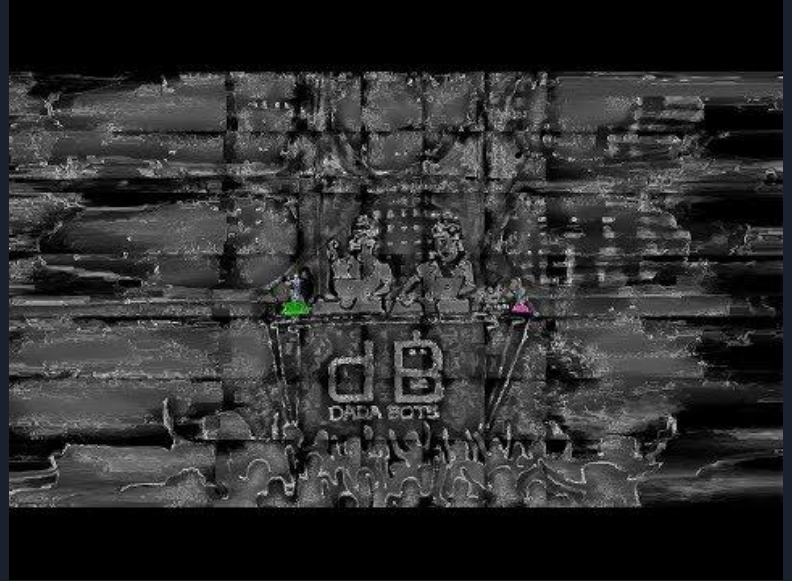# The Ethics of AI Authorship (AI and IP)

Liam Baum, Ian Scheffler, Eric Wilson

This song is being written in real-time by an AI:

Can it by copyrighted? Why or why not?

Computers and Creativity

Fall, 1997. The International Expirer. A Creativity Machine exposed to several hundred tabloid headlines autonomously creates new potential tabloid headlines. This neural architecture drove an IEI web site known as the "International Expirer" for two years providing myriad new potential tabloid headlines and chuckles for millions.

Computers and Creativity

From 300 initial prompts a day, Botto generates 300 images. Then, a "taste model" selects 350 of these images each week to be thrown to the human masses. Thousands of Botto community members vote on the artworks put before them, and each week's winner is minted as an NFT and auctioned off on the SuperRare platform.

306   The Human Authorship Requirement

The U.S. Copyright Office will register an original work of authorship, provided that the work was created by a human being.

The copyright law only protects "the fruits of intellectual labor" that "are founded in the creative powers of the mind." *Trade-Mark Cases*, 100 U.S. 82, 94 (1879). Because copyright law is limited to "original intellectual conceptions of the author," the Office will refuse to register a claim if it determines that a human being did not create the work. *Burrow-Giles Lithographic Co. v. Sarony*, 111 U.S. 53, 58 (1884). For representative examples of works that do not satisfy this requirement, see Section 313.2 below.

Compendium of US Copyright Office Practices 313.2 (3rd ed. 2021):

313.2   **Works That Lack Human Authorship**

As discussed in Section 306, the Copyright Act protects "original works of *authorship*." 17 U.S.C. § 102(a) (emphasis added). To qualify as a work of "authorship" a work must be created by a human being. *See Burrow-Giles Lithographic Co.*, 111 U.S. at 58. Works that do not satisfy this requirement are not copyrightable.

The U.S. Copyright Office will not register works produced by nature, animals, or plants. Likewise, the Office cannot register a work purportedly created by divine or supernatural beings, although the Office may register a work where the application or the deposit copy(ies) state that the work was inspired by a divine spirit.

Compendium of US Copyright Office Practices 313.2 (3rd ed. 2021):

Similarly, the Office will not register works produced by a machine or mere mechanical process that operates randomly or automatically without any creative input or

intervention from a human author. The crucial question is "whether the 'work' is basically one of human authorship, with the computer [or other device] merely being an assisting instrument, or whether the traditional elements of authorship in the work (literary, artistic, or musical expression or elements of selection, arrangement, etc.) were actually conceived and executed not by man but by a machine." U.S. COPYRIGHT OFFICE, REPORT TO THE LIBRARIAN OF CONGRESS BY THE REGISTER OF COPYRIGHTS 5 (1966).

What counts as "Authorship"?

Some law professors argue that AI authorship is a moot question, since humans designed the AIs.

There's No Such Thing as a Computer-Authored Work— And It's a Good Thing, Too*

James Grimmelmann**

INTRODUCTION

I would like to talk about computer-authored works—I would like to, except that they don't exist. Copyright law doesn't recognize computer programs as authors, and it shouldn't.[1] Some day it might make sense to, but if that day ever comes, copyright will be the least of our concerns.

Instead, I will say something about why computer authorship is such a "bad penny of a question," to use Annemarie Bridy's felicitous phrase, even though it is so utterly speculative.[2] The scholarship pondering the possibility of computer-authored works is surprisingly extensive, even though no one has ever exhibited even one work that could plausibly claim to have a computer for an "author" in the sense that the Copyright Act uses the term.[3]

What counts as "Authorship"?

- IP law was created to protect the fruit of human labor
- Earliest debate on this topic was post invention of camera
  - Burrow-Giles Lithographic Co. v. Sarony (1884)
  - Was the person pressing the button the creator or was the camera?
- As we might guess, the photographer was defined as the creator
- This has created problems anew, such as with the famous selfie
  - Perhaps the only copyright claim relying on befriending a "group of wild macaques"
  - In December 2014, the United States Copyright Office stated that works created by a non-human, such as a photograph taken by a monkey, are not copyrightable.
  - UK: It depends on whether the photographer has made a creative contribution to the work… take it to the courts.

