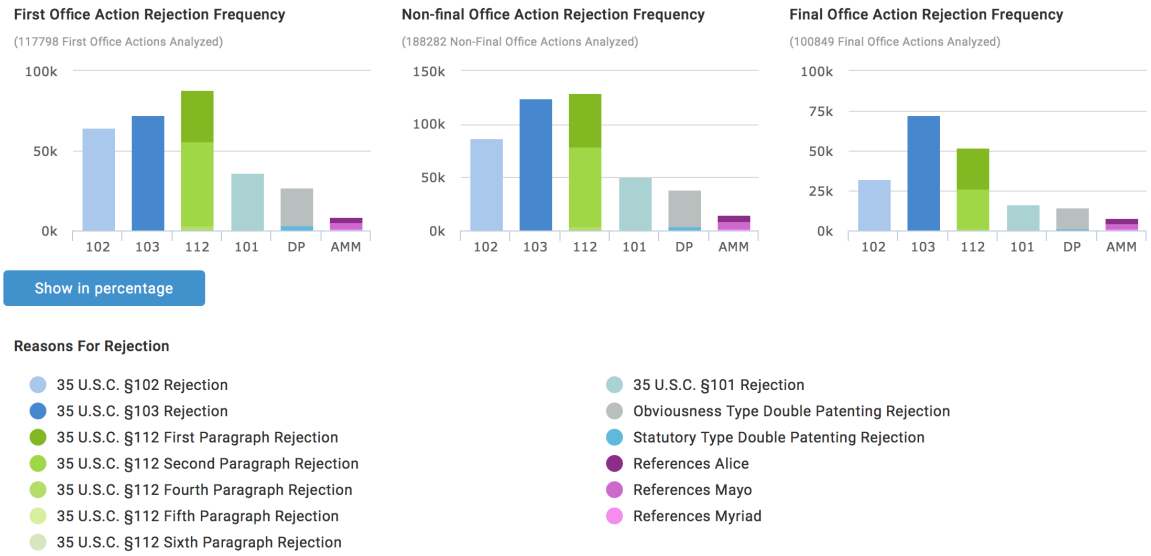
Profiles of Patent Quality Tool Companies

Company: PATENT ADVISOR

Overview:
Patent Advisor is a data-driven patent analysis tool that provides a systematic approach to patent prosecution. Patent Advisor utilizes visualization and filtering tools which allow users to better analyze patent data and manage portfolio performance. Additionally, patent advisor allows users to save data sets and then measure and compare actions over time. Data sets can further be exported as CSV or XLSX files.

Statistics Given:
After importing patent or application data, PatentAdvisor displays a series of results. Patent Advisor shows the allowance rate of the given plurality of results and then breaks down how many patent applications, abandoned applications and pending applications were in that data sample. Analysis is limited to patent applications filed on or after 11/29/00. Additionally, users can see the following results: rejection specific statistics, office actions statistics, average times, interview statistics, pilot program statistics, appeal statistics, RCE statistics, examiners, art units, and applications.

Rejection Specific Statistics
Patent Advisor displays rejection specific statistics of the plurality of results. Each rejection type is color coded, allowing users to ascertain how many rejections of each type were seen in the PTO. This tool will help Law Firms/Corporations anticipate what sort rejections they might see at the PTO. For
example, one could find out what rejection applications are currently seeing most in a specific art unit.



Office Action Statistics
PatentAdvisor provides a variety of Office Action data and statistics in the form of percentages or total number of OA's . First, the average number of OA's between filing date and patent issuance/abandonment of the patents and applications in the data set is calculated. A user would be able to determine the application with the most office actions before patent issuance or abandonment as well as the application with the least amount of office actions before issuance or abandonment. The data further breaks down into Final Office Actions and Non-Final Office Actions.

Interview Statistics
The percentage of applications with at least one interview before Patent Issuance/Abandonment is calculated. PatentAdvisor details what next significant event occurred after the interview, including allowance, abandonment, RCE, final OA, non-final OA or undetermined. Each of these results are totaled, showing the user how many of these events occurred after the interview.

Appeal Outcome Breakdown
Users are provided with numerous appeal statistics, including, total number of appeal cycles, the percentage of applications with at least one appeal cycle, and the chances of winning on appeal. The appeal outcome breakdown is further broken down by the number of appeal cycles occurring in notice of appeal, pre-appeal brief request for review, appeal brief, examiner's reply, and BPAI / PTAB decision.

Examiners
PatentAdvsior calculates how many applications an individual examiner had within that data set. A sample output is shown below.

Examiner	APPs	Average # OAs	Allowance rate	≥ 1 RCE	Appeal filed	1st OA to issue	
CHANG, LI WU	5	1.4	85.6% (422 / 493)	25.6%	2.6%	0 Y, 9 M	Filter
CLOW, LORI A	3	3	49.7% (334 / 672)	48.8%	10.8%	2 Y, 5 M	Filter
OYEBISI, OJO O	3	3.7	43% (175 / 407)	44%	27.4%	3 Y, 0 M	Filter
LAMARDO, VIKER ALEJANDRO	3	2.3	47.8% (22 / 46)	45.5%	0%	1 Y, 3 M	Filter

A new dashboard of results is opened once a user clicks on the Examiner's name, showing the above results in more detail . The data associate with the Examiner includes the examiner's allowance rate compared to the allowance rate of the Art Unit. The total applications granted, pending, and abandoned the examiner has seen or is currently seeing is displayed as well as this information over time. Interestingly enough, PatentAdvisor provides the same information

available about a given search result about the individual. Meaning, a user could ascertain the following statistics with regard to a specific examiner: rejection specific statistics, office actions statistics, average times, interview statistics, pilot program statistics, appeal statistics, RCE statistics and applications.

