Freedom-to-Operate Report
for a software for performing FTO analysis

Structure of the Report

1. Executive Report

1.1. Summary

This Freedom-to-Operate (FTO) analysis assesses the intellectual property landscape for a proposed software tool designed to automate and enhance FTO assessments. Key functionalities of the software include advanced IP data retrieval, patent claims analysis, and visualization tools aimed at streamlining the identification and management of potential IP risks.

1.2. Key Findings

1. **Patent Landscape**:
   o **114 relevant patents** were identified, with **10 high-risk patents** demonstrating significant overlap with the proposed functionalities. These patents primarily cover areas such as **claims parsing**, **patent mapping**, **hierarchical visualizations**, and **natural language processing workflows**.
   o High-risk patents from **ClearstoneIP**, **Black Hills IP Holdings**, and **Search for Yeti, LLC** are critical, as they define essential methods for IP analysis and visualization.
   o Moderate-risk patents, while relevant, present manageable overlap with some functionalities, such as **relevancy scoring systems** and **data-driven prioritization tools**.
   o Pending patents, such as **US-2020050638-A1**, remain uncertain in scope but could present future risks upon grant.
2. **Opportunities**:
   o **Expired and near-expiration patents** offer potential for leveraging foundational technologies.
   o Emerging **machine learning-driven search algorithms** (e.g., **US-11308320-B2**) and **claims indexing workflows** provide inspiration for unique differentiators.

1.3. Strategic Recommendations

1. **Design Differentiation**:
   o Avoid **direct replication** of patented methodologies in **claims parsing**, **data mapping**, and **hierarchical visualizations**. Focus on:

- Developing **proprietary search workflows** distinct from those detailed in **US-9858319-B2** and **US-11682091-B2**.
- Designing **custom NLP algorithms** for claim segmentation and relevancy matching that steer clear of workflows in **US-11308320-B2** and **US-2020050638-A1**.

2. **Licensing Agreements**:
   o Explore licensing opportunities with **ClearstoneIP**, **Black Hills IP Holdings**, and **Search for Yeti, LLC** to access patented technologies integral to claims parsing, hierarchical mapping, and infringement analysis.
   o Prioritize partnerships for patents such as **US-9858319-B2** and **US-2019073730-A1**, which cover critical features of the proposed software.

3. **Opportunities in Expired Patents**:
   o Utilize **expired or near-expiration patents** in patent mapping and portfolio management as a foundation for new implementations.
   o Innovate beyond the basic frameworks to ensure compliance while offering enhanced functionalities.

4. **Ongoing Monitoring**:
   o Establish a system for regular patent landscape reviews to track **pending patents** (e.g., **US-2020050638-A1**) for grant status updates.
   o Monitor new filings for emerging risks in overlapping technological areas, particularly in **machine learning-enhanced patent analysis**.

5. **Proactive IP Strategy**:
   o Implement a robust **IP management system** to document design-around efforts, ensuring clear differentiation from existing patents.
   o Engage with IP counsel for regular audits of software functionalities against updated patent databases.

1.4. Conclusion

The analysis concludes that while moderate-to-high IP risks exist for the proposed FTO analysis software, these risks can be effectively managed through **strategic differentiation**, **licensing agreements**, and **proactive monitoring**. By leveraging expired patents, emerging NLP innovations, and partnerships with patent holders, the development team can ensure compliance and position the product competitively within the market. A proactive approach to IP management will safeguard the software's market entry and future scalability.

2. Introduction

2.1.   Background on the Software and its Relevance to Freedom-to-Operate (FTO)

In today's competitive intellectual property (IP) landscape, ensuring freedom to operate is paramount for innovators. This is especially critical for software systems designed to assist businesses in conducting FTO analyses. The proposed software seeks to redefine FTO analysis by integrating cutting-edge technologies, such as automated claims parsing and patent landscape visualization, to streamline the IP management process.

The software under analysis is still in its conceptualization phase, with functionalities aimed at addressing key pain points in the FTO process. As the software aspires to serve global users in jurisdictions with complex and varying patent laws, a comprehensive FTO analysis is crucial at this stage to ensure the product's market viability without infringing on active IP rights.

2.2.   Objectives of the Analysis

The primary objectives of this Freedom-to-Operate analysis are:

1. To identify existing patents that may pose potential risks or restrictions to the development and deployment of the software.
2. To assess the IP landscape surrounding similar technologies and functionalities, focusing on areas such as patent data integration, advanced search tools, and automated claims analysis.
3. To provide actionable recommendations for mitigating potential infringement risks, including alternative design suggestions or licensing strategies.
4. To ensure alignment with patent laws in key jurisdictions to facilitate seamless global market entry.

2.3.   Defined Scope of Software Functionalities

The software is envisioned to include the following core functionalities:

1. **Patent Data Integration**: Direct access to major patent databases such as Google Patents, USPTO, EPO, and others, enabling automated, customized searches for patents.
2. **Advanced Search and Filtering**: Robust filtering options based on keywords, assignees, inventors, classifications, publication dates, and legal status.
3. **Automated Claims Analysis**: Parsing patent claims to highlight potential overlaps with user technologies, focusing on both primary and dependent claims.
4. **Risk Assessment and Prioritization**: An algorithm-driven risk assessment tool for identifying and prioritizing high-risk patents.
5. **Patent Landscape Mapping**: Visual representations of patent data, emphasizing areas of high patent density or concentration by geography, technology, or assignee.

6. **Reporting and Documentation**: Customizable reporting tools to export FTO results for legal and development teams.

This analysis evaluates the patent landscape specifically relevant to these functionalities, ensuring a focused approach to potential IP risks.

2.4. Search Criteria and Sources Used

A thorough patent search was conducted to map the existing IP landscape for software providing FTO analysis functionalities. The key elements of the search methodology include:

1. **Keywords**: Searches employed terms such as "software," "freedom to operate," "patent analysis," "claims analysis," and "automated patent search."
2. **Boolean Operators**: Boolean logic, such as "software" AND "patent" AND "freedom to operate," refined search results for precision.
3. **Patent Databases**: Primary resources included Google Patents, USPTO, EPO, and other global patent databases.
4. **Jurisdictions**: The analysis prioritized patents from the United States, Europe, Japan, China, and South Korea, reflecting regions with robust software patent protections.