Copyright? Copywrong?

- Creator vs Tool vs Creation or Photographer vs Camera vs Photo
    - "The crucial question is whether the 'work' is basically one of human authorship, with the computer [or other device] merely being an assisting instrument, or whether the traditional elements of authorship in the work (literary, artistic, or musical expression or elements of selection, arrangement, etc.) were actually conceived and executed not by man but by a machine."   - U.S. COPYRIGHT OFFICE
- Is AI a tool / assisting instrument? A creation that creates? Something else?
- Copyright office will not register works from machine that operate randomly without input from intervention/ action from a human author
- The USPTO does not have specific distinction requiring "human "involvement
    - Congress has repeatedly defined "individual" as human

# Current Patent Cases (Mostly Involving Thaler)

USA: In Sept 2021: NO, again.

- US District Court for the Eastern District of Virginia: "Decision lies with Congress not courts"...
- "Holding that the definitions provided by Congress for 'inventor' within the Patent Act reference an "individual" whose ordinary dictionary and statutory meaning is a natural person or a human being."

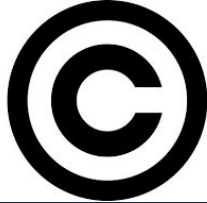England: AI Cannot be the Inventor of a Patent

South Africa: In a world first, South Africa grants a patent to an artificial intelligence system (food container based on fractal geometry)

Australia: Sounds like a gas, why not?
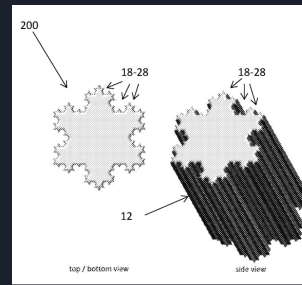
Where is this issue going?

- U.S. Copyright Office and the U.S. Patent and Trademark Office have been convening annual meetings on this topic
- Private sector position is generally that current law is adequate to address contemporary issues in areas where machine learning is simply assisting human invention (source: Dave Green, Microsoft)
- Mary Rasenberger (CEO of Author's Guild) does believe that copyright law needs to evolve to sustain copyright economy
    - AI doesn't need incentives to create
    - Artistic and copyrightable are non-synonymous
    - Scanning thousands of romance novels and inputting them to write a romance novel… should either be license use or not permitted
    - Who is accountable when AI infringes?
- Emerging trend to consider: synthetic data

Machine Learning + Copyright + Data Rights: An Emerging Consideration

- Synthetic data refers to data generated by computer simulation
- Machine learning is a set of tools that extracts patterns from data
- Given the reliance on datasets, machine learning and copyright is tightly tied to data rights/ privacy/ data ownership
    - Would something created by ML qualify for a copyright if it was generated off of public data?
    - Many of the datasets used by magenta.js are comprised of human performances… would copyright apply in this case or is it automatically public domain?
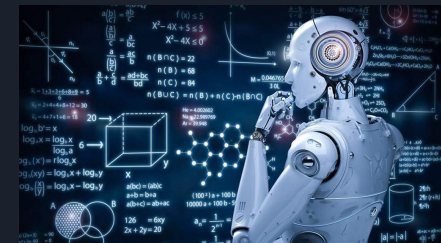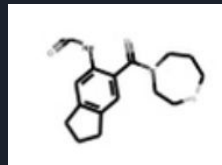
Why is this an Ethical Issue?

- Deepfakes
  - Who truly owns the copyright to a deepfake video of an actor (living or dead)?
- Huge $$$ in potential labor savings for industries that depend on human creativity
  - Media company- replace news editors with a system for simple news stories… Patch, yahoo sports… automated journalism
- Encroaching on opportunities for human invention/ ingenuity in business
  - What molecules may have therapeutic effects?
  - Turbine manufacturer- uses ML's classification, regression and clustering to efficiently create lightweight but strong parts via metal-additive restructuring
  - Underwriters at Life Insurance Co- Trained algorithms replacing human underwriters

Why is this an Ethical Issue? A Knowledge Baum

- "Creating art is an expression of the human experience. If this process can be replicated by machines, it in some way challenges and trivializes the value of what it means to create art, and by association, what it means to be human. If the expression of the human experience can be done by an algorithm, how unique or sublime can that experience actually be?" - Liam

<u>Our code</u> seeks to allow a human to provide **creative input and intervention** to the output generated by an AI model, thereby meeting the criteria of Compendium of US Copyright Office Practices 313.2

- User creates an 8 note melodic pattern (**Creative input**)
- Pattern is given to AI model which extends this melodic pattern.
- User has ability to modify extended melodic pattern (**Intervention**)

Tools used in our code:

Magenta.js - RNN model (Recurrent Neural Network)

Used for AI melodic generation

p5.js - Used for GUI and Visualization of melodic patterns

Tone.js - Used for sonification of User and AI generated Musical output

Additional Sources (other sources linked in presentation)

- https://scholarship.law.cornell.edu/cgi/viewcontent.cgi?article=2617&context=facpub
- https://www.copyright.gov/comp3/chap300/ch300-copyrightable-authorship.pdf
- https://jolt.law.harvard.edu/digest/artificial-intelligence-and-authorship-rights
- https://www.mayerbrown.com/en/perspectives-events/podcasts/2020/11/ip-rights-and-aigenerated-works?utm_source=Mondaq&utm_medium=syndication&utm_campaign=LinkedIn-integration