

# **BINF6399 - Principles of Team Science**



**UNC CHARLOTTE**

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**RAW Lab**

**Lecture 11 - Tuesday April 6<sup>th</sup>, 2021**

# Learning Objectives

- Intellectual Property
- IP protection
- Copyrights
- Trademarks
- Trade secrets

# *So you got an idea....?*

Without protection,  
your idea...



Is their idea.

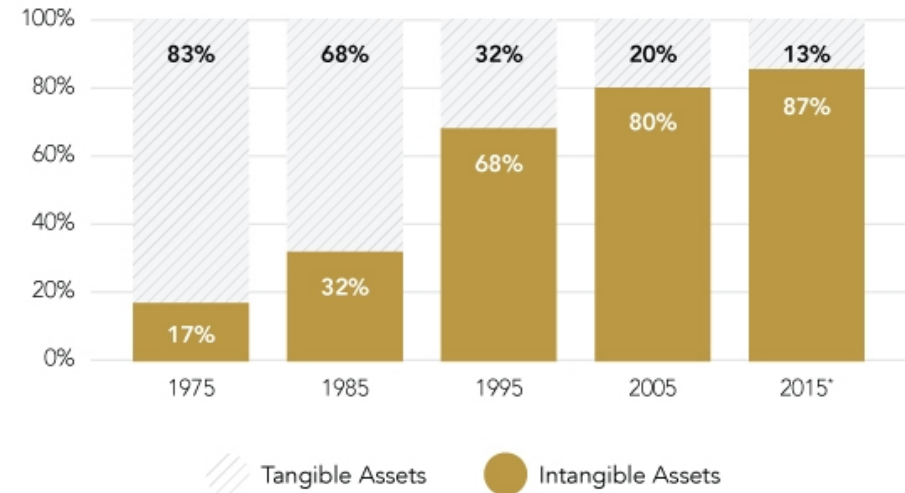
# IP landscape

Top 15 tech. Sub-domains \ Top 10 Companies	IBM	TSMC	Intel	Global Foundries	Micron Tech	AMD	Samsung Electronic	Toshiba	Infineon Tech	Hynix
Etching +Structural features	616	475	263	224	145	126	91	54	41	27
Device Formation + Structural Features	341	342	258	147	113	122	74	55	51	21
BEOL + Structural Features	318	377	172	63	38	47	45	51	44	13
Lithography +Structural Features	435	262	89	133	106	66	73	43	47	14
Wafer Development + Structural Features	440	234	152	98	57	75	58	28	55	8
Stacking + Structural Features	295	220	137	31	24	14	36	44	19	3
BEOL + Model Parameters	72	42	28	12	11	3	6	27	9	12
BEOL + Power Consumption	23	41	22	7	2	6	11	17	5	3
Etching + Model Parameters	66	33	39	21	3	10	19	23	3	27
Oxide Growth + Structural Feature	120	46	50	38	31	17	12	11	10	2
BEOL + Operating Voltage	44	47	20	8	0	6	8	21	5	6
Device Formation + Model Parameters	42	32	75	15	7	10	20	15	7	21
Device Formation + Operating Voltage	44	35	19	12	5	7	13	16	10	14
Device Formation + Feature Size	14	33	26	8	42	14	12	11	8	9
Wafer Development + Model Parameters	67	16	16	10	2	14	4	11	4	7

# *Intellectual property – stuff ideas are made of..*



## COMPONENTS of S&P 500 MARKET VALUE



SOURCE: OCEAN TOMO, LLC

## Copyrights ( 17 U.S.C. § 101 et seq)

Copyright law protects “**original works of authorship**” affixed in a tangible medium of expression.

