describing this tool
  - GitHub (if you want to install it yourself)

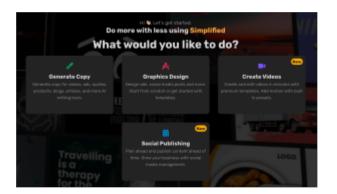


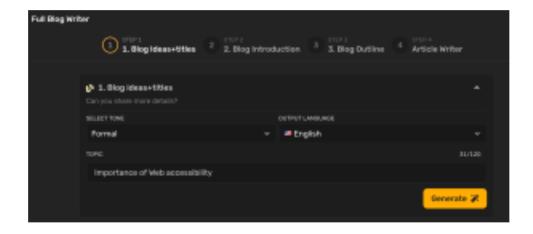


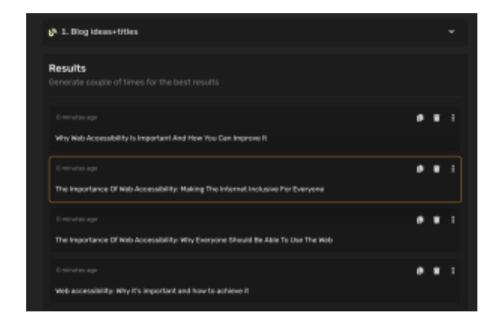


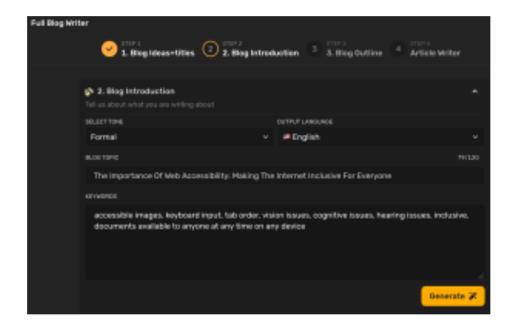
# **SIMPLIFIED (TEXT GENERATION)**

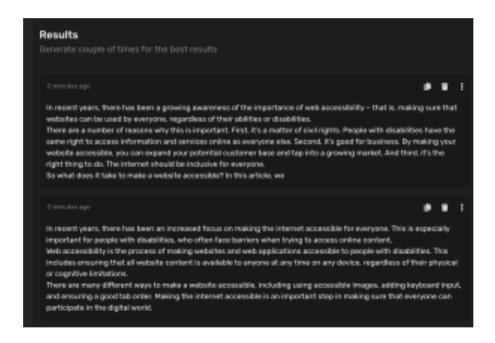
# • Fremium model

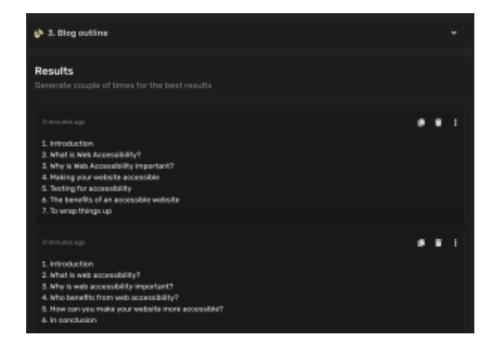


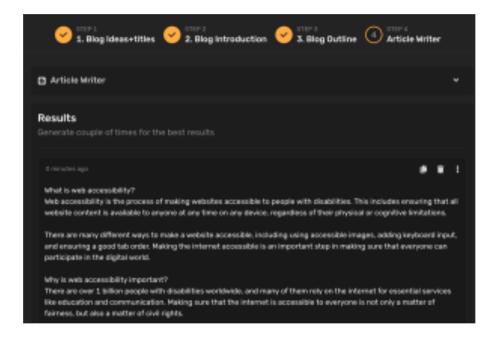












#### **BLOG WRITER RESULTS**

- <u>Text file</u> (can view in browser)
- MS-Word document (will be prompted to download)
- Adobe PDF document (should open in browser) Keep in mind, only a few keywords were provided. The rest was all generated by AI (and Machine Learning).

#### **HOW DOES ALL THIS ACTUALLY WORK?**

- Relatively simple example using JavaScript
- Keep in mind this example has over 141K lines of JS code
- The ML code to make DALL-e and Simplified work has a much larger core library
- These are offered for free as they want more learning to happen (you are paying with your data)

# <u>TensorFlow.org</u> – JavaScript library

- Include script tag (relying on CDN)
- <script src="https://cdn.jsdelivr.net/npm/@tensorflow/tfjs@2.0.0/dist/tf.min.js"></script>
- I provide a slightly modified working example we will discuss.
- Alternate approach (npm with yarn)
- Built on ml5.js library

# **TENSOR FLOW EXAMPLE**

- Review code and example
- References

#### PRACTICAL APPLICATION

Just one example – this uses "facial recognition" Al to identify individual whales. For example, the tail flukes are visible (and photographed) just before a humpback whale does a deep dive.

https://happywhale.com/home

https://happywhale.com/individual

/77272;enc=335720 (one I photographed may be

new to science)

# Uses of AI and machine learning – let's discuss

- Al art can not be copyrighted
- Dangers of Al
  - Recreating you
  - Gaming wrong answer clues
  - Your privacy
  - Startups are not all equal (some may try to game you)
- How AI is improving accessibility



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