Stockfish vs ChessBase
Open Source Issues With AI/Neural Networks

Public Domain and Open Source SW License Conference

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J.D., Georgetown University Law Center, 1988

B.E., Electrical Engineering (with Physics minor), Manhattan College, 1984

Relevant Experience

35 years of legal experience focused on all aspects of intellectual property strategy, technology transactions and technology-related regulatory issues, especially ones driven by new business models and/or disruptive technology

- **Open Source** (all aspects)
- **Artificial intelligence** (generative AI, NLP, computer vision and other AI)
- **Blockchain** (blockchain games, cryptocurrency/NFTs, metaverses, digital art)
- **Interactive entertainment** (games, AR, VR, fantasy sports, esports)

Open Source – Advise on OS audits and clearance; OS Policies; M&A diligence and remediation; OS Contributions; Licensing Issues; and Patent strategies with OS

AI – Advise Directors, Officers and GC's on AI legal issues and developing AI policies; OS compliance with AI tools, including code generators; patent and copyright protection and infringement issues; other regulatory issues including FTC compliance, e.g., bias, transparency, accuracy and truthfulness

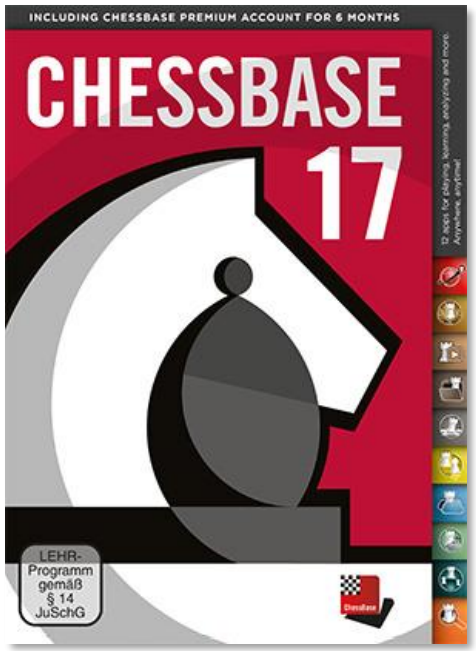
Some Recent AI Activity

- Adjunct Professor, Ole Miss Law School "Legal Issues with AI"
- Speaker, US Copyright Office Listening Session on AI Authorship
- Speaker, USPTO Listening Session on AI Inventorship Issues
- ABA-IPL AI/Machine Learning (AI/ML) Task Force
- AI Committee member, International Technology Law Association

Stockfish vs ChessBase

Background

- Stockfish licensed a chess engine under GPL-3.0
- ChessBase used the chess engine in its products and licensed under proprietary licenses
- Few customers knew the products were a modified version of Stockfish when they purchased
- Stockfish repeatedly accused ChessBase of violating the GPL-3.0 license
- Stockfish **terminated** the license for ChessBase but ChessBase continued to sell the products
- Stockfish sued ChessBase in a German court in July 2021
- The parties reached a settlement in November 2022



