Patents in the Age of AI: Implications for Nonobviousness and Disclosure

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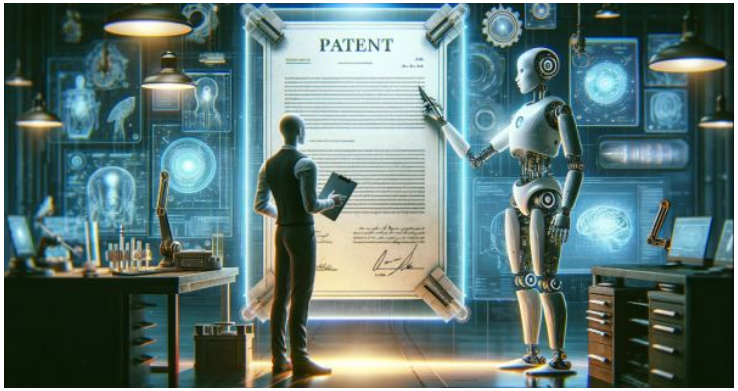
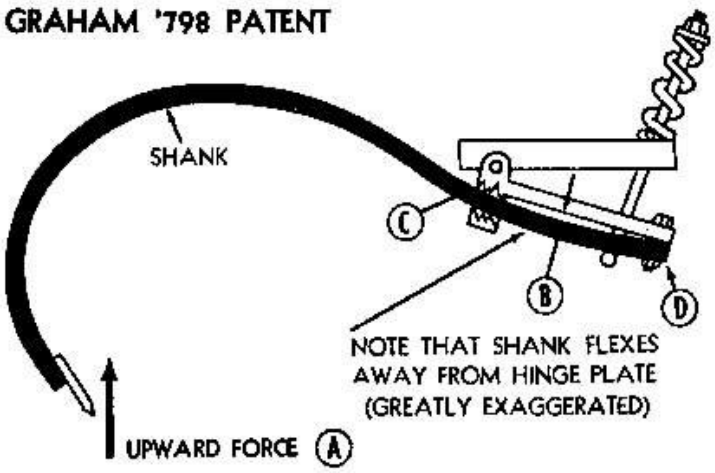
Implications of AI for Nonobviousness and Disclosure

- Focus on integrating AI within existing U.S. doctrinal frameworks
  - AI raises the standard of nonobviousness in several ways
  - Claims encompassing AI models require significant disclosure to counter the “black-box” phenomenon
  - Nonobviousness and disclosure are closely linked



Nonobviousness

- Graham v. John Deere (1966)
  - Primary factual inquiries
    - 1) Scope and content of the prior art
    - 2) Differences between the prior art and the claims at issue
    - 3) Level of ordinary skill in the art
  - Secondary considerations
    - Commercial success, long felt but unsolved needs, failure of others, etc.



Nonobviousness

- 1) Scope and content of the prior art
  - More prior art
    - Content from generative AI


Stable Diffusion

    - Deliberate creation of prior art to preempt patents
      - All Prior Art: "Algorithmically generated prior art"

    - But consider doctrinal constraints on prior art
      - Must generally be "public" (e.g., described in a printed publication)
      - Anticipatory enablement standard for prior art
        - AI-generated brief descriptions or images may not enable

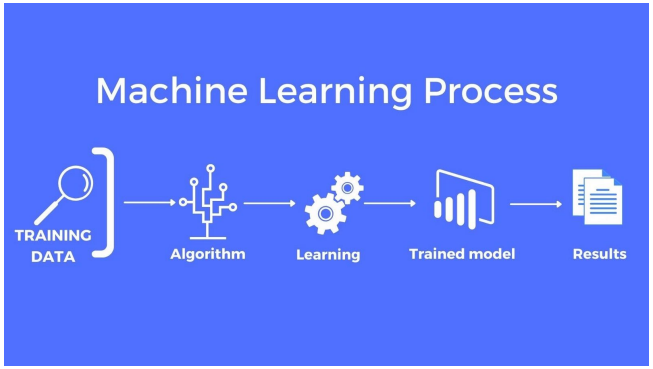
    - Concerns over AI generating millions of pharmaceutical compounds (Freilich & Rai 2025)

Nonobviousness

- 1) Scope and content of the prior art
  - Greater range of "analogous art"
    - 1) From the same field of endeavor as the claimed invention
    - 2) Reasonably pertinent to the particular technical problem
    - ML pattern recognition may expand the set of pertinent prior art

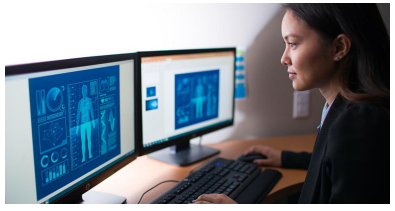
Nonobviousness

- 2) Differences between the prior art and the claims at issue
  - For AI-based inventions, what is the inventive step?
    - Applying a generic ML model to achieve a technical solution may be obvious (perhaps "obvious to try")
      - E.g., claims to an improved process for drafting law review articles using a large language model (LLM)
    - The inventive step encompasses the trained, specialized ML model
      - Significant implications for disclosure