Additionally, Patent Advisor lists the Examiner's top 10 assignees and shows how the Examiners patented, abandoned, and pending applications in chronological order.

Art Units
The data available about Art Units is almost identical to the information availabout about each Examiner. A user can find the top art units of their search results as PatentAdvsior orders the Art Units by the number of applications in the search each art unit saw / has. The same statistics as above are provided for each Art Unit.

Essentially, PatentAdvisor contains a vast amount of information allowing users to customize what specific search results they want to dive into. The statistics provided, especially about Rejections, Art Units, and Examiners, offers users a unique Patent Quality tool. For example, users can predict what rejection their application may face after being assigned to a specific examiner and art unit. On a larger scale, large workbooks can be created and exported into excel, allowing users to conduct massive data studies and manipulating their data even further.

Last, PatentAdvisor contains the entire File Wrapper History of each application and most of relevant documents for that application are available to download.

Name: Katherine Rubschlager
Company: INNOGRAPHY

Innography is a patent search software aimed at providing better answers to questions about intellectual property. Innogarphy's software combines 100 million corrected patent documents, combined with many other data sources and unique visualization technologies, to enable users to quickly gain valuable insights for optimizing their patent portfolios and understanding current and potential competitors.

Compared to PatentAdvisor, Innography provides a less graphic user interface but is less glitchy and contains more up-to-date information than PatentAdvisor. Additionally, Innography allows user to build workbooks by keyword searches unlike PatentAdvisor. Over the summer, I created a list of keywords relating to AI to conduct a Patent Quality study. I built a project in Innography containing all the applications within a certain time frame with the keywords I searched. Innography allows users to choose where the keyword is found, for example a user could select Abstract, Claims, Drawings, Specification, or entire document (I believe file history is also included). Following this search, I exported a list of Patent Pubs from Innogaphy and then uploaded it into PatentAdvisor.

Innography contains many algorithms and analytics that go beyond the traditional patent search. Through Innography's PatentStrength, users can compare the strength of groups of patents, such as two companies' portfolios. Innography also contains text analytics, showing the most frequently-used phrases to characterize a group of patents. Additionally, Innography has over 10 million data-correction rules and machine learning algorithms that automatically fix company name mis-spellings and subsidiaries for over 100,00 companies. Innography data fills elements in the raw PTO data that are missing. For example, US patents granted before 2013 don't have CPC codes, but Innography inserts them through mappings to the then-existing classification codes. Additionally, Innography predictively infers the company owner from the inventor and address information provided in an application if the application does not contain any company information.

Innography has many benefits. First, it improves data quality, as completeness and data accuracy are improved significantly through its data filling procedures. Second, it allows users to find relevant patents. Innography offers two types of search capabilities -- semantic search and metadata search which are driven by analytics and numerical algorithms. Therefore, the search tool does not rely on keyword searches alone. Last, Innography saves times by targeting relevant patents, characterizing patent sets, quickly returning search results, and allowing drill-down to underlying information.

Company: TURBOPATENT

The TurboPatent Automated Invention Protection (AIP) solution leverages automation and AI-based technologies to streamline the patent process, enabling experienced patent professionals to quickly, easily, and cost-effectively deliver quality invention protection. TurboPatent increases patent quality while reducing cost and turn-around time by automating and streamlining patent drafting, prosecution, and quality evaluation.

The core technology behind TurboPatent is the TurboPatent Machine. The TurboPatent Machine evaluates patent quality by utilizing advanced patent-specific algorithms, natural language processing, and machine learning to identify technical defects within a patent asset. This machine is trained using the USPTO's patenting guidelines as well as statistical models based on thousands of recently granted patents to ensure the most accurate, up-to-date results.

When the Machine is applied to patent document preparation, TurboPatent rapidly generates patent assets of the utmost quality. When applied to drafted applications and patents, the TurboPatent Machine enables the rapid quality review of patent assets—from individual applications to full portfolio reviews.

TurboPatent alls uses analytic tools, resembling the information provided by PatentAdvisor, to inform strategy and decision making. It also includes the following additional features:

- **RoboReview** - analyzes draft patent applications for issues regarding § 101 (patentability), § 112 (antecedent basis, claim support, and term consistency), and § 102/103 (novelty/obviousness). Provides prediction of art unit assignment.
- **RapidResponse** - prepares a response shell, tracks claim amendments, updates claim dependencies, and prepares claim amendment summary.

