

Intellectual Property in the Digital Age

Creation, Control, and the Battle for Ideas

Brendan Shea, PhD

Rochester Community and Technical College
Computing and AI Ethics

The Central Question

- Why should anyone “**own**” an idea?
- How do we balance **creators’ rights** with **public access** to knowledge?
- Has intellectual property law kept up with digital technology—or been **captured** by powerful interests?

Thomas Jefferson, Letter to Isaac McPherson (1813)

“He who receives an idea from me, receives instruction himself without lessening mine; as he who lights his taper at mine, receives light without darkening me.”

?

Have you ever pirated something? Felt guilty about it? Why or why not?

What is Intellectual Property?

Definition: Legal rights that protect creations of the mind

- **Intangible:** Unlike physical property, ideas can be copied without “taking” them
- **Non-rivalrous:** Your use doesn’t prevent my use (unlike a sandwich)
- **Artificial scarcity:** IP law creates scarcity where none naturally exists
- **Time-limited** (usually): Eventually enters the “public domain”

Physical Property

Rivalrous, Excludable

Intellectual Property

Non-rivalrous, Hard to exclude

The fundamental tension: Creators want compensation; society wants access to knowledge.

The Four Types of Intellectual Property

Type	Protects	Duration	Example
Copyright	Creative expression (books, music, code)	Life + 70 years (US)	Harry Potter novels
Patents	Useful inventions and processes	20 years	Pharmaceutical drugs
Trademarks	Brand identifiers (names, logos)	Indefinite (if renewed)	Nike swoosh
Trade Secrets	Confidential business info	Indefinite (if kept secret)	Coca-Cola formula

Key point: Each type has **different justifications**, durations, and rules.

?

Which type of IP is most important for the tech industry? Why?

What it protects: Original works of authorship fixed in tangible form

Rights granted:

- Right to **reproduce**, distribute, display
- Right to create **derivative works**
- Right to control who can do the above

What it does NOT protect:

- **Ideas** themselves (only expression)
- **Facts** and **functional elements**
- Works in the **public domain**

Key limitation: **Fair use** doctrine (criticism, education, parody, transformative use)

?

If you write a song that sounds exactly like another song but you never heard the original, is that infringement?

Patents in Depth

What it protects: Novel, useful, non-obvious inventions

Requirements for patent:

- **Novelty:** Must be new
- **Utility:** Must be useful
- **Non-obviousness:** Can't be obvious to someone skilled in the field

The Patent Bargain

- Inventor **discloses** how the invention works (public learns)
- In exchange: **20-year monopoly** on making, selling, and using

Types: Utility patents, design patents, plant patents

Key tension: Encourages innovation vs. blocks follow-on innovation

Trademarks and Trade Secrets

Trademarks

- Protect **source identifiers**
- Must be **distinctive** (not generic)
- Can last **forever** if actively used
- “**Genericide**”: When trademarks become generic (aspirin, escalator, zipper)

Trade Secrets

- Protected by **keeping them secret**
- **No time limit**—but once revealed, protection lost
- Examples: Algorithms, customer lists, recipes
- Legal protection against **misappropriation**

?

Is it ethical to reverse-engineer a competitor's trade secret?

A Brief History of Intellectual Property

Year	Development
1710	Statute of Anne (first copyright law)—14 years, renewable once
1790	US Copyright Act—14 years
1886	Berne Convention—international copyright harmonization
1976	US Copyright Act—life + 50 years
1994	TRIPS Agreement—links IP to global trade
1998	DMCA + Sonny Bono Act—life + 70 years
2020s	AI and streaming reshape everything

Key observation: IP terms have **consistently expanded**, always justified by “encouraging creativity”—but is that what’s actually happening?

Justification 1: Locke's Labor Theory

The Labor Argument

- ① People have a **natural right** to the fruits of their labor.
- ② Intellectual creations are the product of **mental labor**.
- ③ Therefore, creators have a natural right to **control their creations**.