## What Copyrights **Can** Protect

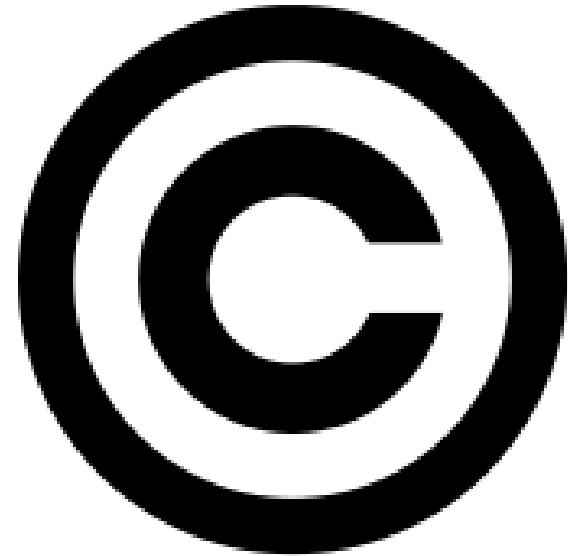
- Literary works
- Musical works, including lyrics
- Dramatic works (screenplays)
- Pictorial, graphic, and sculptures
- Sound Recordings
- Architectural blueprints
- Logo (better Tm)
- *Software (careful)*



# *Intellectual property – copyright*

## What Copyrights **Can't** Protect

- In no case does copyright protect an original work extend:
- Idea, procedure, process, system, method of operation, concept, principle, or discovery
- Regardless of the form in which it is described, explained illustrated, or embodied in such works.
- Known as the idea-expression dichotomy





# *Intellectual property – copyright*

## ***Rights & Term (§106)***

- The owner of a copyright has the exclusive rights to do and to authorize any of the following:
  - **Reproduce** the copyrighted work in copies or phono records;
  - To **prepare derivative** works based upon the copyrighted work;
  - To **distribute copies** or phono records of the copyrighted work to the public by sale or other transfer of ownership, or by rental, lease, or lending;
  - To **perform** the copyrighted work publicly (literary, musical, audiovisual)
  - To **display** the copyrighted work publicly; and
  - To **perform** the copyrighted work publicly by means of digital audio transmission
- Term of Protection = Life of the author + 90 years (thanks, Disney)

# Intellectual property – copyright

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Copyright Office

◀ Celebrating our 150<sup>th</sup> anniversary ▶

What was the 1<sup>st</sup>  
Copyright?



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# *Intellectual property – copyright*

The First Congress implemented the copyright provision of the US Constitution in 1790. The Copyright Act of 1790, An Act for the Encouragement of Learning, by Securing the Copies of Maps, Charts, and Books to the Authors and Proprietors of Such Copies, was modeled on the Statute of Anne (1710) in England.

# *Intellectual property – copyright (timeline)*

August 18, 1787

James Madison submitted to the framers of the Constitution a provision “to secure to literary authors their copyrights for a limited time.”

June 23, 1789

First federal bill relating to copyrights (H.R. 10) presented to the first Congress.

May 31, 1790

First copyright law enacted under the new U.S. Constitution. Term of 14 years with privilege of renewal for term of 14 years. Books, maps, and charts protected. Copyright registration made in the U.S. District Court where the author or proprietor resided.

June 9, 1790

First copyright entry, The Philadelphia Spelling Book by John Barry, registered in the U.S. District Court of Pennsylvania.

April 29, 1802

Prints added to protected works.

February 3, 1831

First general revision of the copyright law. Music added to works protected against unauthorized printing and vending. First term of copyright extended to 28 years with privilege of renewal for term of 14 years.

<https://www.copyright.gov/circs/circ1a.html> (more information)

# Intellectual property – Trademarks



## TRADEMARKOLOGY DISTINCTIVENESS SPECTRUM

WEAKEST

**GASOLINE**

**GENERIC**

The common name for the product or service

**DESCRIPTIVE**

An attribute of the product or service



**Mobil**

**SUGGESTIVE**

Hints at an attribute of the product or service

**ARBITRARY**

Not related to the product or service



STRONGEST

**EXXON**

**FANCIFUL**

A made-up word

- **Trademarks** are words, phrases, or logos that identifies the source of goods or services.

- Trademark law protects a business' commercial identity or brand by discouraging other businesses from adopting a name or logo that is *confusingly similar* to an existing trademark.

