

# WHO SHOULD OWN AI-GENERATED WORKS? LESSONS FROM RECENT DEVELOPMENTS IN PATENT LAW

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# Who owns the copyright of AI-generated works?

**there is no one else in the world .**  
*there is no one else in sight .*  
*they were the only ones who mattered .*  
*they were the only ones left .*  
*he had to be with me .*  
*she had to be with him .*  
*i had to do this .*  
*i wanted to kill him .*  
*i started to cry .*  
**i turned to him .**



## Poem generation

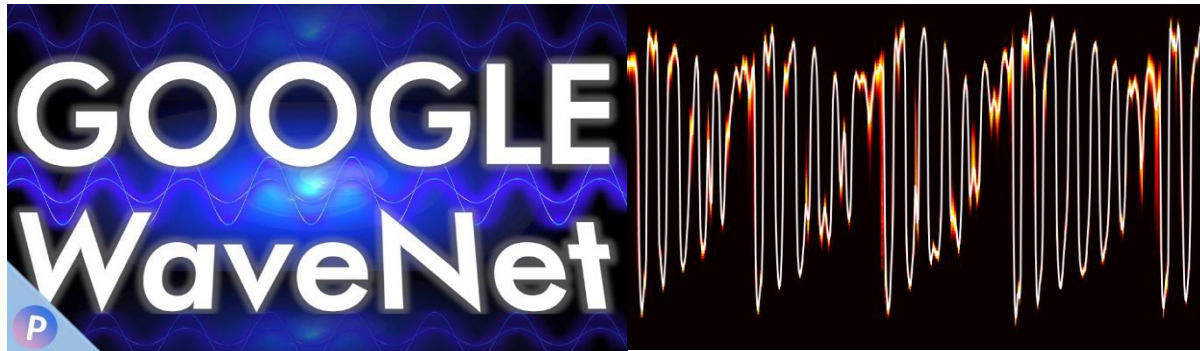


First AI-authored poem collection

**Where Are You, My Love?**  
Quick, hold up the light.  
The beautiful sky is there.  
Ask the sound of the stream  
in the village  
Where are you, my love?  
For my red light keeps  
changing  
Like a beautiful secret.  
She is a song of a child  
The distance of time.  
— Poem composed by Xiaoice,  
Microsoft's artificial  
intelligence chatbot



Wings hold rocks and water tightly  
In the loneliness  
Stroll the empty  
The land becomes soft  
— Poem composed by Xiaoice