Legal Issues

Issues

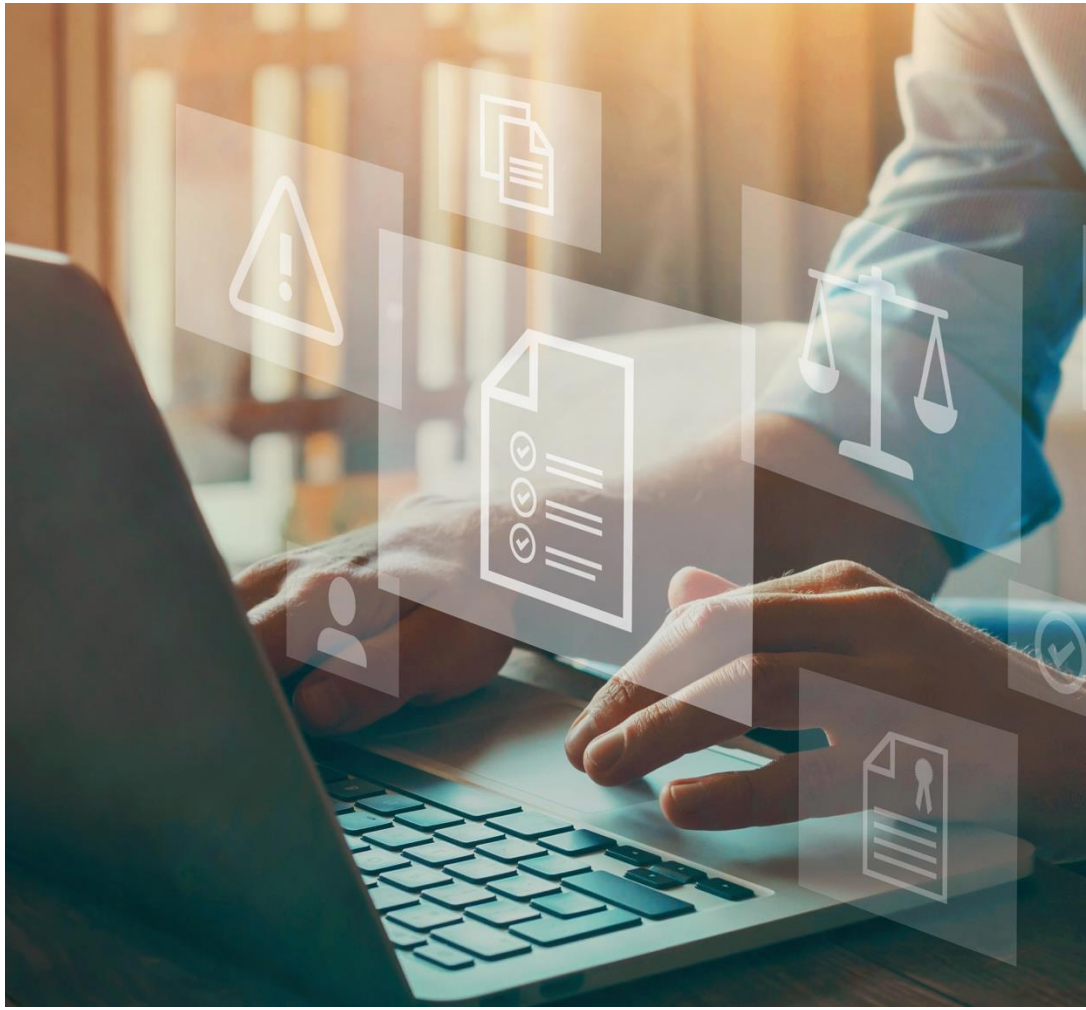
- Did ChessBase fail to comply with the GPL-3.0 license?
- Whether the licensor can unilaterally terminate the GPL-3.0 license?
- How should neural networks and weights be addressed in the context of GPL-3.0 licensed software?

GPLv3 License Obligations

6. Conveying Non-Source Forms

You may convey **a covered work** in object code form [under the terms of sections 4 and 5], provided that you also convey the machine-readable **Corresponding Source** under the terms of this License [GPL 3.0]

- A "**covered work**" means either the unmodified Program or a **work based on the Program**
- **Work based on the Program -** to **modify** a work means to copy from or adapt all or part of the work in a fashion requiring copyright permission, other than the making of an exact copy - the resulting work is called a "modified version" or **a "work based on"** the earlier work.



GPLv3 License Obligations

Per **Section 5**:

- The work must carry prominent **notices stating that you modified it,** and giving a relevant date
- The work must carry prominent notices stating that **it is released under this License**
- You **must license the entire work, as a whole, under this License [GPLv3]** to anyone who comes into possession of a copy.

ChessBase did not comply with these requirements

Settlement: the parties agreed that ChessBase had not complied

GPLv3 License Termination

8. Termination

You may not propagate or modify a covered work except as expressly provided under this License. Any attempt otherwise to propagate or modify it is void, and will **automatically terminate your rights** under this License

However, if you cease all violations of this License, then your license from a particular copyright holder **may be reinstated …**

GPL 3.0 has an automatic termination provision in the event of breach, but there is a provision that a copyright holder **may restore your license** if you cure

Per settlement, parties agreed ChessBase would stop selling for 1 year but then have licensed restored subject to compliance