2.5. Geographic Focus and Market Applicability

The software aims to cater to a global audience, necessitating compliance with diverse regional patent standards. Specific focus is given to jurisdictions where software patent laws are rigorously enforced. By examining IP requirements across these markets, this analysis helps ensure the software's adaptability to regional IP frameworks, reducing legal risks and enhancing market readiness.

This comprehensive introduction establishes the foundation for evaluating the patent landscape and guiding the development of the proposed software. Subsequent chapters will delve deeper into specific findings and strategies for achieving freedom to operate.

3. Methodology

Approach to the Freedom-to-Operate Analysis

The methodology adopted for this Freedom-to-Operate (FTO) analysis aims to ensure a comprehensive understanding of the intellectual property landscape relevant to the software's functionalities. This chapter outlines the systematic steps undertaken to identify, filter, and analyze patents, ensuring that all potential risks are addressed and actionable insights are provided.

3.1. Step 1: Identification of Relevant Patents

3.1.1. Defining Search Parameters

The first step involved constructing a robust search strategy to identify patents that may intersect with the proposed software's functionalities. Key parameters included:

- **Keywords**: Searches were based on critical terms such as:
  - "Software" AND "patent" AND "freedom to operate."
  - "Automated patent search."
  - "Claims analysis tools."
  - "Patent landscape mapping software."
- **Boolean Logic**: Boolean operators (e.g., AND, OR, NOT) were used to refine searches for precision and eliminate irrelevant results.
- **Patent Classifications**: Searches leveraged International Patent Classification (IPC) codes relevant to software for intellectual property management.

3.1.2. Data Sources

The analysis sourced patent data from major databases, ensuring comprehensive coverage:

- **WIPO (World Intellectual Property Organization)**: The WIPO PATENTSCOPE database was utilized to identify international patent applications.
- **Google Patents**: For its wide range of indexed patents from multiple jurisdictions.
- **USPTO (United States Patent and Trademark Office)**: A critical database for U.S. patents, particularly in the software domain.
- **European Patent Office (EPO)**: Covering key European jurisdictions where software patenting is increasingly significant.
- **Other Databases**: Regional sources from Japan, South Korea, and China to capture additional markets with strong software IP enforcement.

3.1.3. Jurisdictional Considerations

To ensure global applicability, the analysis emphasized patents filed in jurisdictions where software protection is most relevant:

- **United States**: Known for its broad approach to software patenting.
- **Europe**: Where software-related patents often face stricter eligibility criteria.
- **Asia (Japan, China, South Korea)**: Important for market expansion due to high patenting activity in software.

3.2. Step 2: Filtering and Screening

3.2.1. Preliminary Filtering

The initial pool of patents identified exceeded 19,000 results, reflecting a broad and diverse landscape. Using the following filters, the dataset was reduced to a manageable set:

- **Keywords and Abstracts**: Inclusion of only patents with abstracts explicitly mentioning software functionalities relevant to FTO, such as claims analysis or patent mapping.
- **Assignees**: Focus on entities that dominate the IP management software space.
- **Filing Dates**: Emphasis on patents filed within the past 15 years, ensuring relevance to contemporary technological standards.

3.2.2. Legal Status and Claims Relevance

Further screening involved examining:

- **Legal Status**: Active patents were prioritized, while expired or lapsed patents were documented for potential opportunities.
- **Claims Review**: Patents were filtered based on the relevance of their claims to the proposed functionalities.

3.3. Step 3: In-Depth Analysis

3.3.1. Categorizing Identified Patents

The filtered patents were organized into categories aligned with the software's defined functionalities:

1. **Patent Data Integration**: Patents covering data aggregation, database interfacing, and automated retrieval tools.
2. **Advanced Search and Filtering**: IP addressing search algorithms, keyword processing, and Boolean logic applications.
3. **Automated Claims Analysis**: Focused on natural language processing (NLP) tools for parsing claims and identifying overlaps.
4. **Risk Assessment and Prioritization**: Patents related to AI-driven risk scoring models.
5. **Patent Landscape Mapping**: Tools for visualizing geographic or technological IP concentrations.
6. **Reporting and Documentation**: Systems for generating customized FTO reports.

3.3.2. Claims Parsing and Overlap Identification

Each patent's claims were examined using both automated tools and manual review. Key factors assessed included:

- **Primary Claims**: To identify direct overlaps with the proposed software functionalities.
- **Dependent Claims**: To understand additional constraints or specific implementations that might limit the software's design.

3.3.3. Cross-Jurisdictional Analysis

To account for regional variations in software patent standards:

- **US Analysis**: Focused on broad, utility-based claims that dominate the IP landscape.
- **EU Analysis**: Emphasized technical contributions, a requirement for software patents in Europe.
- **Asian Analysis**: Examined algorithmic protections, particularly in China and Japan, where software-related patents are increasing.

3.4.   Step 4: Risk Assessment

3.4.1. Prioritizing Risks
Identified patents were assigned risk scores based on:
- **Claim Similarity**: Degree of functional overlap with the proposed software.
- **Legal Status**: Active patents posed the highest risk; expired patents were flagged for potential adoption or reinterpretation.
- **Assignee Strength**: Risks associated with patents held by dominant players in the field.

3.4.2. Geographic Risks
Patents with broad jurisdictional coverage (e.g., PCT filings) were flagged for careful review to assess potential global conflicts.

3.5.   Step 5: Visualization and Reporting

3.5.1. Patent Landscape Mapping
A visual representation of the analyzed patents was created, highlighting:
- Patent density by jurisdiction.
- Key assignees dominating the space.
- Trends in filing dates and technological focus areas.

3.5.2. Customizable Reports
The findings were compiled into a structured, exportable format to aid stakeholders in legal and product development teams. These reports included:
- A summary of high-risk patents.
- Recommendations for design changes or licensing.

Summary
This methodology ensured a thorough and systematic analysis of the patent landscape. By combining advanced search strategies, filtering mechanisms, and in-depth claim reviews, the FTO analysis provides actionable insights to mitigate risks and support the successful development of the proposed software.