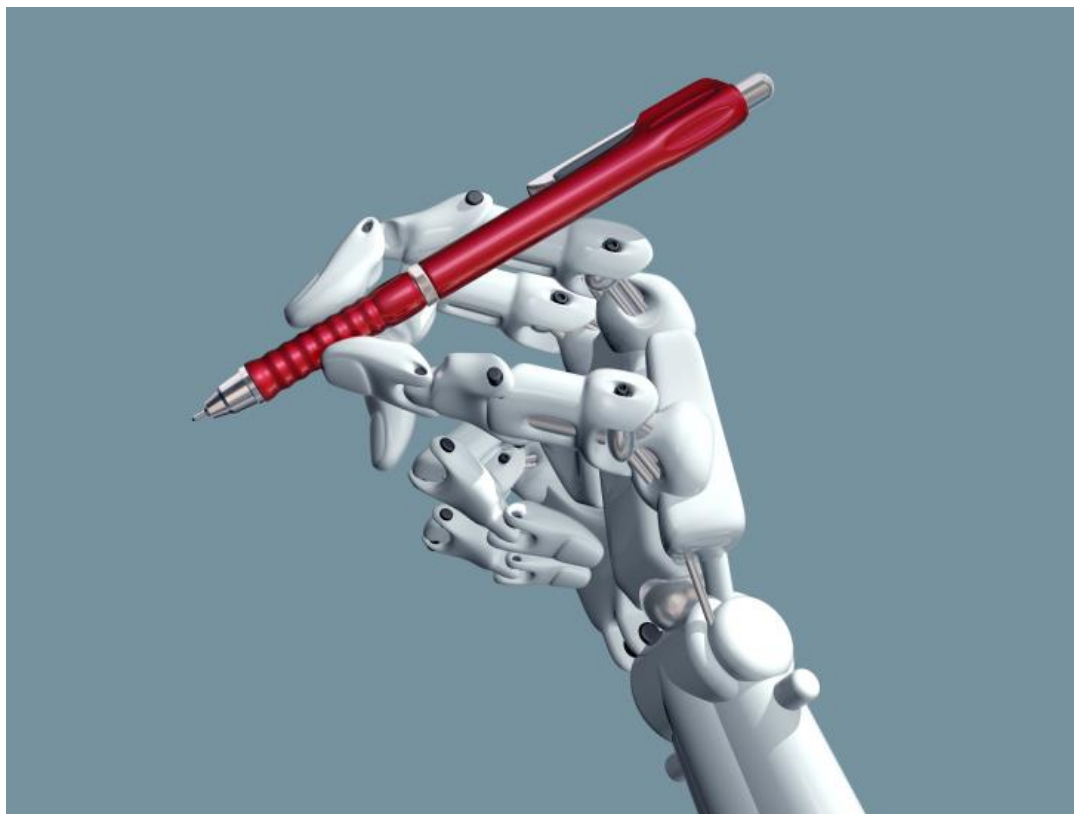


# Who owns the patent of AI-generated inventions?

- *Thaler v The Comptroller-General of Patents, Designs And Trade Marks* [2020] EWHC 2412 (Pat).
  - under current UK patent law, the AI machine DABUS cannot be listed as an inventor.
  - However, the court recognised the possibility of listing the owner of the AI DABUS (in this case, Dr Thaler) as both the inventor and the owner of the AI-generated invention.
- Implications for issues concerning copyright of AI-generated works?

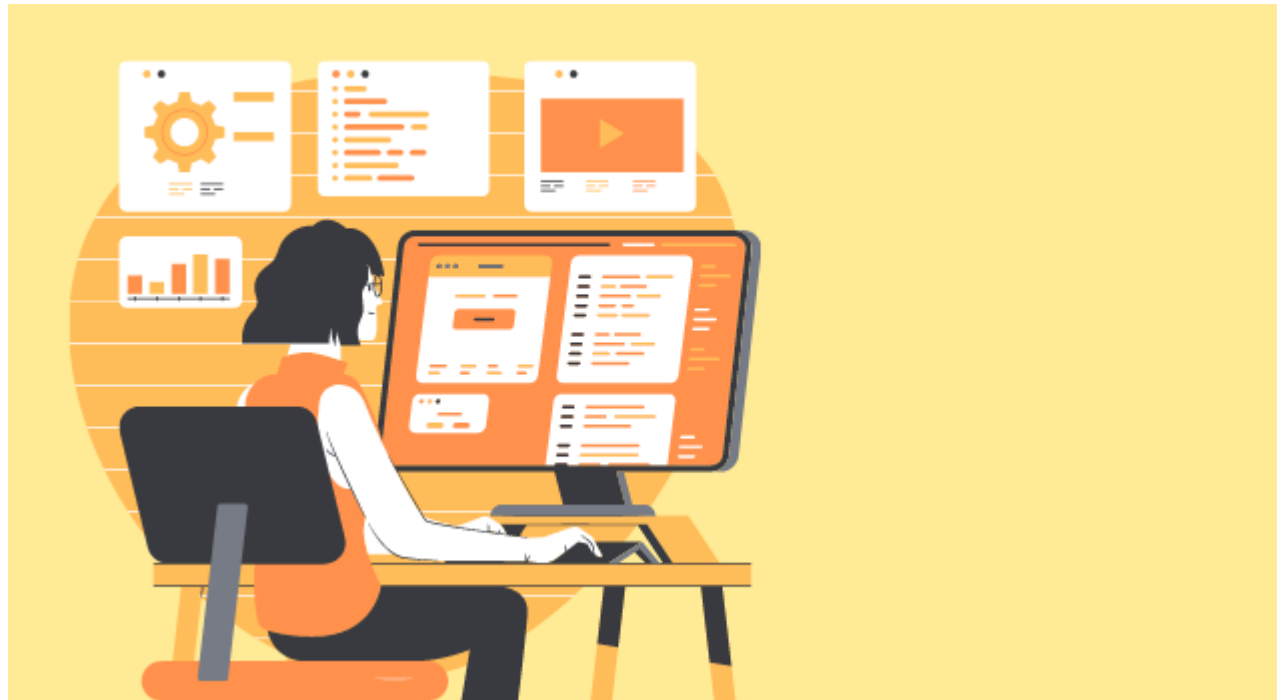


# Who should own the copyright of AI-generated works?



法律

# Option 1: “Software Developer” as the Owner



# software developer as the owner



- Copyright, Designs and Patents Act (CDPA) 1988 in the U.K.
  - s. 178: “computer-generated work means...that the work is generated by computer in circumstances such that there is **no human author** of the work.”
  - s. 9(3): “In the case of a literary, dramatic, musical or artistic work which is computer-generated, the **author** shall be taken to be the person by whom the **arrangements necessary for** the creation of the work are undertaken.”
- Similar provisions exist in the copyright laws of Ireland, New Zealand, Hong Kong and South Africa.