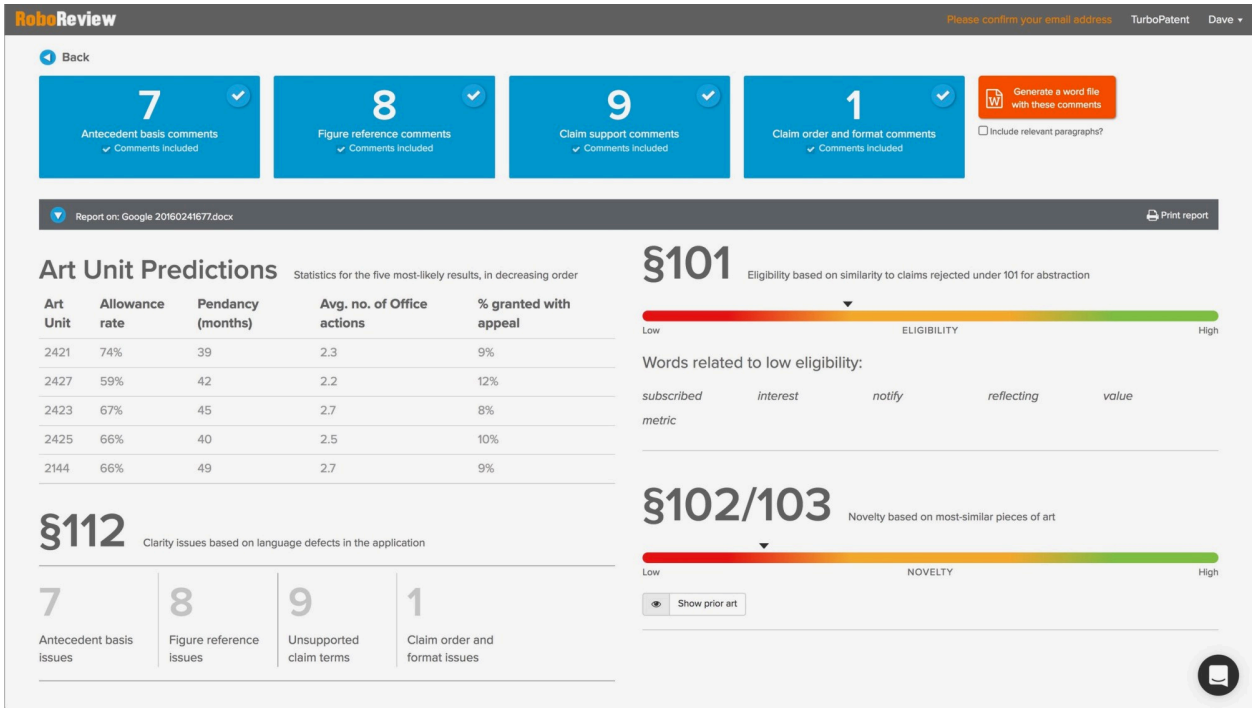
Both of these tools utilize AI. TurboPatent Company's founder Charles Mihro, said Robo review "substitutes human review within a law firm of patent application drafts, performing a review that is on par with the analysis of an experienced patent attorney but in far shorter time and much lower cost"

"When a patent attorney writes an application, often it will be reviewed by various parties in the firm prior to sending it to the client," Mirho said. "We have robots that will actually read the application, then, right in the Word document, make comments and suggestions on how to improve the document, just like Word's "track changes" feature."

To use RoboReview, a lawyer drags and drops the draft application onto the platform. RoboReview then analyzes the document and generates two reports:

1. Predictive analytics to inform strategy and set expectations. These include predictions for the most-likely art units, patent eligibility and patent novelty.
2. Automatic application review, which provides review comments in the familiar format of Microsoft Word.

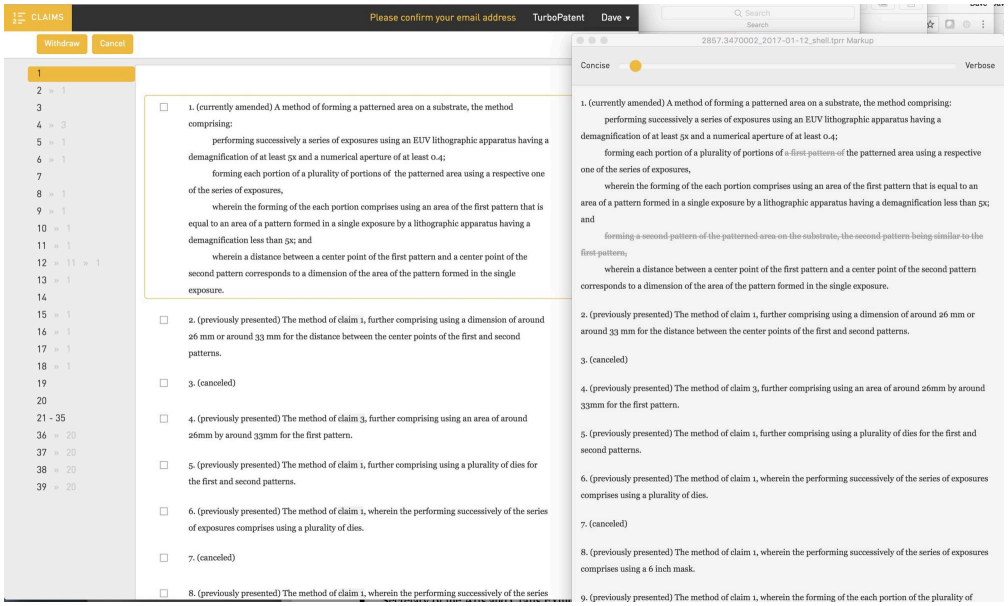
A sample output is shown below:



RapidResponse utilizes AI to:

- Automatically calculate and present claim status indicators in real time.
- Auto-generate textual summary of claim amendments.
- Auto-format amended claims with USPTO compliant markup.
- Present live preview of markup while editing.
- Automatically number, order and adjust for dependencies.
- Detect claims with a canceled parent.
- Export claims to Microsoft Word format with markup and status indicators shown or hidden.
- Import clean claims with status.
- Import currently amended claims with markup.Predictive analytics to inform strategy and set expectations.

A sample output of RapidRespons is shown below:



Source: Robert Ambrogi, TurboPatent Introduces Two AI-Powered Tools for Patent Lawyers, LawSites (June 28, 2017) **https://www.lawsitesblog.com/2017/06/turbopatent-introduces-two-ai-powered-tools-patent-lawyers.html**.