4. Patent Landscape Analysis

Overview of the Patent Landscape

The patent landscape for software supporting Freedom-to-Operate (FTO) analysis is both vast and dynamic, reflecting the growing importance of automation and advanced tools in intellectual property (IP) management. This chapter provides a detailed analysis of the landscape, focusing on the following:

- Key players and their patent portfolios.
- Trends in patent filings and technological focus.
- Identification of overlapping claims and potential risks.
- Opportunities in expired or lapsed patents.

The analysis draws from a comprehensive review of patent data sourced from major jurisdictions and databases, emphasizing software functionalities aligned with the proposed product.

4.1. Key Findings

4.1.1. Dominant Players in the Software FTO Space

Several entities have emerged as key players in the domain of software for patent management and analysis. These organizations own significant patent portfolios that cover tools and methods relevant to the proposed software functionalities.

- **ClearstoneIP**: Specializes in automated IP portfolio analysis and claims mapping. Relevant patents include those addressing integration with patent databases and advanced search functionalities.
- **Black Hills IP Holdings**: Focused on automation tools for IP management, particularly claims parsing and risk assessment.
- **Search For Yeti, LLC**: Holds patents related to visualizing patent landscapes and interactive reporting tools.
- **Individual Innovators**: Several individual inventors hold niche patents addressing aspects of claims analysis and automated search functionalities.

3.2 Filing Trends

- **Increased Filing Activity**: Over the past decade, there has been a steady increase in filings related to IP management software, driven by advancements in artificial intelligence (AI) and data analytics.
- **Geographic Distribution**:
  - **United States**: The majority of relevant patents originate in the U.S., reflecting its broad software patent eligibility criteria.
  - **Europe**: Filing activity is more limited, with a focus on technical solutions that meet stringent patentability requirements.
  - **Asia**: Significant contributions from Japan and South Korea, particularly in algorithmic processes.

4.2. Categorization of Relevant Patents

4.2.1. Patent Data Integration
Patents in this category cover methods and systems for aggregating and interfacing with multiple patent databases.
- **Examples**:
  - US-9959582-B2: "Intellectual property information retrieval" by ClearstoneIP. This patent describes methods for integrating multiple data sources into a unified search interface.
  - US-2019073730-A1: Covers dynamic database interfacing for automated patent searches.

4.2.2. Advanced Search and Filtering
This category includes patents for tools that enhance the precision of patent searches through advanced filtering and algorithmic processing.
- **Examples**:
  - US-10902042-B2: "Patent claim reference generation," detailing systems for keyword-specific search filters.
  - US-11308320-B2: Advanced Boolean logic and natural language processing for refined searches.

4.2.3. Automated Claims Analysis
Patents in this category focus on parsing and analyzing claims to identify overlaps or risks.
- **Examples**:
  - US-9858319-B2: "Patent mapping" by Black Hills IP Holdings. Describes methods for automating claims analysis.
  - US-2023342798-A1: Use of AI in claims parsing for real-time risk assessment.

4.2.4. Risk Assessment and Prioritization
These patents cover systems that assess and rank the risk levels of identified patents based on claim similarity and legal status.
- **Examples**:
  - US-11682091-B2: AI-based risk prioritization tool for IP management.
  - US-9633403-B2: Systems for generating risk scores based on claim dependency analysis.

4.2.5. Patent Landscape Mapping
Focused on visual tools that represent patent data spatially or by technology categories.
- **Examples**:
  - US-10860657-B2: Systems for generating visual maps of patent concentration.
  - US-9858319-B2: Interactive dashboards for patent landscape analysis.

4.2.6. Reporting and Documentation
Patents in this category provide solutions for creating customizable reports from FTO analysis results.
- **Examples**:
  - US-2019073730-A1: Dynamic report generation for patent claims analysis.
  - US-2014052649-A1: Systems for generating exportable reports with legal summaries.

4.3. Risk Areas and Overlapping Claims

4.3.1. High-Risk Patents
Several patents were flagged for their potential overlap with the proposed software functionalities. These include:
- US-9959582-B2: Significant overlap in patent data integration and claims analysis tools.
- US-2019073730-A1: High relevance to automated claims parsing, requiring detailed review and possible design alterations.

4.3.2. Moderate-Risk Patents
Patents in this category present risks due to similar underlying functionalities but with less direct overlap.
- US-10902042-B2: The advanced filtering system may pose challenges if implemented similarly.
- US-11308320-B2: Potential overlap in search logic algorithms.

4.3.3. Low-Risk Patents
These patents were deemed less likely to impact the proposed software due to differences in scope or legal status.
- US-9858319-B2: Focused on specific visualization techniques not directly aligned with the software.
- US-2023342798-A1: Risk scoring methods distinct from the proposed implementation.

4.4. Opportunities in Expired or Lapsed Patents

4.4.1. Potentially Open Technology
Several expired patents present opportunities for leveraging open technology in the software's development.
- **Example**: US-2019073730-A1: Provides foundational techniques in claims analysis now potentially free for use.
- **Example**: AU-2013270517-B2, US-2012059851-A1: Early systems for patent landscape visualization, offering baseline methods.

4.4.2. Licensing and Partnerships
Active patents owned by collaborative entities or smaller assignees may present opportunities for licensing agreements or partnerships.
- **Example**: US-10860657-B2, US-2006026174-A1: Potential for collaboration on visualization tools.

4.5. Visualizing the Patent Landscape

4.5.1. Assignee Concentration

Here are the most prolific assignee groups based on the number of patents:

- **3 Patents**:

- o Tata Consultancy Services Limited
- o American Chemical Society
- **2 Patents**:
  - o Innovation International Americas, Inc.
  - o Aurigin Systems, Inc.
  - o Bao Tran
  - o Cpa Global Patent Research Limited
  - o Aon Risk Services, Inc. Of Maryland
  - o Ingenious E-Brain Solutions Pvt Ltd
  - o IP Street
  - o General Electric Company
  - o Black Hills IP Holdings, LLC
  - o Gary J. Speier

4.5.2. <u>Geographic Trends</u>

Over 70% of the identified patents originate in the U.S., with a smaller yet significant presence in Europe and Asia.