- Purpose of trademark law is to protect a company's goodwill, and helps consumers easily identify the source of the things they purchase





# Intellectual property – Trademarks

## Elements

- Must file a registration for EACH good and/or service you want to associate with your source signifier
- TERM: Trademarks are PERPETUAL (so long as you *use* the trademark)
- Standard of Infringement is arguably *lower* than other types of IP (confusingly similar in the eyes of the consumer)



## 5 Categories of Trademarks

Fanciful



Arbitrary



Suggestive



Descriptive



Generic



Easy to  
trademark

Difficult to  
trademark





# *Intellectual property – Trade secrets*

- Governed by State and Federal Law – (UTSA & DTSA)
  - Trade Secrets are defined generally as information, including a formula, pattern, compilation, program, device, method, technique, or process, that:
    - (i) derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means by, other persons who can obtain economic value from its disclosure or use, AND
    - (ii) is the subject of efforts that are reasonable under the circumstances to maintain its secrecy.

-EX: Krispy Kreme donuts recipe, Coca-Cola recipe, KFC recipe

# Intellectual property – all



## TRADEMARK

### WHO IT SERVES

Brands

### PURPOSE

Distinguishes product or service from competitors

### EXAMPLES

Words, logos, slogans, colors

### TIME LIMIT

Indefinite



## COPYRIGHT

### WHO IT SERVES

Authors

### PURPOSE

Protects original creative and/or intellectual work

### EXAMPLES

Music, art, photography

### TIME LIMIT

70-170 years



## PATENT

### WHO IT SERVES

Inventors

### PURPOSE

Grants exclusive right to exploit an invention

### EXAMPLES

Medical devices, technologies

### TIME LIMIT

15-20 years

# Intellectual property – Patent search

## Method of detecting spliced mRNA

### Abstract

The invention relates to the direct detection of human papillomavirus **DNA**. The recently developed polymerase chain reaction has been modified in order to improve sensitivity and specificity. It is possible, by choosing suitable oligonucleotide primers (amplimers) and reaction temperatures, for individual HPV genes to be identified among the total cell **DNA** and amplified to such an extent that non-isotopic detection is possible. In addition, the use of reverse transcription allows deliberate amplification of spliced mRNA and thus an indication of premalignant or malignant states or lesions.

### Images (2)



### Classifications

C12Q1/708 Specific hybridization probes for papilloma

[View 1 more classifications](#)

### Description

translated from German

[0001] The invention relates to the direct detection of human papillomavirus **DNA**. (.) Science Saiki et al (1988 239, 487-491 PCR.) Modified to improve sensitivity and specificity It was recently developed polymerase chain reaction. By selection of suitable oligonucleotide "primer" (amplimers) and reaction temperatures of individual HPV genes can be identified using the total cellular **DNA** and to the extent amplified in that a non-isotopic detection is possible. In addition, the use of reverse transcription enables the targeted amplification of spliced mRNA and so the reference to premalignant or malignant conditions or lesions.

[0002] is a strong correlation between the occurrence of cervical cancer and the

### Claims (

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a)  
gr€  
b)  
c)  
d)

- Google Patents is a good start you can also look at the USPTO's website
- Patent Classification codes
  - Limited success with this one
  - <http://web2.wipo.int/ipcpub/#&notion=CW>
- What is a competitor's IP protection?
  - Is there space still available
- Are they actively filing and buying patents in your industry

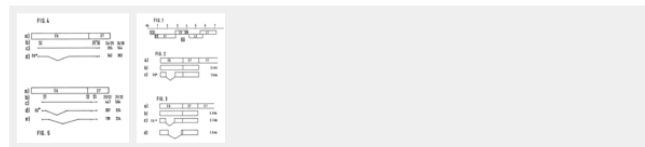
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### Claims (

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a)  
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b)

c)

d)

- Use all the synonyms and alternate words
- Go from general to specific
- Have all the synonyms in the first search and narrow down to very specific words
- Core concept should be your last term
- Cover as much ground as possible
- Broader terms mean seeing something that you might miss over wise
- See how much prior art is out there
- How narrow our claims might need to be

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# *Food for thought*

Innovation and Invention are not the same thing...

A **TRUE INNOVATION** has *MARKET VALUE*...

A patent invention may or may not..

*Defend your pen patent!*