Company: IP Logic Systems

Overview

The company is focused on scoring issued patents so that users can better understand the value of their patents, and importantly, which ones are most likely to be invalidated.

Technology and Services

The company is pretty vague in it description of how its technology assigns a risk score value to a patent, this is most likely due to the start-up nature of the company and want to protect its IP before fully releasing. What is mentioned on their website is what they are calling their “Patent Validation Machine,” which utilizes “data-driven and rules-based prediction models” to answer real life questions posed as if they are one lawyer talking to another. An example of a question that could be asked is provided on the website as “Does this claim contain patent-ineligible subject matter under § 101?”

IPLS’s other application has the ability to generate “Patent Reports,” which uses natural language processing and machine learning techniques to process millions of patent claims and deliver strategic insights into patent procurement, maintenance, monetization, and enforcement. These reports can be generated at each stage of the patent lifecycle: (1) The prior art search provides the most relevant prior art given an invention disclosure or patent application, (2) the validity assessment highlights risky phrases in claim language and predicts claim rejections, (3) the maintenance summary suggests patents that should be maintained or monetized, and (4) the enforcement portion of a report finds candidate claims for enforcement support.

The reports also generate risk scores for specific patent claims at specific points in the application using public domain and proprietary sources of data to train a machine learning model capable of analyzing patent claims. The computer-generated risk score represents the likelihood a patent claim is invalid under a specific rule of law, e.g. § 101 subject matter eligibility. Patent risk scores take into consideration Technology Classification, Group Art Unit, Examiner, case law, and more.

Lastly, IPLS provides its APIs for developers who wish to integrate the IPLS analytics into their software. The API provides access to tools and data, including risk models, text classifiers, document databases, OMR/OCR tools, claim tagging engine, corpus builder, and other utilities, for both patent and trademark services. They offer this as a machine learning as a service (MLaaS) platform that can be used to make intellectual property predictions of any kind.