The Lockean proviso: ...as long as “enough and as good” is left for others

Problems with this view:

- Ideas **build on prior ideas**—how much is really “yours”?
- Does mixing labor with something give you the **whole thing**?
- Digital copying requires **no labor** from the copier

Justification 2: Utilitarian / Incentive Theory

The Incentive Argument

- ① Society benefits from creative works and inventions.
- ② Creating such works requires time, effort, and resources.
- ③ Without protection, creators can't recoup their investment (others will copy).
- ④ IP rights provide **incentives** for creation.

C. Therefore, IP is justified because it maximizes social welfare.

The dominant view: This is how courts and legislatures usually justify IP.

Critical questions:

- What's the **optimal length** of protection? (Current terms may exceed what's needed)
- Does IP actually **incentivize**, or mostly enrich incumbents?
- What about creation that happens **without** IP incentives (open source, fan fiction)?

Justification 3: Personality / Expression Theory

Associated with: Hegel, continental European tradition **Core idea:** Works are **extensions of personality**

The Personality Argument

- ① Persons have **dignity** and deserve respect for their self-expression.
- ② Creative works **embody** the creator's personality and vision.
- C. Therefore, creators have moral rights beyond economic rights.**

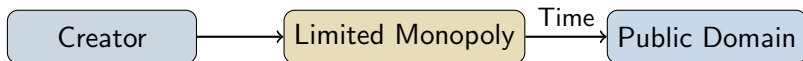
Moral rights (droit moral): Right of **attribution** (credit), right of **integrity** (no distortion).
Stronger in Europe than US.

?

Does an AI have “personality” that could be expressed in creative works?

The Social Contract of IP

The bargain: Society grants **temporary monopoly**; creator gets **compensation**; public eventually gets access.



Is this bargain still working? Terms keep **extending**; enforcement **expanding**; IP concentrating in **fewer hands**.

James Boyle, The Public Domain (2008)

“We are in the middle of a second enclosure movement... ‘the enclosure of the intangible commons of the mind.’”

Part II

The Digital Transformation

How Technology Broke (and Remade) Intellectual Property

How Digital Technology Changed Everything

Pre-Digital Reality

- Copying was **expensive** and imperfect
- Distribution required **physical infrastructure**
- Enforcement was relatively straightforward

Digital Reality

- **Perfect copies** at zero marginal cost
- **Global distribution** instantaneous
- Anyone can be a publisher—or a pirate

The economic shift:

- Scarcity moves from **copies** to **attention**
- Value shifts from **content** to **platforms**
- Old business models collapse

Key insight: IP law was designed for a world of **physical scarcity** that no longer exists.

The Internet's Challenge to Copyright

What the internet did:

- Made everyone a potential **publisher**
- Made copying **trivially easy**
- Made distribution **global and instant**
- Made enforcement nearly impossible at individual level

Industry responses:

- **Litigation** (sue individuals, platforms)
- **Legislation** (DMCA, SOPA/PIPA attempts)
- **Technology** (DRM, copy protection)
- **New business models** (streaming, subscriptions)

The cultural shift: A generation grew up treating digital content as essentially free.

Case Study: Napster and the P2P Revolution

Napster (1999–2001)

The facts: Napster enabled millions to share MP3 files peer-to-peer.

The lawsuit: *A&M Records v. Napster*—recording industry sued for contributory infringement.

The outcome: Napster shut down in 2001, but technology moved on (Kazaa, BitTorrent, etc.)

The aftermath: Music industry revenue **collapsed** (then recovered via streaming); demonstrated that **law couldn't stop technology**; led to iTunes, Spotify, and the streaming model.

?

Did Napster “kill” the music industry—or force it to innovate?