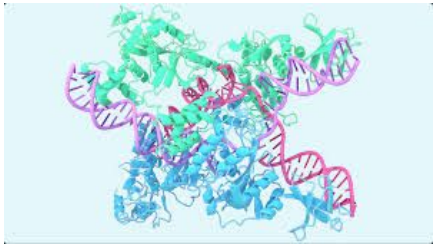
Nonobviousness

- 3) Level of ordinary skill in the art
  - Types of problems, prior art solutions, rapidity of innovation, sophistication of technology, educational level
  - Approaches to analyzing the level of ordinary skill:
    - Human-centered: a person's skill in using AI
      - "Skill" refers to inventor's framing of the problem, selection and control of algorithm and data, refinements
    - Humans augmented by AI: PHOSITA facilitated by AI
      - Analogy to PHOSITAs using search engines
    - AI-centered: Inventive Machine Standard



Nonobviousness

- Secondary considerations
  - High cognitive demands of determining nonobviousness
  - "Objective indications" of nonobviousness may become more important
    - Commercial success, long felt but unsolved needs, failure of others, etc.



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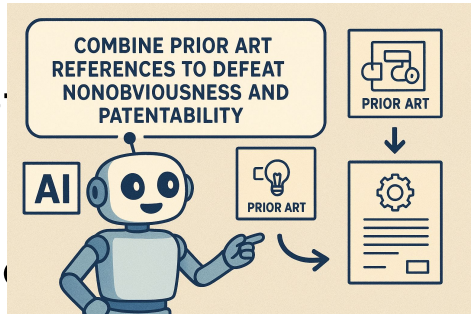
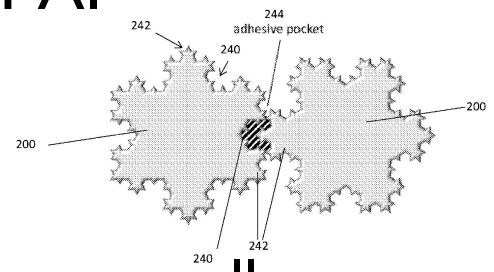
Subtests of Nonobviousness

- Teaching, suggestion, or motivation (TSM) test
  - A claim will only be considered obvious in light of multiple references if there was a teaching, suggestion, or motivation to combine those references
    - KSR v. Teleflex (2007): rejected a formalistic approach to the TSM test but noted that it cap a "helpful insight"
  - AI can provide implicit TSMs to combine pri art teachings, thus weighing in favor of obviousness



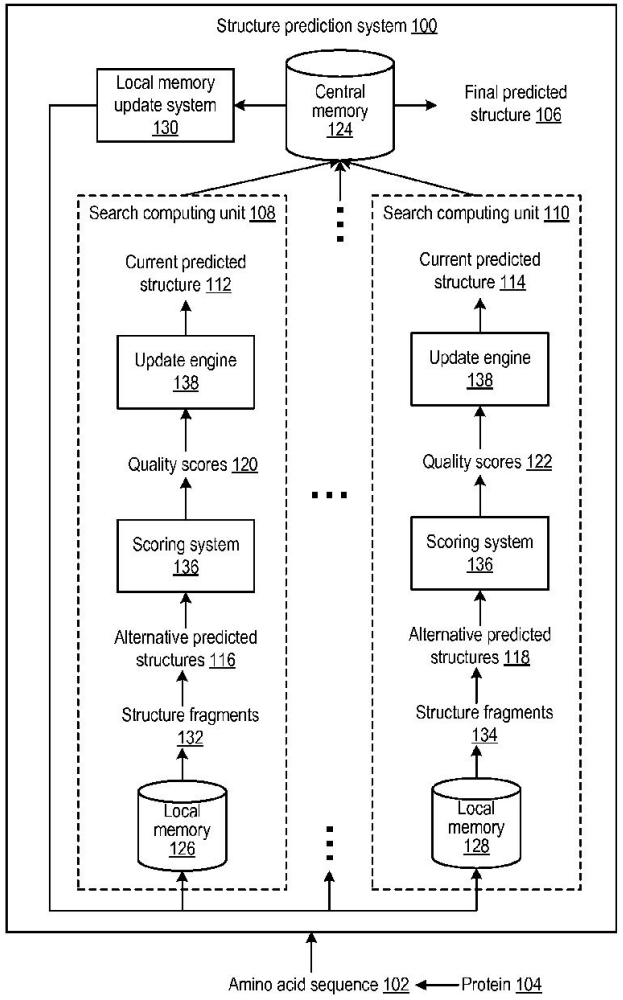
Disclosure

- Distinction between AI-based inventions:
  - Claim the outputs of AI but not an AI model itself
  - Claim an AI model itself
- Inventions not requiring disclosure of an AI model
  - E.g., Stephen Thaler/DABUS:
    - "A food or beverage container comprising: a generally cylindrical wall defining an internal chamber of the container …."
  - For many inventions, no particular disclosure challenges