Company: Juristat

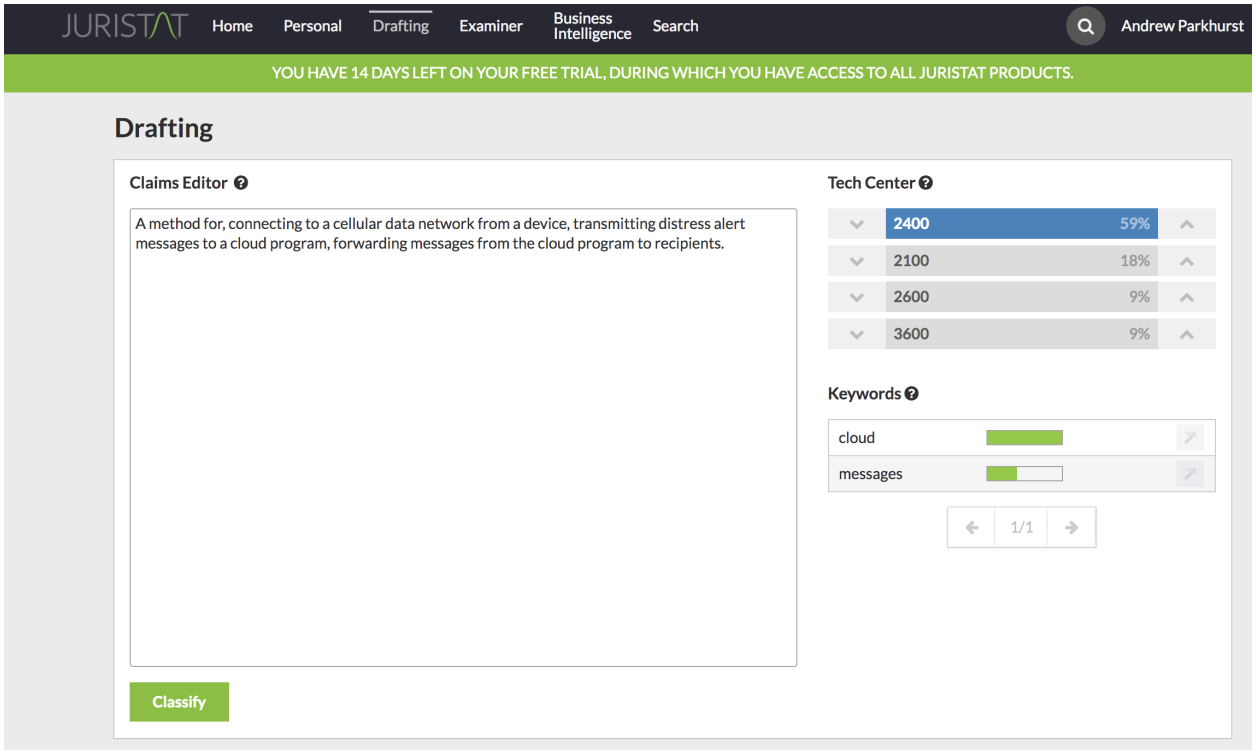
Overview

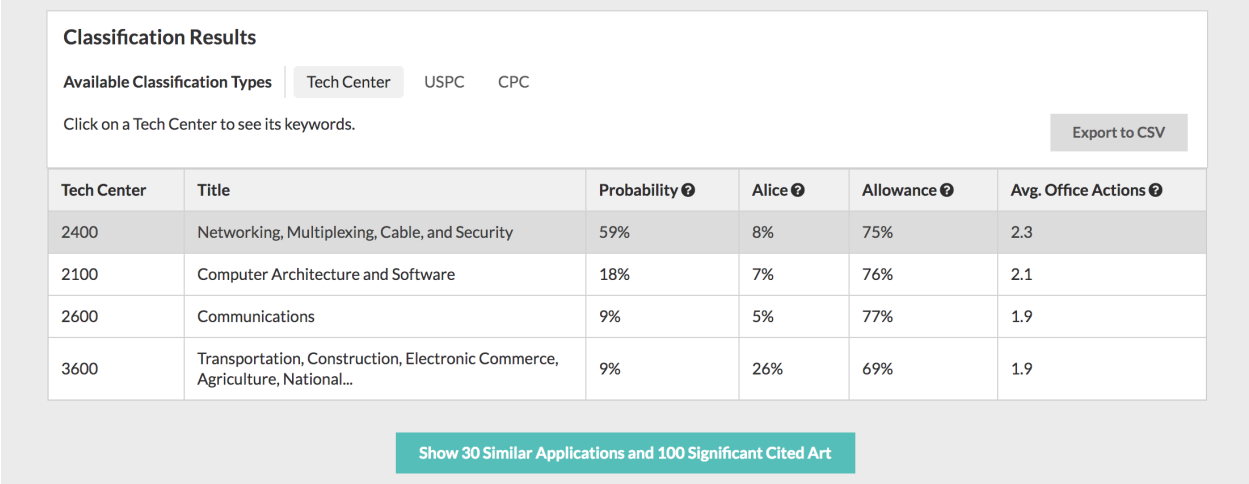
Juristat is primarily a patent drafting tool with data compiled to analyze claims, applications, and examiner data. The full PDF on Juristat's products is available here.

Technology and Services

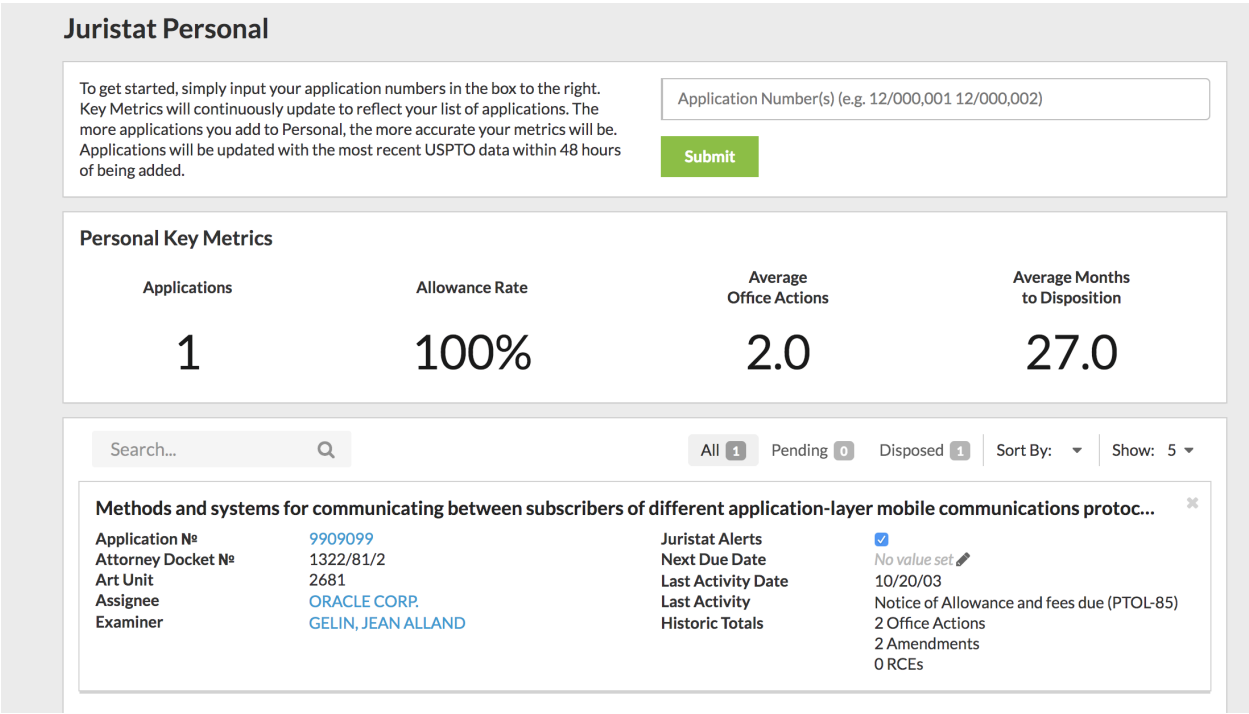
The Juristat suite has tools for analyzing patent applications that are pending, checking claims for probability of success, providing data on specific examiners, and searching for patent applications that might be relevant to someone seeking to file a patent application.

Juristat Drafting is a tool that allows the user to enter in their claim language they are seeking to patent get a report that classifies the language by tech center and USPC/CPC designation. It also compares the language to other patented claims for likelihood that the claim be be allowed out of a given tech center. The tool also provides a link to relevant prior art references that may impact the application. Below are some screenshot examples of the output for a given claim inserted into the drafting window.