The DMCA and Digital Locks

The Digital Millennium Copyright Act (1998):

Key provisions:

- **Anti-circumvention:** Illegal to break digital locks (DRM), even for legal purposes
- **Safe harbors:** Platforms not liable if they respond to takedown notices
- **Notice and takedown:** Copyright holders can demand removal

The problem with anti-circumvention:

- Can't rip your own DVDs for backup
- Can't unlock your own phone (until exemptions granted)
- Security researchers criminalized
- **Right to repair** blocked

Key insight: DMCA shifted power from **owners** to **manufacturers**.

Streaming and the New Distribution Model

The shift: From **ownership** to **access**

How streaming changed IP: Users don't “own” content—they **rent access**. Platforms can **remove content at will**. Artists earn fractions of a cent per play. Catalog value concentrated in **platforms**, not creators.

Metric	Value
Spotify pay per stream	\$0.003–\$0.005 (varies by country)
Streams needed for \$1	200–330 streams
Minimum threshold (2024)	1,000 streams/year to earn anything

Who won? Platforms and major labels, not necessarily artists or consumers.

?

Is “access to everything” better than “owning some things”?

Part III

Critiques and Abuses of IP

When Protection Becomes Predation

Peter Drahos: Information Feudalism

Key work: *Information Feudalism: Who Owns the Knowledge Economy?* (2002, with John Braithwaite)

Core argument:

- IP has been **globalized** through trade agreements (TRIPS, etc.)
- Driven by small number of **powerful corporations**, not public interest
- Creates new feudal relationships: **IP lords and IP serfs**
- Developing countries forced to adopt strong IP regimes

The mechanism:

- Link IP to **trade agreements**
- Threaten **trade sanctions** for non-compliance
- **Ratchet up** protection globally

Key insight: IP expansion is about **market control**, not innovation.

Cory Doctorow: Chokepoint Capitalism

Key work: *Chokepoint Capitalism* (2022, with Rebecca Giblin)

Core argument:

- Big Tech and Big Content have created “**chokepoints**”—bottlenecks they control
- IP law helps **maintain** these chokepoints
- Creators are squeezed between powerful buyers and sellers
- The problem isn't piracy—it's **monopsony** (buyer power)

Examples of chokepoints:

- **Amazon** controls book/ebook market
- **Spotify** controls streaming
- **Google/Apple** control app distribution
- **Audible** controls audiobooks (with DRM lock-in)

The solution: Not stronger IP, but **competition policy** and **interoperability mandates**.

Tim Wu: IP and the Attention Economy

Key works: *The Master Switch*, *The Attention Merchants*

Core insights:

- Communication technologies follow a cycle: **open** → **closed** → **regulated** → **disrupted**
- IP is a tool for **maintaining closure**
- **Attention** is the real scarce resource; IP controls access to attention

The pattern:

- ① New technology promises **openness**
- ② Incumbents use IP to establish **control**
- ③ **Consolidation** follows
- ④ Until next **disruption**

Application to Big Tech: Platforms use IP (and IP-adjacent tools like ToS, APIs) to maintain dominance.

Case Study: Disney and Copyright Extension

Mickey Mouse and Copyright

The pattern: 1928: Mickey appears in “Steamboat Willie” → 1976: Copyright Act extends terms → 1998: Sonny Bono Act extends again → **Jan 1, 2024:** Steamboat Willie finally enters public domain

The lobbying: Disney among largest lobbyists for copyright extension; Sonny Bono Act sometimes called “Mickey Mouse Protection Act.”

The critique: **Retroactive extension** can’t incentivize creation already done—pure rent-seeking.

The catch: Disney still holds **trademarks** on Mickey and copyrights on **later versions**.

?

Should corporations be able to own characters indefinitely through trademark?

Case Study: Pharmaceutical Patents and Access to Medicine

The Pharma IP Problem

Drug development is expensive (\$1–2B per approved drug). Patents grant **20-year monopoly pricing**. Result: Life-saving drugs priced beyond reach of many.

Examples: HIV/AIDS drugs initially \$10,000+/year, generics ~\$100/year. Insulin prices in US often 10x higher than other countries. EpiPen price increases 600%+ over time.