Region	Number of Patents
US	88
Europe	6
World Patents	13
Australia	3
Canada	2
South Korea	1
China	1

4.5.3. <u>Temporal Trends</u>

Filing activity peaked between 2010-2020, reflecting the increased adoption of AI in IP management.

Temporal Trend of Patents (Aligned to 5-Year Periods)
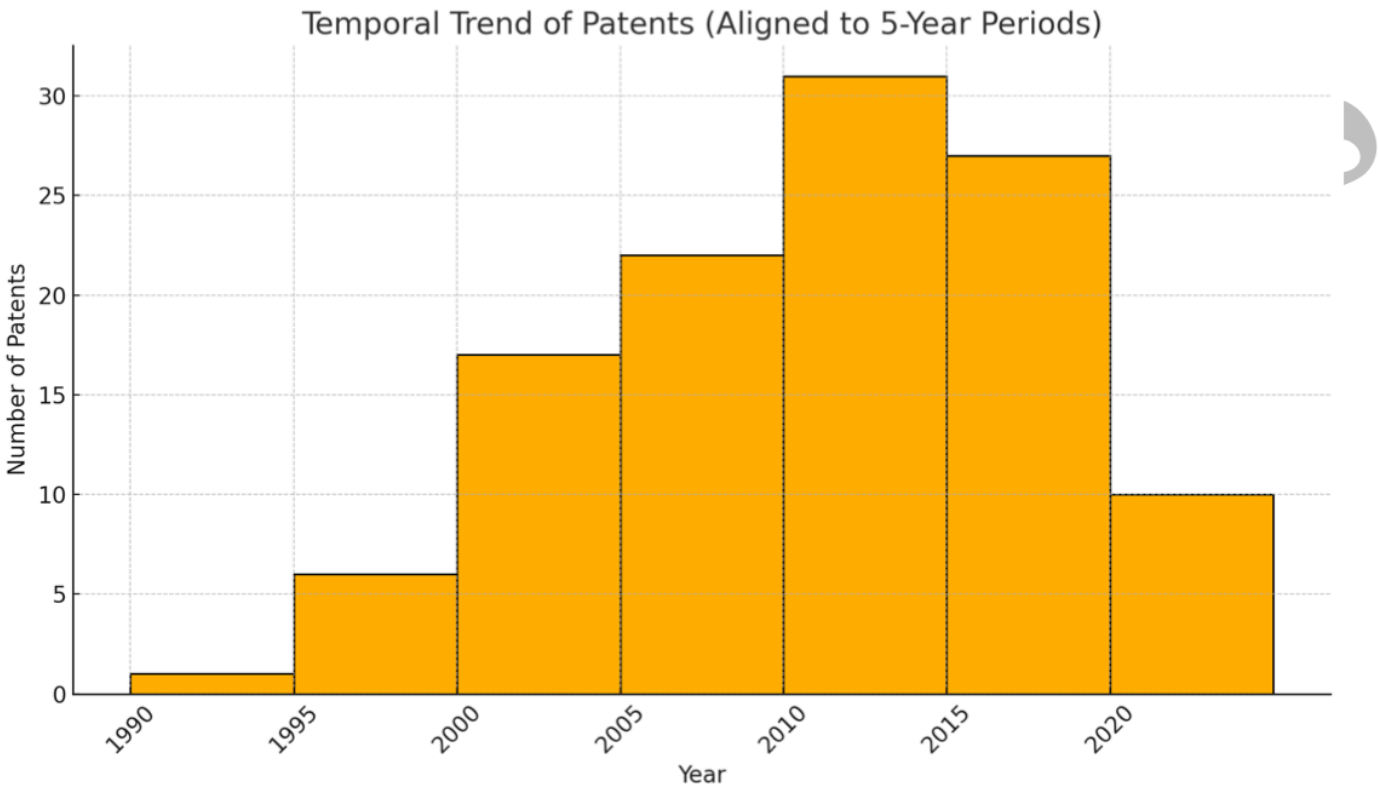
Summary

This chapter provides a comprehensive view of the patent landscape relevant to the proposed software functionalities. By categorizing patents, assessing risks, and identifying opportunities, this analysis ensures a solid foundation for achieving freedom to operate while guiding future software development.

5. Detailed Patent Analysis

5.1. Relevant Patents

In this chapter, we conduct an in-depth analysis of ten patents identified as high-risk due to their significant overlap with the proposed software's functionalities, specifically in patent data integration, claims analysis tools, and automated claims parsing.

5.1.1. US-9959582-B2: Intellectual Property Information Retrieval

Patent Summary

Patent Number: US-9959582-B2
Title: Intellectual Property Information Retrieval
Assignee: ClearstoneIP
Inventors: Jesse D. Sukman, Joseph R. Aliperti, Gabriel S. Sukman
Key Dates:

- Priority Date: April 12, 2006
- Filing Date: October 23, 2014
- Grant Date: May 1, 2018

Abstract Overview:
This patent describes systems, methods, and media for creating and managing an **interactive hierarchical arrangement of technical elements**. These elements are tailored for **efficient patent infringement analysis**. The system correlates technical elements to patent claims during an annotation process, presenting genus-species relationships visually on a computer display. It enables users to select, de-select, and analyze claims efficiently.

Key Functionalities

1. **Interactive Hierarchical Arrangement**:
   o A user interface that displays hierarchical relationships between technical elements (e.g., genus-species relationships).
   o Users can interact with these elements to tailor their analysis.
2. **Claims-Based Correlations**:
   o Patent claims are annotated and correlated with technical elements.
   o Each correlation is visually represented for efficient navigation and understanding.
3. **Claim-by-Claim Annotation**:
   o Each patent claim is analyzed individually, ensuring detailed tracking of relationships to technical elements.
4. **Remote Storage and Web-Based Display**:
   o The data and correlations are stored remotely and accessed via a web browser, making the system scalable and accessible.