Neural Networks and Weights

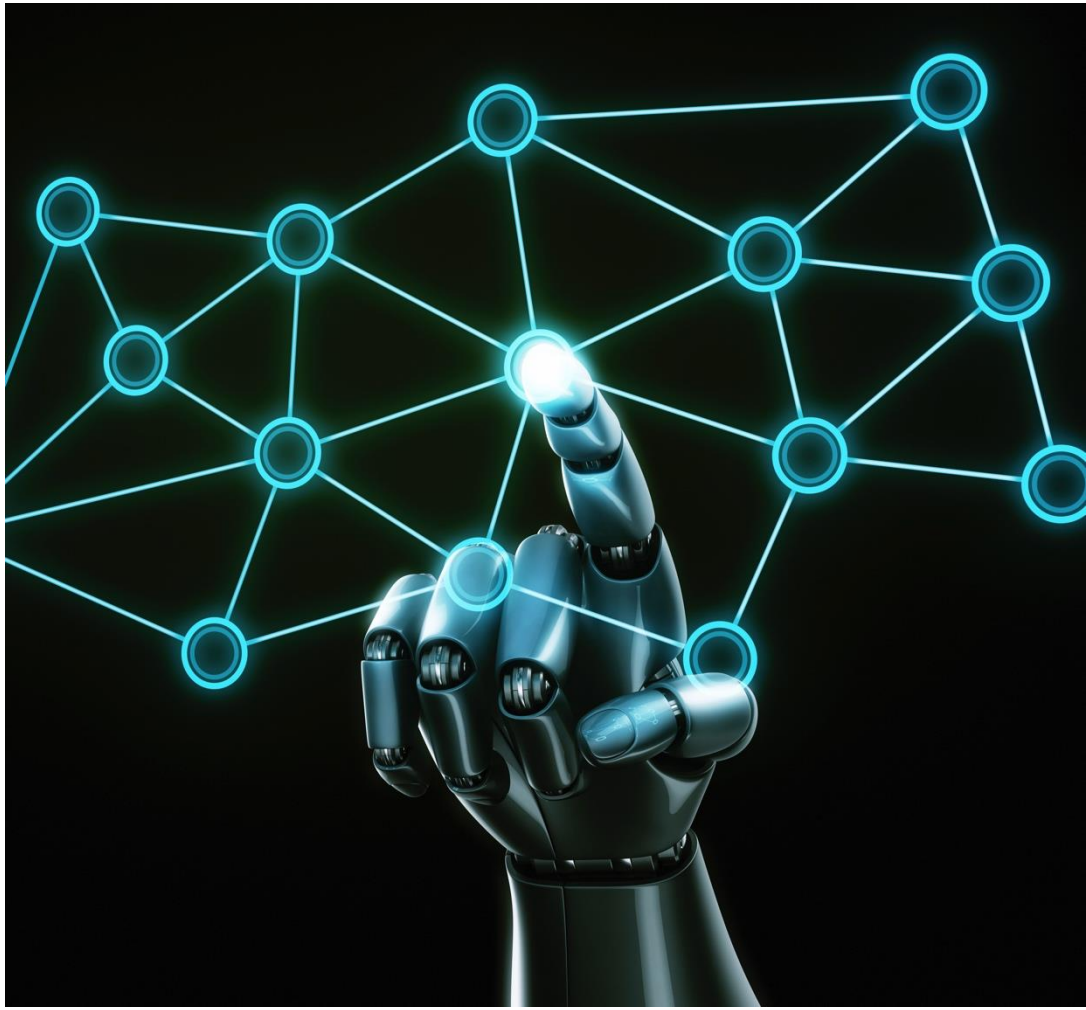
The parties disputed the scope of "Corresponding Source Code" in connection with the neural networks and weights

Settlement: any **neural networks** offered by ChessBase for use with Stockfish that are **included** in the compilation or **dynamically loaded** at runtime **to initialize the data structures** and logic of the Software must be subject to GPL-3.0 or a compatible license

Neural Network Weights

One key issue not answered or expressly addressed in the settlement:

whether **proprietary neural network weights** must be released in order to comply with the “Corresponding Source” code requirement of GPL 3.0?