The tension:

- Without patents, less incentive for R&D (utilitarian argument)
- With patents, people die from lack of access (harm)

The global dimension: TRIPS agreement forces developing countries to respect pharma patents.

Case Study: Patent Trolls and Strategic Litigation

Patent Trolls (Non-Practicing Entities)

What is a patent troll?

- Companies that own patents but **don't make products**
- Business model: Sue or threaten to sue actual producers
- Target: Often **small companies** who can't afford litigation

The economics:

- Average patent lawsuit costs \$2–5 million to defend
- Settling for \$100K–500K is “rational” even if you'd win
- Trolls acquire vague patents cheaply, extract settlements

Example: Personal Audio LLC sued podcasters over “episodic content distribution” patents.

The harm: Innovation tax; discourages small innovators; resources wasted on litigation.

The “Enshittification” Connection

Doctorow’s concept: Platforms decay in a predictable pattern

The cycle: (1) Platform is **good to users** → (2) **good to business customers** → (3) **extracts value** from both

How IP enables enshittification:

- **DRM and lock-in:** Can’t leave with your purchases
- **ToS as law:** Platforms can change rules unilaterally
- **API control / Copyright claims:** Cut off competitors, silence criticism

Key insight: IP isn’t just about protecting creation—it’s about **controlling markets**.

?

Have you experienced enshittification? Which platforms?

Part IV

Big Tech and Platform IP

How Tech Giants Weaponize Intellectual Property

How Big Tech Uses IP

The arsenal:

Tool	How It's Used
Patents	Build defensive portfolios; sue competitors; cross-license with other giants
Copyright	Control user content; DMCA takedowns; protect code
Trade secrets	Algorithms, training data, business methods
Trademarks	Brand protection; keyword advertising disputes
Terms of Service	Create IP-like control without formal IP

The strategy:

- Accumulate IP for **defense and offense**
- Use IP to **raise barriers** to entry
- Cross-license with other giants (mutually assured destruction)
- Sue smaller competitors who **can't reciprocate**

Terms of Service as IP Instruments

The hidden contract: Every platform has ToS; users must agree to access service; terms grant platforms **extensive rights** over user content.

Typical ToS provisions:

- Broad license to user content (**perpetual, worldwide, royalty-free**)
- Right to **modify or remove** content; binding arbitration
- **Unilateral modification** rights

The critique: These are **contracts of adhesion** (take it or leave it). No meaningful **consent or negotiation**. Create IP-like control **without IP law's limitations**.

?

Have you ever read a Terms of Service agreement? Should they be regulated?

Case Study: Oracle v. Google (API Copyright)

Google LLC v. Oracle America, Inc. (2021)

The dispute: Can you copyright an API (Application Programming Interface)?

The facts: Google used Java API declarations in Android. Oracle sued for copyright infringement. 10+ years of litigation.

The ruling: Supreme Court ruled 6–2 for Google—API use was **fair use**. But the Court **did not decide** whether APIs are copyrightable at all.

Why it matters:

- APIs enable **interoperability**
- If APIs copyrightable without fair use: Incumbents can lock out competitors
- Court emphasized **transformative use** and programmer investment

The stakes: Foundational question for software industry competition.

Case Study: Right to Repair Movement

The Right to Repair Problem

How manufacturers block independent repair: DMCA anti-circumvention prevents accessing diagnostic software. Parts “paired” to devices; won’t work without authorization. Result: Must use expensive authorized repair or buy new.

Examples: Apple iPhone repair restrictions, John Deere tractor software locks, medical device repair restrictions.

The movement: State “right to repair” laws emerging; FTC attention increasing; some manufacturers loosening restrictions.

?

Do you own a device if you can't repair it?

Part V

AI and Intellectual Property

When Machines Learn from Human Creativity

AI Training Data and Copyright

The basic question: Is training AI on copyrighted works infringement?