Relevance to Proposed Software

The patent's functionalities align closely with the proposed software in the following ways:

1. **Patent Data Integration**:
   o The hierarchical arrangement mirrors a structured way of managing and retrieving patent data, which is central to the proposed software's design.
2. **Claims-Based Analysis**:
   o The detailed annotation and correlation of claims resonate with the software's claims parsing and risk assessment goals.
3. **Visualization Tools**:
   o The hierarchical genus-species relationship visualization complements the proposed software's patent landscape mapping feature.

Key Claims

Independent Claims:

1. A method for creating an interactive hierarchical arrangement of technical elements useful for patent infringement analysis.
2. Storing records of technical characteristics and correlating them to patent claims.
3. Visualizing correlations and hierarchical relationships on a user-engageable display.

Dependent Claims:

1. Adding alternative technical characteristics and annotating them with claims.
2. Positioning hierarchical elements for genus-species visualization.
3. Enabling claim-by-claim correlations through user interactions.
4. Storing records and displaying arrangements via remote servers and web browsers.

Potential Overlap with Proposed Software

The overlap lies primarily in these areas:

1. **Hierarchical Display of Patent Data**:
   o The patent's methodology for displaying genus-species relationships may overlap with the software's visualization tools for patent landscapes.
2. **Claims Annotation and Correlation**:
   o The software's planned feature to parse and map claims could intersect with the claim annotation processes described in this patent.
3. **Web-Based Accessibility**:
   o Both systems use remote data storage and web interfaces, which could present implementation similarities.

Risk Assessment

- **High Risk**: The hierarchical arrangement of elements and claim-based annotation functionalities could lead to direct infringement if implemented similarly.
- **Medium Risk**: The visualization and web-based accessibility components present a moderate risk due to their commonality in IP management tools.

Recommendations

1. **Differentiation in Hierarchical Display**:
   - Instead of replicating genus-species visualizations, consider alternative representations such as radial or clustered layouts.
2. **Claim Annotation Alternatives**:
   - Focus on semantic analysis or keyword tagging rather than direct correlation to hierarchical technical elements.
3. **Licensing or Collaboration**:
   - Explore licensing agreements with ClearstoneIP to mitigate risks or collaborate on shared functionalities.
4. **R&D on Novel Visualizations**:
   - Invest in R&D to innovate new ways of visualizing hierarchical relationships to bypass potential overlaps.

Future Monitoring

- **Patent Family Expansion**:
   - Monitor whether ClearstoneIP expands this patent into related jurisdictions or additional claims.
- **Market Activity**:
   - Track ClearstoneIP's market activities to evaluate their enforcement strategies and potential willingness for partnerships.

5.1.2. US-10902042-B2: Patent Claim Reference Generation

Patent Summary

Patent Number: US-10902042-B2
Title: Patent Claim Reference Generation
Assignee: Gary J. Speier
Inventor: Gary J. Speier
Key Dates:

- **Priority Date**: June 7, 2006
- **Filing Date**: June 8, 2015
- **Grant Date**: January 26, 2021

Abstract Overview:
The patent describes a **method and system for generating references for patent claims**. It includes a user interface that allows a user to interact with claim limitations by activating them, retrieving associated intrinsic or extrinsic evidence, and presenting the evidence through various display mechanisms like popups or segmented screens.

Key Functionalities

1. **Patent Reference Database**:
   - A centralized database storing patent records, including claim limitations and their corresponding intrinsic evidence.
2. **Interactive User Interface**:
   - Enables users to engage with claim limitations via activatable elements in the interface.
   - Offers functionalities like hover interactions and popup menus for detailed evidence retrieval.
3. **Evidence Retrieval and Display**:
   - Supports querying the database for intrinsic evidence (e.g., terms defined in the patent specification) and extrinsic evidence (e.g., external references).
   - Displays evidence in dynamic formats, including popups, segmented displays, and linked menus.
4. **Segmentation of User Interface**:
   - The interface divides into sections for claims and associated evidence, improving navigation and analysis.
5. **System and Medium Implementations**:
   - Covers systems, computer-readable media, and methods to perform these operations.

Relevance to Proposed Software

This patent aligns with the proposed software's functionalities in the following ways:

1. **Claims-Based Data Retrieval**:
   o The ability to associate claim limitations with intrinsic and extrinsic evidence overlaps with the proposed software's claims parsing and analysis.
2. **Interactive Visualization**:
   o The dynamic interface for activating claims and viewing evidence parallels the proposed software's focus on user-friendly, interactive visualization tools.
3. **Database Querying**:
   o The querying mechanism for retrieving claim-specific evidence aligns with the software's database integration and advanced search functionalities.

Key Claims

Independent Claims:

1. A method for presenting activatable claim limitations, retrieving evidence, and displaying it in a user interface.
2. A system with a patent reference database, query mechanism, and dynamic user interface for presenting claim-related evidence.

Dependent Claims:

1. Popup menus for references (e.g., intrinsic evidence for claim limitations).
2. Evidence presentation methods, including hover interactions and segmented displays.
3. Retrieval and display of specification sections relevant to claim limitations.
4. Options for toggling between intrinsic and extrinsic evidence.
5. Various system and media implementations for executing these methods.

Potential Overlap with Proposed Software

The overlap lies primarily in these areas:

1. **Interactive Claim Analysis**:
   o Activatable claim elements and dynamic evidence retrieval closely match the proposed software's interactive claims parsing.
2. **Database Integration**:
   o Storing and querying claim-related evidence mirrors the proposed software's planned data integration mechanisms.

3. **Dynamic Evidence Display**:
   o The use of popup menus and segmented interfaces for evidence presentation could overlap with the software's visualization and reporting tools.

Risk Assessment

- **High Risk**: The dynamic user interface for claims-based interactions and evidence retrieval is central to this patent and closely aligns with the proposed software's features.
- **Medium Risk**: Querying a patent database for evidence is a common functionality, but its implementation specifics may present risks depending on similarity.

