

History of AI at IBM and How IBM is Leveraging Watson for Intellectual Property

2019 ECC Conference June 9-11 at Marist College
IBM Intellectual Property Management Solutions

Who are We?



Tom Fleischman
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At IBM for 37 years I currently work in the Technology and Intellectual Property organization, a combination of CHQ and Research. I have worked as an engineer in Procurement, Testing, MLC Packaging, and now T&IP. Currently Lead Architect on IP Advisor with Watson, a Watson based Patent and Intellectual Property Analytics tool.

- Master Inventor
- Number of patents filed ~ 24+
- Number of submissions in progress ~ 4+
- Consult/Educate outside companies on all things IP (from strategy to commercialization, including IP 101)
- Technical background: Semiconductors, Computers, Programming/Software, Intellectual Property and Analytics



Sue Hallen
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Is the manager of the Intellectual Property Management Solutions team in CHQ under the Technology and Intellectual Property group. Current OM for IP Advisor with Watson application, used internally and externally. Past Global Business Services in the PLM and Supply Chain practices.

- Number of patents filed – 2 (2018)
- Number of submissions in progress - 2
- Consult/Educate outside companies on all things IP (from strategy to commercialization, including IP 101)
- Schaumburg SLE
- Technical background: Registered Professional Engineer in Illinois, Structural Engineer by degree, lots of software development and implementation for PLM clients

How does IBM define AI?

IBM refers to it as Augmented Intelligence....

- Not artificial or meant to replace Human Thinking...augments your work

AI Terminology

Machine Learning

- Provides computers with the ability to continuing learning without being pre-programmed. Machine Learning is algorithms that learn from data and create foresights based on this data.