How LLMs are trained:

- Ingest **massive amounts** of text (books, websites, code)
- Learn **statistical patterns**
- Generate new text based on patterns

Position	Argument
Infringement	Training is copying; derivative works created
Fair use	Transformative purpose; doesn't substitute for originals
New paradigm	Copyright not designed for this; need new rules

The stakes: If training requires licensing, **only large companies** can afford it.

Case Study: The AI Copyright Wars

Major AI Copyright Lawsuits (2023–Present)

Key cases: *NYT v. OpenAI/Microsoft*, *Authors Guild v. OpenAI*, *Getty v. Stability AI*, plus class actions against Meta, Anthropic, others.

The claims: Training on copyrighted works without license; models can reproduce copyrighted content.

Recent developments (2025):

- 16 lawsuits consolidated in S.D.N.Y.
- Judge ordered OpenAI to produce 20 million ChatGPT logs
- Two federal courts found AI training “**highly transformative**” (fair use)

Status: Litigation ongoing; will shape AI industry for decades.

AI-Generated Content: Who Owns It?

The question: If AI creates something, who owns the copyright?

Current US position (Copyright Office, 2023–2025):

- Copyright requires **human authorship**
- Purely AI-generated works **not copyrightable**
- Human-AI collaboration: Human contributions **may be** copyrightable

The complications: How much human input is **enough**? What about prompts, curation, selection? Different countries may reach different conclusions.

Implications: AI art may be **public domain by default**; creates incentive to **hide AI involvement**.

?

If you write a detailed prompt and AI generates an image, should you own it?

Fair Use in the Age of AI

The fair use factors: (1) Purpose and character, (2) Nature of original, (3) Amount used, (4) Effect on market

Factor	For Fair Use	Against Fair Use
Purpose	Transformative (new tech)	Commercial (selling AI products)
Nature	Published works	Creative expression
Amount	Necessary for function	Entire works copied
Market	Doesn't replace originals?	Competes with creators

The key question: Is statistical learning “transformative” enough?

Precedent: *Google Books* (scanning for search = fair use); but that preserved originals and limited display.

Part VI

Open Source and Alternative Models

Working With (and Around) Intellectual Property

The Open Source Movement

Core idea: Use copyright to keep things **open**, not closed

How it works: Software released under **open source license**. License grants permission to use, modify, distribute. “**Copyleft**” (GPL) requires derivatives stay open; “**Permissive**” (MIT, Apache) allows any use.

Success stories: **Linux** (runs most servers, Android), **Apache/nginx** (web servers), **Python** and JavaScript frameworks, **Wikipedia** (open content).

The economic puzzle: Violates standard IP incentive theory, yet produces **enormous value**. Motivations: reputation, community, ideology, strategic.

?

Why do people contribute to open source for free?

Creative Commons and Alternative Licensing

Creative Commons (founded 2001):

- **Standardized licenses** for non-software content
- Allows creators to grant permissions **in advance**
- Range from very open to more restrictive

License	Allows
CC0	Anything (public domain equivalent)
CC BY	Any use with attribution
CC BY-SA	Any use with attribution + share alike
CC BY-NC	Non-commercial use with attribution
CC BY-NC-ND	Non-commercial, no derivatives, attribution

Impact: Wikipedia uses CC BY-SA; many educational resources (OER movement)

The AI complication: CC-licensed works have been used in AI training—was this the intent?

Conclusion: Toward a Balanced IP Framework

What we've learned: IP is a **policy choice**, not a natural right. Digital technology has **disrupted** IP's foundations. Current system often serves **incumbents** over creators or public. AI creates new challenges with **no clear answers**.

Principles for reform (various scholars):

- **Interoperability:** Break lock-in through mandated compatibility
- **Shorter terms:** Return to original bargain (limited time)
- **Robust fair use:** Protect transformative uses, including by AI
- **Competition focus:** Address market power, not just copying

The enduring question: How do we encourage creation while preserving access?

?

If you could redesign IP law from scratch for the digital age, what would you change?