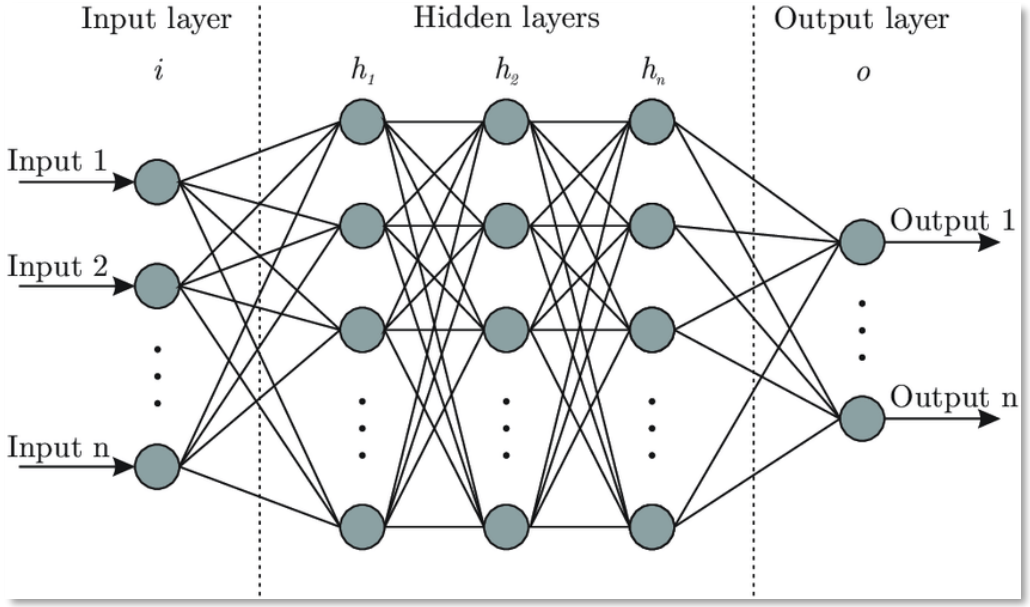


GPLv3 License Terms

"Corresponding Source" means **all the source code needed to generate, install, and (for an executable work) run the object code and to modify the work…** includes interface definition files associated with source files for the work, and the source code for shared libraries and dynamically linked subprograms that the work is specifically designed to require, such as by intimate data communication or control flow between those subprograms and other parts of the work. The Corresponding Source need not include anything that users can **regenerate automatically** from other parts of the Corresponding Source.

Neural Networks

- A neural network is a series of nodes (or neurons) each node having a set of inputs, **weights**, and a bias value
- The neural network contains a series of hidden layers which apply transformations to the input data
- Input layer takes the input signals and passes them to the next layer
- It is within the nodes of the hidden layers that the weights are applied



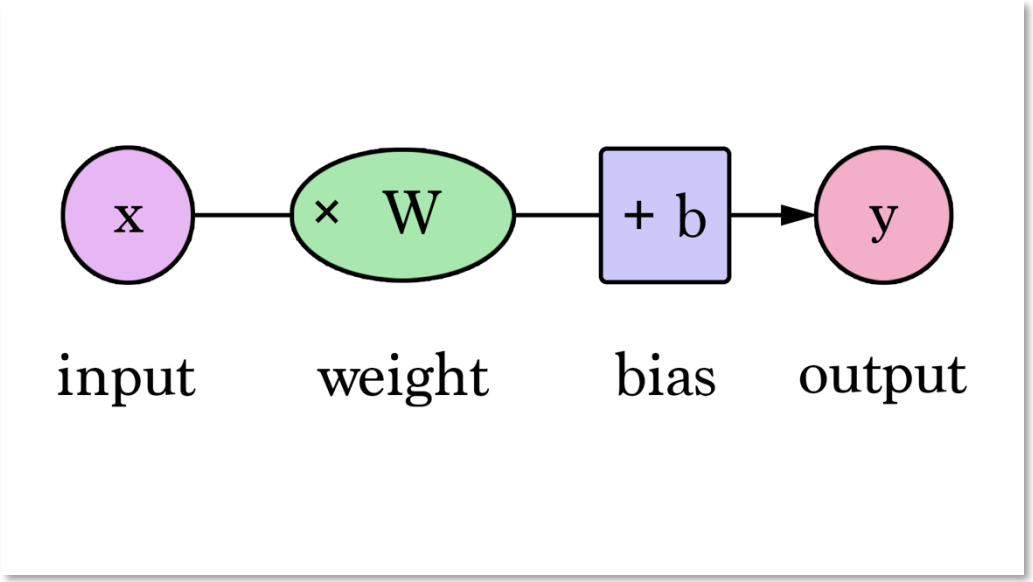
Node

The input to a node gets multiplied by a weight value and the output is observed or passed to the next layer in the neural network

Weights refer to the strength of the connection - affects the amount of influence a change in the input will have upon the output

Bias represents by how much the predictions differ from their intended value; makes up the difference between the function's output and its intended output

Weights can change over time



Are Neural Network Weights “Corresponding Source”

Are neural network weights source code? Or data?

Typically, under GPL 3.0 - Corresponding Source primarily includes code but not data

But no case has decided this specific point

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Questions?

Thank You!

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