Recommendations

1. **Innovative UI Design**:
   o Avoid direct replication of popup menus and hover interactions. Explore alternative visualizations such as tree structures or radial diagrams for presenting evidence.
2. **Semantic and Contextual Analysis**:
   o Instead of focusing solely on intrinsic/extrinsic evidence, implement semantic analysis tools to derive insights from claims.
3. **Licensing Considerations**:
   o Engage with the assignee for potential licensing agreements if the proposed software heavily relies on similar interactive claim functionalities.
4. **Focus on Novel Querying**:
   o Enhance querying mechanisms by incorporating AI-driven techniques or predictive analytics to differentiate from the patented system.

Future Monitoring

1. **Patent Family Developments**:
   o Track whether this patent family expands into related jurisdictions or introduces additional claims.
2. **Market Applications**:
   o Observe if the assignee commercializes this system in tools that could compete with the proposed software.

5.1.3. US-11682091-B2: Management Systems and Methods for Claim-Based Analysis

Patent Summary

Patent Number: US-11682091-B2
Title: Management Systems and Methods for Claim-Based Patent Analysis
Assignee: ClearstoneIP, Inc.
Inventors: Gabriel Sukman, Joseph Aliperti, Jesse Sukman
Key Dates:

- **Priority Date**: January 12, 2018
- **Filing Date**: August 26, 2022
- **Grant Date**: June 20, 2023

Abstract Overview:
This patent provides **systems, methods, and graphical interfaces** for managing and coordinating patent analyses, such as **freedom-to-operate (FTO)** and patent clearance. It emphasizes **claim-based workflows**, enabling users to capture and store work product at the claim and document levels. The system integrates data management to connect product details, patent documents, and analysis records.

Key Functionalities

1. **Claim-Based Patent Analysis**:
   o Facilitates detailed patent analysis on a claim-by-claim basis.
   o Captures user-generated insights for each claim.
2. **Integrated Data Management**:
   o Links product records, review records, and patent documents for seamless analysis.
   o Retrieves patent details such as claim text, legal events, classifications, and inventor information.
3. **User-Engageable Interfaces**:
   o Provides a dynamic review interface where users can interact with claim data and input analysis.
   o Displays claim text alongside work-product capture areas for streamlined analysis.
4. **Project and Review Management**:
   o Offers interfaces for managing product records and review records, enabling users to edit and organize data.
5. **Work Product Storage**:
   o Stores user inputs and analysis distinctively for each claim.
   o Allows historical work products to be reviewed and reused.

Relevance to Proposed Software

This patent is highly relevant to the proposed software in the following areas:

1. **Freedom-to-Operate Analysis**:
   o The workflows and claim-based storage mechanisms closely align with the software's focus on providing detailed FTO analysis.
2. **Data Integration and Management**:
   o The ability to interconnect product information, patent details, and analysis records mirrors the software's planned database integration and management tools.
3. **Interactive Review Interfaces**:
   o The patent's user interface for capturing claim-by-claim insights parallels the software's aim to offer intuitive visualization and interaction.
4. **Project and Record Management**:
   o The review and product record system provide a structured approach to managing large patent portfolios, akin to the software's objectives.

Key Claims

Independent Claims:

1. A method for storing product and review records, retrieving patent data, and enabling claim-by-claim analysis through a user interface.
2. A system comprising storage modules, retrieval mechanisms, and a review interface for managing claim-based patent analysis.

Dependent Claims:

1. Highlighting claim text in the review interface.
2. Restricting displayed claim text to independent claims for focused analysis.
3. Capturing distinct work product for different products in the review interface.
4. Associating additional "aspect records" (e.g., subcategories) with product records.
5. Displaying related patent metadata, such as assignee and classification information.

Potential Overlap with Proposed Software

The overlap lies in the following areas:

1. **Claim-Based Workflows**:
   o Both systems emphasize claim-level analysis and structured workflows, presenting a significant risk of overlap.

2. **Integrated Data Management**:
    o The interconnection of product records, patent details, and analysis results closely resembles the proposed software's planned database architecture.
3. **Dynamic User Interfaces**:
    o The use of a user-engageable review interface with work product capture areas aligns with the software's interactive design.
4. **Project Management Tools**:
    o The review and product management features may conflict with the software's goals for organizing and prioritizing patent portfolios.

Risk Assessment

- **High Risk**: The claim-by-claim workflows and review interfaces are central to this patent and closely align with the proposed software's features.
- **Medium Risk**: The project and record management functionalities, while overlapping, are broader and may allow for design differentiation.

Recommendations

1. **Innovate on Review Interfaces**:
    o Explore alternative methods for presenting and capturing claim-based analysis, such as natural language summarization or interactive visual maps.
2. **Focus on AI and Automation**:
    o Introduce AI-driven prioritization and analysis tools that go beyond the manual workflows described in the patent.
3. **Rethink Data Management**:
    o Instead of directly linking product and review records, consider using metadata tagging or contextual grouping to differentiate functionalities.
4. **Licensing Possibilities**:
    o Engage ClearstoneIP for potential licensing or collaboration, especially if the software's design requires substantial overlap with the patented systems.
5. **Unique Project Management Features**:
    o Incorporate unique project management functionalities, such as milestone tracking or predictive analytics, to set the software apart.

Future Monitoring

1. **Patent Portfolio Expansion**:
   - Track ClearstoneIP's related filings to ensure no additional functionalities become protected.
2. **Market Activity**:
   - Observe whether ClearstoneIP's tools gain traction in the FTO and patent analysis markets, indicating the likelihood of enforcement.

5.1.4. US-9633403-B2: Managing Sustainable Intellectual Property Portfolios

Patent Summary

Patent Number: US-9633403-B2
Title: Managing Sustainable Intellectual Property Portfolio of an Enterprise
Assignee: Tata Consultancy Services Limited
Inventors: Santosh Kumar Mohanty, Shampa Sarkar, Taruna Gupta
Key Dates:

- **Priority Date**: March 15, 2013
- **Filing Date**: June 26, 2013
- **Grant Date**: April 25, 2017

Abstract **Overview**:
This patent describes a method and system for managing a **sustainable intellectual property (IP) portfolio** for enterprises. It involves analyzing IP at a granular ("atomicity") level using **sustainability differentiators** (e.g., strength, spread, duplicity, and difference parameters). The IP is optimized through intermediate datasets and data structures, culminating in a sustainable and optimized IP portfolio. A **Digital IP Genome** methodology enables claim parsing, mapping, and optimization.