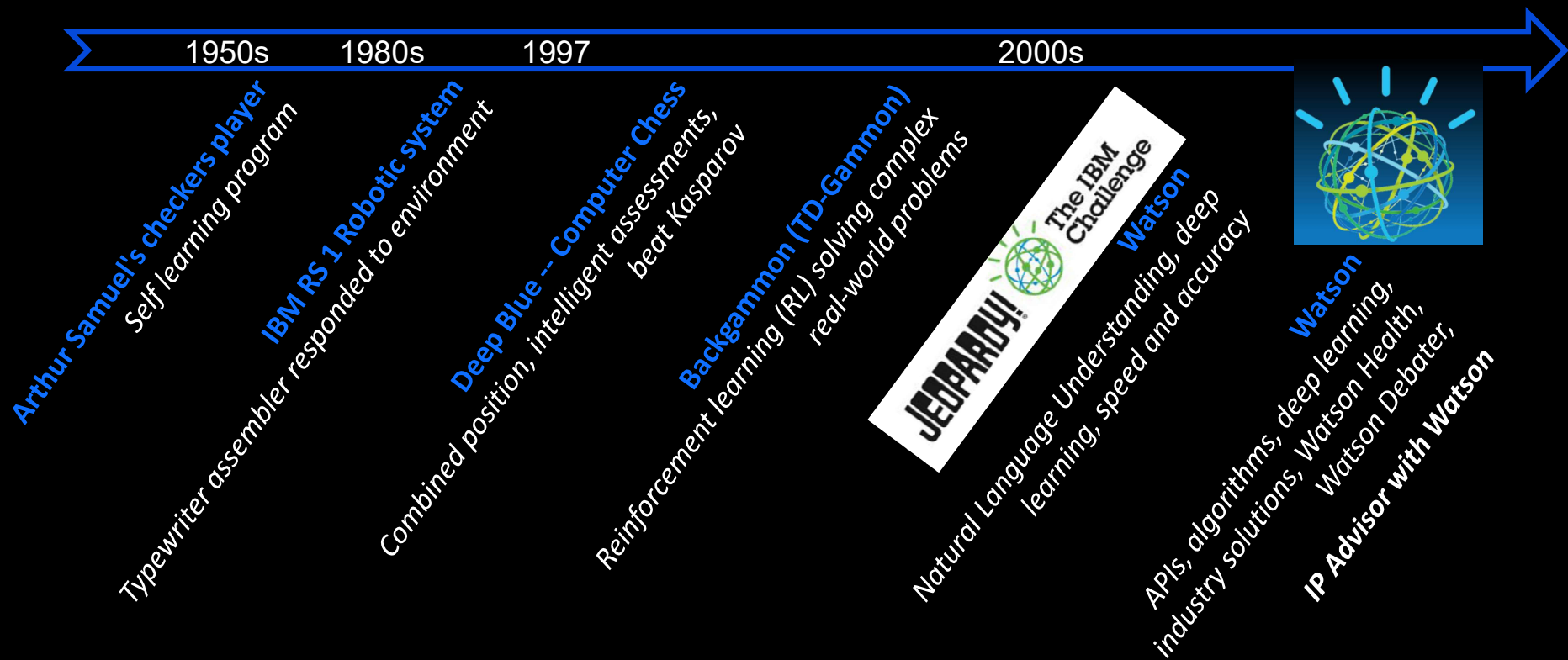
Artificial Intelligence

- When machines work “inteblligently”: a set of methods, systems or approaches for computers that try to mimic human judgments and human decision making
- Leveraging Machine Learning and Natural Language Processing, AI is able to use learning from a data set to solve problems and give relevant recommendations – in context.

Cognitive Computing

- Systems that learn at scale, reason with purpose and interact with humans naturally. It is a mixture of computer science and cognitive science.

History of AI at IBM – its not new, but continually changing



Intellectual Property is not limited to patents

Types of Intellectual Property



IBM and IBM IP Organization

IBM T&IP (Technology and Intellectual Property) Organization is missioned to Develop, Protect and Monetize IBM Intellectual Property

- #1 in US Patents issued for 26 consecutive years
 - **9,100 patents in 2018**
 - Granted to more than 8,500 IBM researchers, engineers, scientists and designers in 47 different U.S. states and 47 countries
 - IBM IP
 - **> 63,000 Worldwide Active Patents and > 25,000 Worldwide Active Applications**
 - 675 Registered, 58 Pending Trademarks
 - Additional Trade Secrets, Know How, Copyrights, etc....

Monetizing Intellectual Property

To properly understand the what, where and how to monetize Intellectual Property one must look at the complete landscape

- Patents only show where a company is inventing
 - May indicate spending and new products
- Financials only show where a company is selling/making a profit
 - Business line?
 - Products?
 - Geography?
- Product Documentation/Web Sites only show what a company wants you to see...

Monetizing Intellectual Property

Once all areas are understood, one typically needs to prove Evidence of Use and possibly infringement to come to licensing terms...



Matching Use to Patent Claims is the 'Golden Nugget' and extremely difficult

IP Issues: Today and Future

Today and Future issues are basically the same

- Far Too Much Data for a human to Read, Analyze and Understand
 - **10 Millionth** US Patent Issued...
 - **>4 Billion** Web pages indexed
- Too Many Formats and Languages

How Can One Read, Analyze and Understand
This Amount of Complex Data?

How Can Augmented Intelligence Help ?

AI tools can be trained to Ingest, Digest, Understand and Analyze the tremendous amount of data and to provide insights

Insights provided should be used as a guide..**Augmented Intelligence**

- Ingest, Digest, Understand and Analyze Data Rapidly
- Guide the user towards the relevant information
- Provide insights a user may not have found due to
 - Expertise
 - Skills
 - Data Volume
 - Etc...

How is IBM T&IP Leveraging AI?