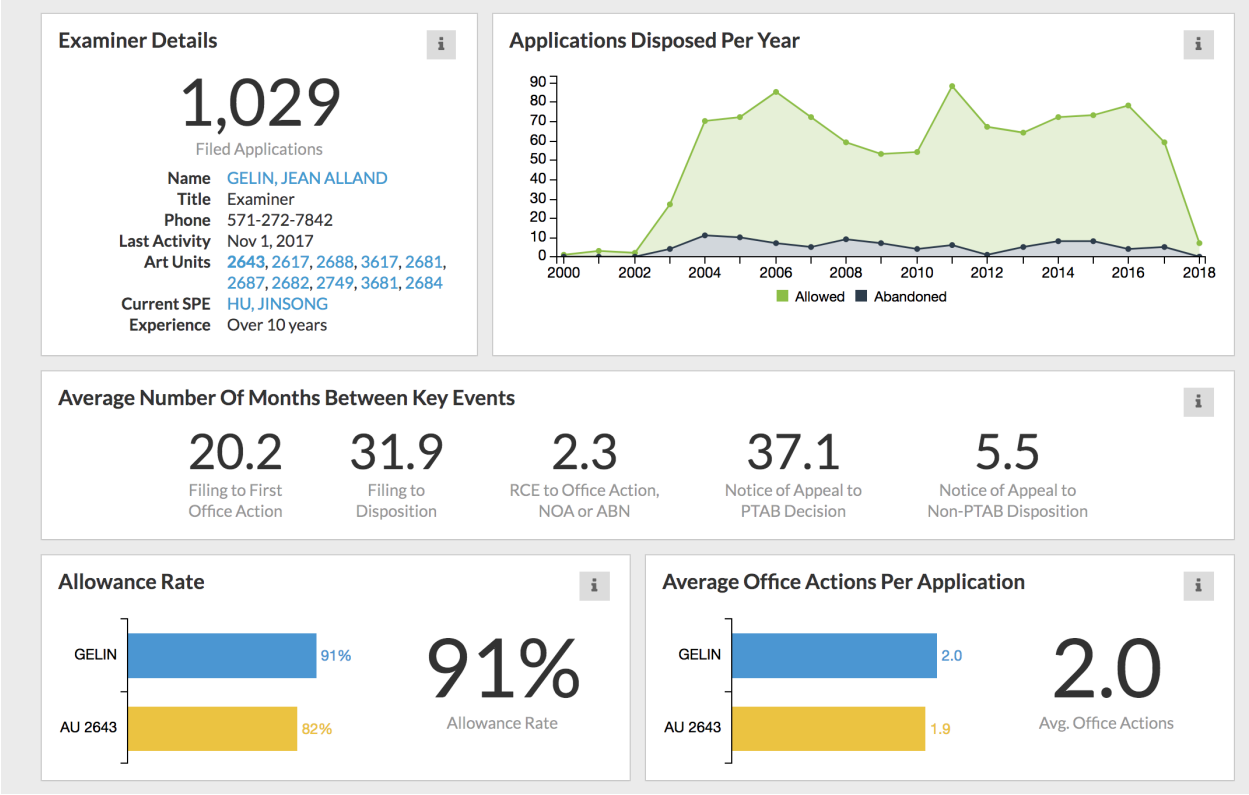


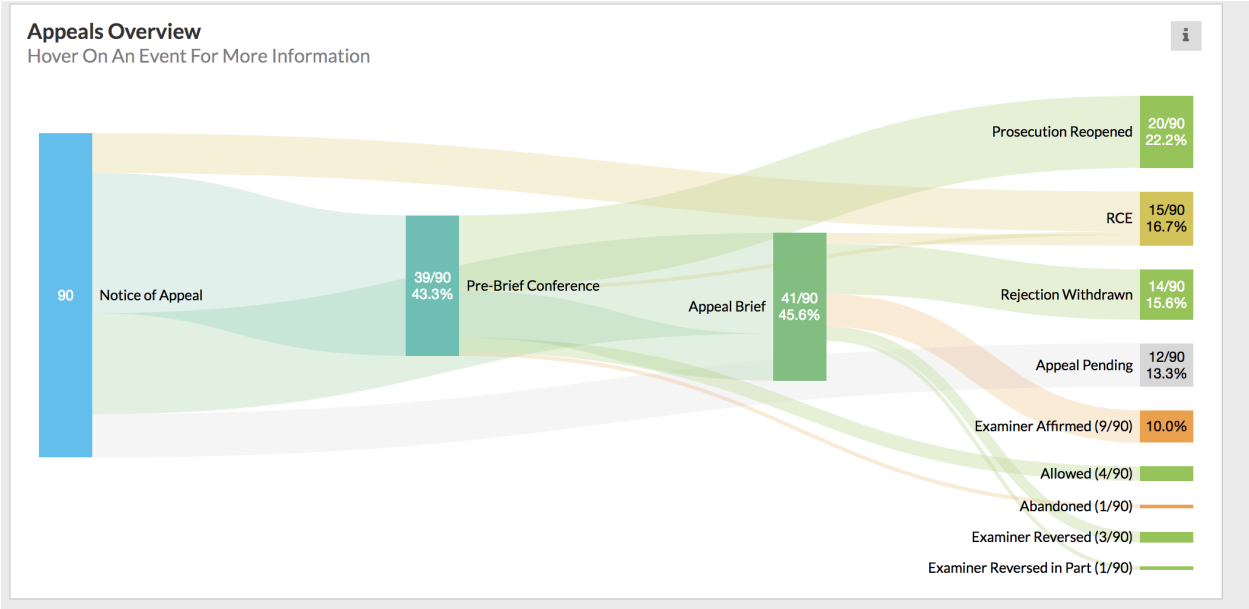
Juristat Personal allows a user to track certain applications side by side and get predictions of allowability and number of office actions. The tool can be used to track internal applications, as well as applications from competitors or ones in which inventors may think their is a potential to impact their applications. Below is a screenshot of an output when entering a patent application. I used an already patented invention which is why the Allowance Rate displays “100%.”