Key Functionalities

1. **Sustainability Differentiators**:
   - Parameters like strength, spread, duplicity, and difference are used to define sustainable claims and optimize portfolios.
2. **IP Atomicity Analysis**:
   - IP is analyzed at the most granular level, producing decomposed fragments of the IP landscape for evaluation.
3. **Matrices for IP Comparison**:
   - Tools like **Comparison Matrix**, **Competitive Matrix**, and **Topology Matrix** enable the comparative analysis of claims across IP portfolios and competitors.

4. **Digital IP Genome**:
   o A novel data structure that encapsulates claim data (e.g., independent claims, dependent claims) and maps it to dimensions like novelty, utility, and efficiency.
5. **Collaborative Invention Mining (CIM)**:
   o A 3D mapping technique for claim elements, aligning them with categories (Novelty, Utility, etc.) and enterprise goals (efficiency, adaptability).
6. **Portfolio Optimization**:
   o Generates an optimized portfolio using multi-objective optimization, considering synergy, growth, valuation, and risk parameters.

Relevance to Proposed Software

This patent is relevant to the proposed software in several ways:

1. **Granular Claim Analysis**:
   o The use of atomicity and claim-based analysis aligns with the software's goals of detailed claim parsing and risk assessment.
2. **Data Structures and Matrices**:
   o Tools like the Digital IP Genome and Competitive Matrix align with the software's data integration and visualization features.
3. **Portfolio Optimization**:
   o The focus on optimizing IP portfolios aligns with the software's aim to guide strategic decision-making based on patent landscapes.
4. **Claim Mapping and Visualization**:
   o The CIM methodology's 3D mapping approach overlaps with the software's visualization tools for analyzing claims and innovation trends.

Key Claims

Independent Claims:

1. A method for generating sustainable IP at an atomic level using sustainability differentiators and optimizing IP portfolios using various matrices and parameters.
2. A Digital IP Genome methodology for mapping claim elements to dimensions like novelty and efficiency.

Dependent Claims:

1. Mapping claim elements using CIM matrices (Novelty, Utility, etc.).
2. Comparative analysis using Competitive and Topology Matrices.

3. Portfolio optimization based on synergy, growth, and risk parameters.
4. Scenario-based positioning of IP portfolios (e.g., flooding, fencing strategies).

Potential Overlap with Proposed Software

1. **Claim Parsing and Mapping**:
   o The Digital IP Genome methodology and CIM matrices directly overlap with the software's planned claim mapping and visualization tools.
2. **Optimization Algorithms**:
   o The use of multi-objective optimization for portfolios mirrors the software's intended risk assessment and prioritization features.
3. **Data Structures and Visualization**:
   o The focus on Competitive and Topology Matrices aligns with the software's goal of providing comprehensive patent landscape visualizations.
4. **Scenario-Based Analysis**:
   o The software's roadmap may involve similar strategies for guiding enterprises in leveraging their IP portfolios.

Risk Assessment

- **High Risk**: The Digital IP Genome methodology and CIM matrices are core to this patent and directly align with the software's proposed claim analysis features.
- **Medium Risk**: Portfolio optimization overlaps with common strategies but could still pose risks depending on implementation specifics.

Recommendations

1. **Focus on Unique Visualization**:
   o Avoid direct implementation of CIM methodologies; instead, explore unique 2D/3D visualizations such as heatmaps or cluster analysis.
2. **Innovate Optimization Approaches**:
   o Incorporate AI-driven predictive modeling to differentiate the software's optimization algorithms from those in the patent.
3. **Avoid Overlap with Matrices**:
   o Consider alternative comparative tools beyond Competitive and Topology Matrices, such as semantic networks or patent linkage graphs.
4. **Licensing or Collaboration**:

    o   Engage Tata Consultancy Services for potential licensing agreements or joint development to integrate overlapping functionalities.

Future Monitoring

1. **Patent Family Expansion**:
   - o Monitor whether related patents are filed that expand on the Digital IP Genome methodology or CIM matrices.
2. **Market Activities**:
   - o Track TCS's commercialization of tools based on this patent to evaluate enforcement likelihood.

5.1.5. US-10891701-B2: Method and System for Evaluating Intellectual Property Portfolios

Patent Summary

Patent Number: US-10891701-B2
Title: Method and System for Evaluating Intellectual Property
Assignee: Rowan TELS Corp.
Inventors: Carl Reed Jessen, Lewis C. Lee, Michael Howard Ebinger, Ryan Glenn Roemer, Chad Eberle
Key Dates:

- **Priority Date**: April 15, 2011
- **Filing Date**: July 12, 2016
- **Grant Date**: January 12, 2021

Abstract Overview:
This patent describes methods and systems for analyzing and presenting **patent and business data** in a unified interface. It involves evaluating patent claims by deriving unique **signatures** for claims, calculating their **scope**, and comparing them to other claims in a collection. Graphical representations of claim scope and quality are generated, enabling a visual comparison of claims.

Key Functionalities

1. **Claim-Based Text Analysis**:
   - o Identifies and evaluates unique words within a claim, excluding common terms (e.g., conjunctions, prepositions).

    o   Calculates frequency values of unique words across a collection of patents and applications.

2. **Claim Scope Analysis**:
   - Determines the scope of claims based on unique word frequency values and distances calculated from a two-dimensional coordinate set.
3. **Composite Claim Scoring**:
   - Combines scores based on claim text analysis with other metrics, such as:
     - Number of references to/from the patent.
     - Patent's legal history and changes during prosecution.
4. **Visualization and User Interface**:
   - Presents claim scope graphically using visual elements, such as distance values and icons.
   - Allows users to select claims or collections, dynamically altering the visualization to reflect the selected data.
5. **Technology Classification Integration**:
   - Associates patents with technology classifications (e.g., governmental or private standards) for contextual analysis.