IBM is Leveraging Watson Technology to Rapidly Ingest, Digest, Understand and Analyze the tremendous amount of data and to provide insights

IP Advisor with Watson

- Rapidly Consumes Patent and Technology Data for the Users Using Natural Language Processing and Understanding
- Utilizing Watson Analytics to identify trends and make connections for the user
- Leveraging Watson Insights
 - Identifying and Providing Insights and Connections rapidly and unbiased

Current Use Cases

Common Data	Primary Use Cases	Key Features	Value Levers	Value
Company Data Product Data Patent Information Trademark Information Litigation Information Research Information Web Searches Industry News Technology News	Evidence of Use	Match claims: what, where, relevance Ownership Ability to use	Reduce proof dev't time Match concepts, not keywords Better analysis, searching	Speed Accuracy New Insights
	Prior Art	Web search Document comparison Date options	Faster identification for filing, defensive purposes Better claims	
	Landscapes	Patent, document Technology, deo, classifications Competition, industry Multiple output options Trends	Align IP & business strategy Identify trends, white space Strengthen portfolio	
	Portfolio Maintenance	Value: technology, business, legal Financial tradeoffs Trends	Align IP & business strategy Identify encumbrances Optimize portfolio vs budget	
	Office Actions, Prosecution	Assessment, response Claim analysis	Reduce outside counsel cost Faster OA response	
	Common Features	Natural language, enrichments Multiple data models Patent and document mining Filters, analytics Results & classifications options Load & own your own data	Cognitive insights User personalization	

IP Advisor with Watson

- Substantially increase a patent engineer's productivity
- Sign more licensing deals each year without increasing staffing
- Substantially reduce portfolio maintenance costs
- Sell patents you no longer need
- Improve the efficiency of patent filing and responses to office actions
- Rapidly and effectively respond to others' claims against you

Initial IBM EoU Cases	Find documents	Ingest / Understand documents	Ingest / Understand patents	Analyze	Accuracy Speed
Manual	1-2 weeks	1 - 8 weeks	1 week	Iterative per document - weeks	
Case 1	1 week*	Minutes	Minutes	Minutes to first result	
Case 2	1 week*	Minutes	Minutes	Minutes to first result	

* Less time because you do not have to pre-read/pre-interpret

Summary

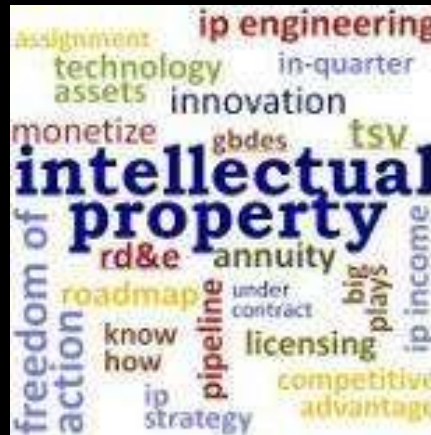
- AI is **Augmented Intelligence**
- AI at IBM
 - IBM's the leader in AI
 - Historically
 - Today
 - Leveraging Watson Insights
 - Watson Rapidly and Provides Unbiased Insights and Connections
- IP Advisor with Watson is a perfect example of how Watson (AI) can help improve overall efficiency of an organization

IBM Intellectual Property Management Solutions help transform innovation into business advantage

*We deliver know-how to clients that is customized to their specific needs, based on IBM and industry leading practices.
And we practice what we teach.*

Leverage our Know How to evaluate and implement best practices in IP Management

- Foster a culture of innovation supporting (and supported by) a strong IP strategy
- Help implement and manage IP assets more effectively...from patents to defensive pubs to trademarks to copyrights to trade secrets
- Help capitalize on and protect your intellectual assets with stronger IP Management



26 consecutive years of US patent leadership
– 9100 in 2018¹

IP leveraged to return 15-20% R&D budget

Robust culture of innovation throughout
global technical community of 250,000

Robust processes to help streamline IP
management and optimize opportunities

IBM recognized worldwide as an IP policy,
development, management, and
commercialization leader

One of the world's top ranked brands, valued
at US\$96B in 2018²

¹Source: <https://www.research.ibm.com/patents/>

²Source: Millward Brown Brandz 2 <http://brandz.com/charting/54>

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