Juristat Examiner is a product that can produce a report on specific examiners. The report can be used to see a wide range of data on the examiner including their allowance rate, the likelihood that they are reversed on appeal, and what the typical disposition is after final denial. Below are screenshots that are a sample of one examiners history. These analytics are intended

to help patent seekers understand their examiner and what they can expect based on the examiner's history.





These products seem very similar to those offered by Lexis Patent Advisor. I talked to their tutorial provider and he said that the tool use scraping software to pull out data from millions of

publicly available patent application. Because the patent applications are publicly available I'm assuming Juristat and Patent Advisor are pulling similar data from the same sources.

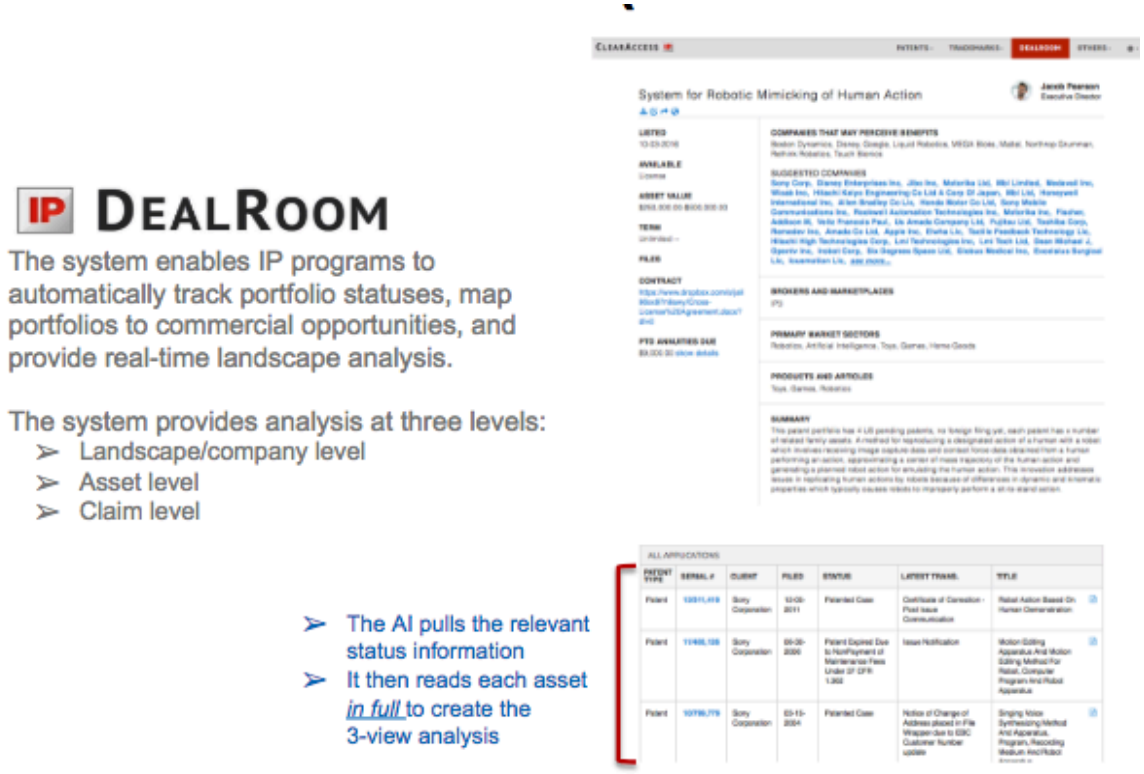
Company: ClearAccess IP

Overview

ClearAccessIP is a purpose-built solution for the end-to-end management of IP development and strategy. The company's mission is to virtualize and democratize the innovation economy by lowering the transaction costs associated with engaging in an IP transaction. The company uses AI to replicate and automate several processes that today take place either by hand or through inefficient software processes. The ultimate goal is to drive down the cost of these services to zero.

ClearAccessIP's AI Analyst and IPDealRoom

The engine behind the ClearAccessIP platform is ClearAccessIP's AI Analyst™, accessible through the IPDealRoom, shown here. IPDealRoom is a structured dataroom that is organized and shareable, making it easy for the viewer (or the buy-side in a transaction) to quickly understand what a patent (or its family) is all about.



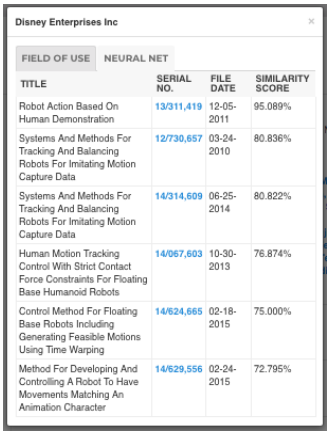
In just a few clicks, a user can generate an IPDealRoom and upload a patent of interest or a portfolio of related assets. The AI Analyst pulls the relevant docketing and status information, then reads each asset in full. It then searches the patent corpus to find the most related assets,

and creates a 3-level landscape search that the user can navigate based on her business purpose. This would take a consulting team hours or possibly days to do, and likely could only be done at a single level - the ClearAccessIP system can provide this in minutes.

ClearAccessIP's AI -Generated Landscape

The system provides a view of the landscape at three levels.