# software developer as the owner

- *Nova Productions v Mazooma Games and Others* [2006] EWHC 24 (Ch) (confirmed by [2007] EWCA Civ 219; [2007] Bus. L.R. 1032)
  - Justice Kitchin:
    - Computer-generated work: Graphics and frames shown on the screen when playing a computer game.
    - The **programmer** “is the person by whom the arrangements necessary for the creation of the works were undertaken and therefore is deemed to be the author by virtue of s.9(3)”
    - The player’s “input is not artistic in nature and he has contributed **no skill or labour** of an artistic kind. **Nor has he undertaken any arrangements necessary** for the creation of the frame images. All he has done is to play the game.”



# software developer as the owner

- Limitations of *Nova* in AI-generated works
  - there are **more important stakeholders**, such as trainers and data providers, involved in the development of the AI software. Therefore, it is unclear who makes “necessary arrangement”.
  - Software developers have **much less control** over how a work is generated by the algorithm in the AI environment than in traditional computer programming.
  - there are many scenarios **other than video games** where the works are generated because of users’ operation of the software. If users generate commercially valuable content for their own business purposes, they will certainly have more interest in using the content than video game players and software developers.





# software developer as the owner

- *Tencent v. Shanghai Yingxun Technology Co. Ltd*, People's Court of Nanshan (District of Shenzhen) (深圳市南山区人民法院(2019)粤0305民初14010号民事判决), 24 Dec. 2019
  - An article on Shanghai stock market written by the plaintiff's software Dreamwriter was copied by the defendant.



# 4 stages in Dreamwriter's Production of the Article

1	data service	Dreamwriter <b>collects</b> data in multiple dimensions, <b>analyzes</b> the data through machine-learning algorithms, combines the content of multiple dimensions, such as historic statistics to form a database to be tested.
2	triggering and writing	<ol style="list-style-type: none"><li>1. Dreamwriter sets up the rule engine and trigger conditions to intelligently determine whether the content in the database to be tested meets the requirements for article generation.</li><li>2. When traversing various trigger conditions set by the rule engine, those which meet the trigger conditions will enter the writing engine mode to write the article.</li><li>3. Dreamwriter inputs the data generated at the data-service stage into writing engine. The writing engine first <b>performs data verification</b>, and then <b>drafts</b> the article through a template.</li></ol>
3	intelligent verification	The article then enters the intelligent verification module for <b>review and proofreading</b> .
4	intelligent distribution	The article then is intelligently distributed to the Tencent website and other platforms for publication.

# AI-Generated Work and Originality

- *Tencent v. Shanghai Yingxun Technology Co. Ltd*
  - In these 4 steps, the input of the data type, the processing of the data format, the setting of trigger conditions, the selection of an article template and the setting of the corpus, and the training of the intelligent verification algorithm model are **all selected and arranged by plaintiff's staff**.
  - The expression of the article was decided by the **original arrangement and selection of plaintiff's team**. Therefore, the article is a copyright work.