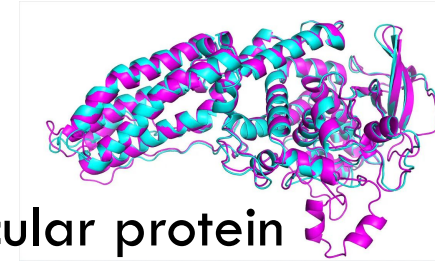
Disclosure

- Inventions incorporating an AI model
  - E.g., DeepMind's claims on Machine Learning for Determining Protein Structures:
    - "A method performed by one or more data processing apparatus for determining a final predicted structure of a given protein …."
  - Significant disclosure challenges
    - Concerns over the "black-box" nature of ML models



Disclosure

- Enablement: teaching technical artisans to make and use the claimed invention
  - European Patent Office: rejected patent applications claiming AI models for insufficient disclosure
    - "Collectively, these decisions show that typically with applied AI patent applications there must be sufficient detail to enable the skilled person to reproduce the *trained* AI." (Abloy et al., 2024)
  - Parallel to Amgen v. Sanofi (2023)
    - Patents claiming all antibodies inhibiting a particular protein disclosed mere "research assignments" and failed the enablement requirement



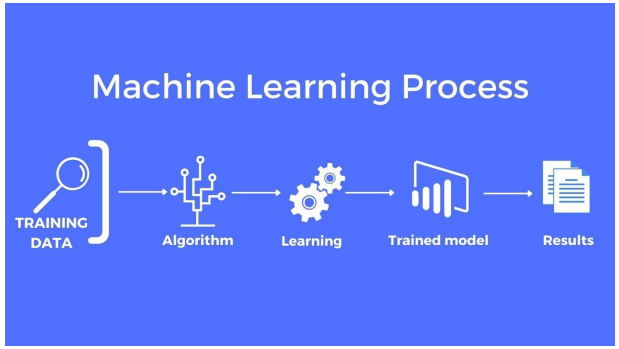
Disclosure

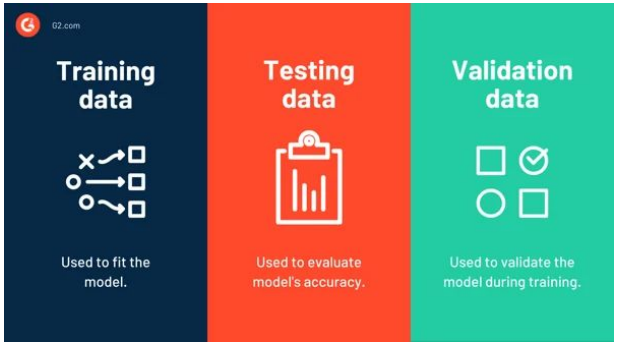
- Enablement
  - Likely requires disclosing model architecture, training data, model weights, or other technical parameters
  - Public deposit of training data or model itself
    - Analogy to biological material deposits

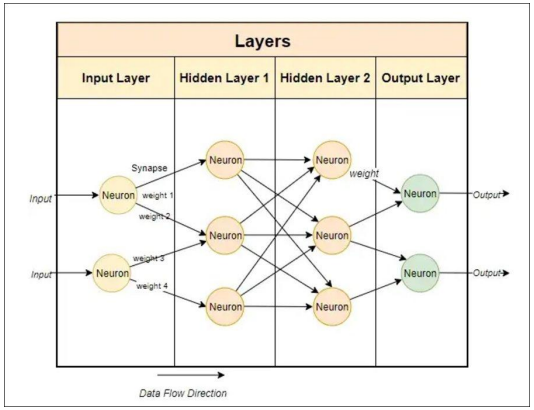
- Best mode
  - Claims to AI would seem to require full disclosure of the trained, specialized AI model

Linking Nonobviousness and Disclosure

- For many AI-based inventions, the nonobvious attribute is the trained, specialized model
  - Enabling technical artisans to make and use the nonobvious invention requires substantial disclosure of the model itself







Conclusion

- AI raises the standard of nonobviousness in several ways
  - Primary factual inquiries, secondary considerations, subtests of nonobviousness
- Claims to certain AI-based inventions require significant disclosure to practice the trained, specialized model
  - Training data, weights
- Nonobviousness and disclosure are closely linked

Thanks!