- Company level: The system provides a list of all companies with related patent filings. This gives the user a quick understanding of which companies are invested in the space, the level of investment, and how similar or different their investment hypotheses are to the input

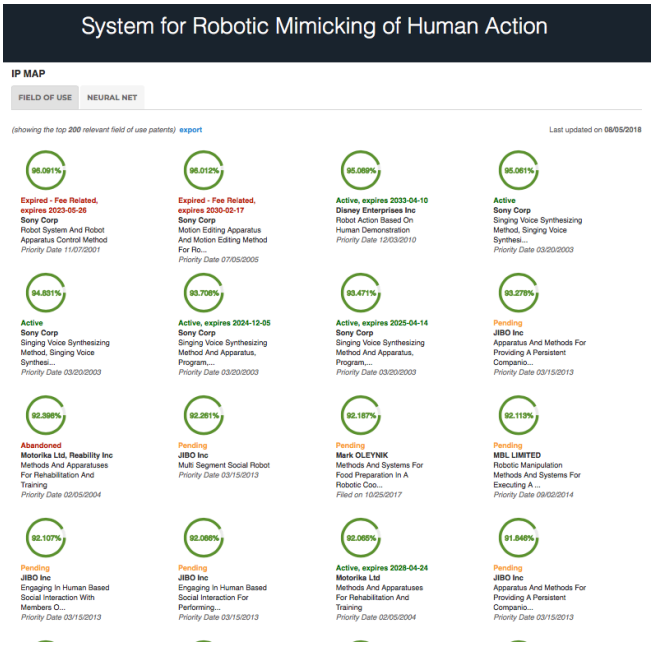


Disney Enterprises Inc

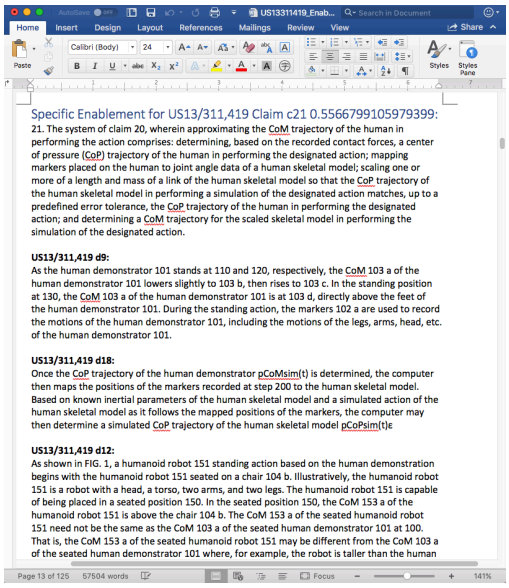
FIELD OF USE | NEURAL NET

TITLE	SERIAL NO.	FILE DATE	SIMILARITY SCORE
Robot Action Based On Human Demonstration	13/311,419	12-05-2011	95.089%
Systems And Methods For Tracking And Balancing Robots For Imitating Motion Capture Data	12/730,657	03-24-2010	80.836%
Systems And Methods For Tracking And Balancing Robots For Imitating Motion Capture Data	14/314,609	06-25-2014	80.822%
Human Motion Tracking Control With Strict Contact Force Constraints For Floating Base Humanoid Robots	14/067,603	10-30-2013	76.874%
Control Method For Floating Base Robots Including Generating Feasible Motions Using Time Warping	14/624,665	02-18-2015	75.000%
Method For Developing And Controlling A Robot To Have Movements Matching An Animation Character	14/629,556	02-24-2015	72.795%

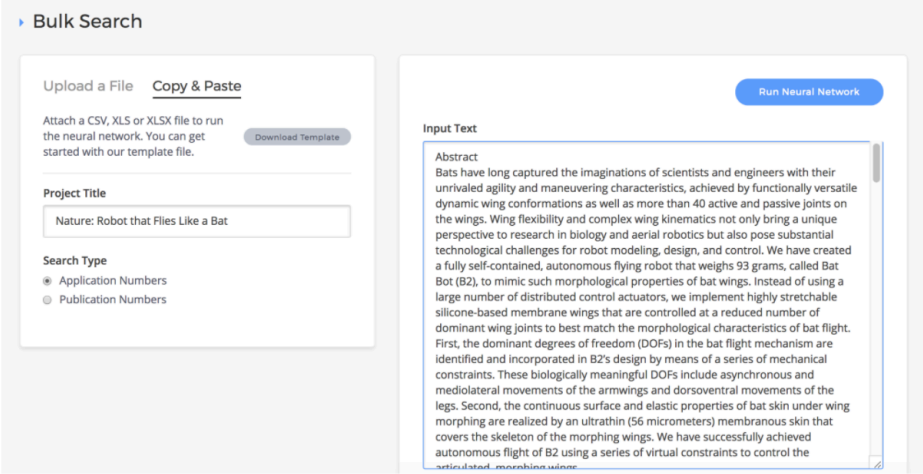
- Asset-by-asset level: This view identifies the 200 assets ranked in order of relevancy (and provides up to 1000 for export). This view is most effective for side-by-side comparisons, such as patentability searches ("knockout" searches)



- Claim level: This view provides the comparison between the claims of the input patent and the description of a second patent. The system also provides enablement reports (comparisons between the claims of a patent and its detailed description). This view is most effective for pinpoint searches for invalidity or FTO searches, where reviewing the claims is critical



For the expert user, ClearAccessIP provides a bulk processing tool as part of the subscription. In the “bulk search” feature shown here, a user can query the entire patent corpus by inputting a simple description in plain English. The system returns a ranked list of assets in order of relevance to that definition. For sifting through portfolios quickly, ClearAccessIP provides a

clustering tool, allows a user to search a portfolio based on a taxonomy of natural language descriptors. The system returns a ranked list of assets from that input portfolio, ranked in order of relevance to the taxonomy definitions.

- Researching scientific articles against the patent corpus.