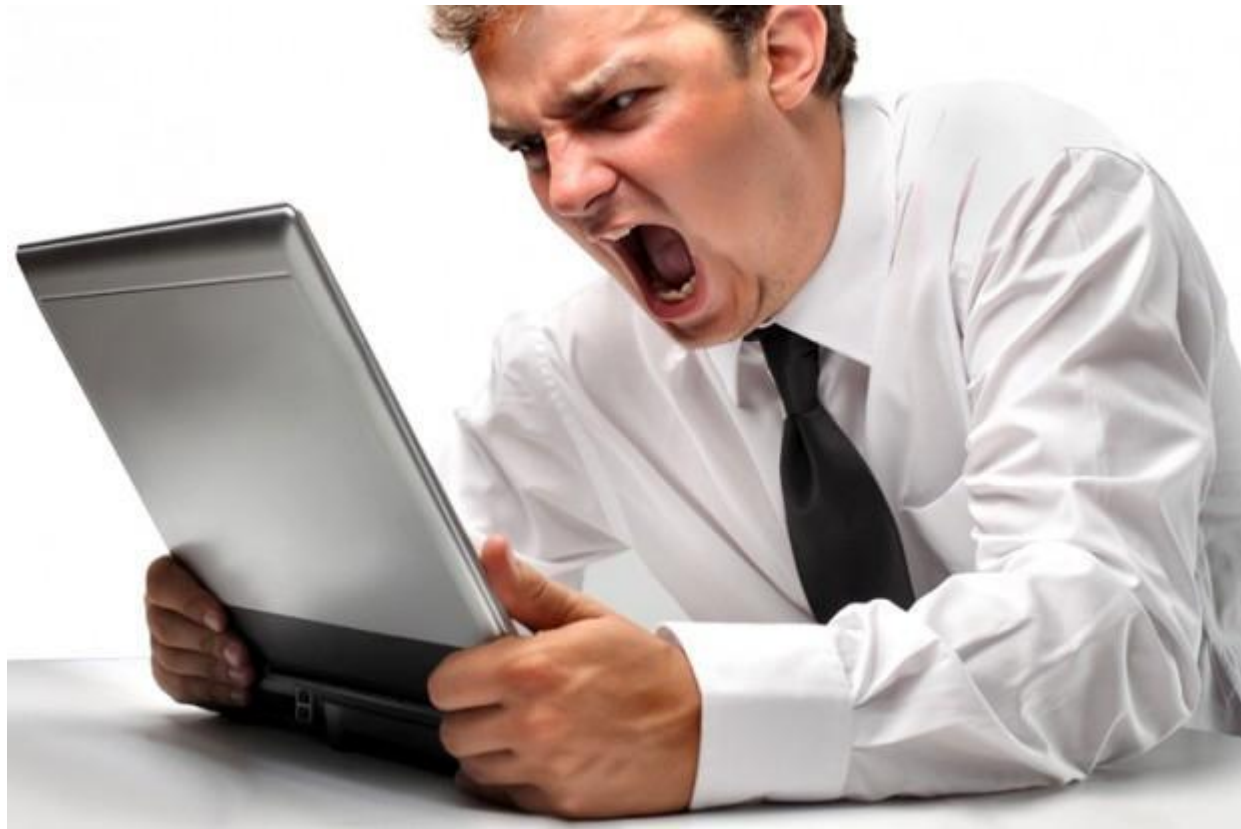


# software developer as the owner



- Limitations of *Tecent* in AI-generated works
  - Because of their nested non-linear structure, AI models are usually applied in a **black-box** manner. Sometimes even AI developers are unable to fully understand AIs' decision-making process or predict the systems decisions or outputs.
  - Not all parts of an AI work reflect the developer's skill or judgment.

# Option 2: “Software User” as the Owner



# software user as the owner

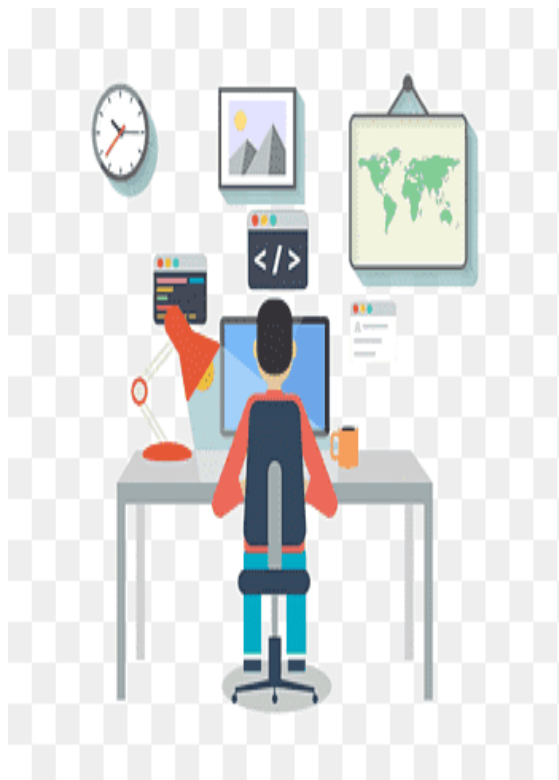
- *Feilin v. Baidu*, Beijing Internet Court (北京互联网法院(2018)京0491民初239号民事判决), 26 Apr 2019
  - The defendant argued that the disputed article (analytical report) was generated by the Wolters Kluwer Database, and therefore it was not original written work protected by the Copyright Law.
  - Recognising the commercial and communicative value of computer-generated works, the court indicated that allocating certain rights over the works to private parties was better than leaving them in the public domain

# software user as the owner

- *Feilin v. Baidu*

- Software users deserve more legal protection than the developers do.

- The developer has already recouped their investment in developing the software via a licensing fee or ownership of IP.
    - Software users have more incentive to use and disseminate the computer-generated works because they have typed in the keywords to initiate the search and have a plan for the use of the works



# software user as the owner

- Limitations of *Feilin* in AI-generated works
  - Software users' interests in the resulting works vary from case to case.
  - In *Felin*, the user only typed in “film” as the search keyword. Given the user's negligible contribution to the resulting work and their insignificant investment in the software system, **assigning an exclusive right of ownership to them might not be justified.**
  - While the user has a substantial interest in utilising the search result, **a license** from a more legitimate owner could serve the same function.