Relevance to Proposed Software

This patent aligns with the proposed software in several key areas:

1. **Claim-Based Risk Assessment**:
   - The proposed software's claims parsing and analysis overlap with this patent's methodology for evaluating claim scope and quality.
2. **Data Visualization**:
   - The graphical representation of claim scope and quality is similar to the software's focus on visual tools for patent landscape analysis.
3. **Integration of Classification Systems**:
   - Associating patents with technology classifications aligns with the software's goal to organize and contextualize patent data.
4. **Interactive User Interface**:
   - The dynamic visualization and claim selection features are consistent with the proposed software's interactive design philosophy.

Key Claims

Independent Claims:

1. A method for evaluating intellectual property, including unique word analysis, claim scope calculation, and graphical representation of results.

2. A system for analyzing patents, scoring claims, and visually comparing them in a user interface.

Dependent Claims:

1. Composite scoring incorporating references to/from patents and prosecution history.
2. Visualization using axes for word uniqueness and frequency.
3. Associating patents with technology classifications for contextual analysis.
4. Dynamic user interaction to adjust visual representations based on selected claims or collections.

Potential Overlap with Proposed Software

The overlap lies in the following areas:

1. **Claims Parsing and Scope Analysis**:
   o Both systems focus on analyzing claim text to derive scope and quality metrics, posing a potential conflict.
2. **Data Visualization**:
   o The graphical representation of claims and their relative scope aligns with the software's visualization objectives.
3. **Integration with Classification Systems**:
   o Associating patents with technology classifications mirrors the software's intent to integrate metadata for contextual insights.
4. **User Interaction**:
   o Dynamic visualization and selectable icons overlap with the software's planned interactive elements.

Risk Assessment

- **High Risk**: Claim parsing, scope calculation, and visualization are core to this patent and closely align with the software's planned functionalities.
- **Medium Risk**: Composite scoring and classification integration overlap but offer room for differentiation.

Recommendations

1. **Innovate Visualization Approaches**:
   o Avoid direct replication of distance-based visualization. Explore unique formats, such as heatmaps or radial graphs.

2. **Focus on Semantic Analysis**:
   o Enhance claim analysis with semantic processing (e.g., natural language processing for deeper contextual understanding).
3. **Differentiate Scoring Metrics**:
   o Introduce AI-driven predictive scoring or novel composite metrics to differentiate from the patented methodology.
4. **Licensing Opportunities**:
   o Engage Rowan TELS Corp. for potential licensing or collaboration, especially if the proposed software heavily relies on visualization features.
5. **Integrate Advanced Filters**:
   o Introduce novel filtering capabilities (e.g., by market impact or jurisdiction) to distinguish the software from the patent's functionality.

Future Monitoring

1. **Patent Family Expansion**:
   o Monitor related filings, particularly those expanding on visualization or scoring methods.
2. **Market Applications**:
   o Track Rowan TELS Corp.'s development of commercial tools based on this patent to evaluate potential enforcement risks.

5.1.6. US-9858319-B2: Patent Mapping

Patent Summary

Patent Number:		US-9858319-B2
Title:	Patent	Mapping
Assignee:	Black Hills IP Holdings,	LLC
Inventors:	Steven W. Lundberg, Tyler L.	Nasiedlak

Key Dates:

- **Priority Date**: October 3, 2011
- **Filing Date**: August 13, 2015
- **Grant Date**: January 2, 2018

Abstract   **Overview**:

This patent describes a **system and method for evaluating intellectual property** by mapping and analyzing patent data. It evaluates claim text and associated images to derive **unique signatures** for claims, assesses claim

scope, and compares claim characteristics across patent collections. Results are visually presented using graphical elements in an interactive user interface.

Key Functionalities

1. **Claim Analysis**:
   o Identifies unique words in a claim, excluding common terms like articles and prepositions.
   o Calculates word frequency across a collection of patents and determines claim scope using mathematical models.
2. **Image-Based Analysis**:
   o Derives unique characteristics from images associated with patents.
   o Assesses image similarity within the context of a patent's scope.
3. **Graphical Representation**:
   o Presents claim scope, quality, and breadth using visual assets such as graphs and distance-based visualizations.
   o Allows dynamic interaction with visual elements to explore claim comparisons.
4. **Composite Scoring**:
   o Combines claim analysis with other metrics, including:
     ▪ References to and from the patent.
     ▪ Duration and legal history of the patent.
     ▪ Changes made to claims during prosecution.
5. **Classification Context**:
   o Links patents to specific technology classifications for enhanced analysis and contextual understanding.

Relevance to Proposed Software

This patent closely aligns with the proposed software in multiple aspects:

1. **Patent Mapping and Visualization**:
   o The proposed software's features for mapping and visually representing patent landscapes overlap significantly with this patent's claim and image-based mapping.
2. **Claims Parsing and Scope Analysis**:
   o Both systems analyze claim text and calculate claim scope using word frequency and uniqueness metrics.
3. **Interactive User Interface**:
   o The graphical representation and user-interactable visualizations are consistent with the proposed software's goals.
4. **Data Integration and Classification**:

o   The use of technology classifications aligns with the proposed software's emphasis on integrating metadata for enhanced contextual insights.

Key Claims

Independent Claims:

1. A method for evaluating intellectual property by analyzing claim text, calculating scope, and presenting results graphically.
2. A system for claim analysis and visualization, including interactive elements for exploring claim relationships.

Dependent Claims:

1. Using word frequency and uniqueness to calculate claim scope.
2. Associating patents with specific technology classifications for contextual analysis.
3. Composite scoring based on references, legal history, and claim changes.
4. Graphical representations with axes for word uniqueness and frequency.
5. Dynamic user interfaces allowing claim selection and visualization.

Potential Overlap with Proposed Software

1. **Visualization of Patent Data**:
   o   The graphical mapping of claim scope and quality presents a significant overlap with the proposed software's visualization tools.
2. **Claim Parsing and Scoring**:
   o   The analysis of unique words and claim scope calculations mirrors the software's planned claim parsing features.
3. **Dynamic User Interface**:
   o   The use of interactive graphical elements and claim selection tools is similar to the software's interactive interface design.
4. **Contextual Integration**:
   o   Associating patents with classifications for contextual analysis aligns with the proposed software's objectives.

Risk Assessment

- **High Risk**: The patent mapping and graphical representation of claim scope directly align with the proposed software's core functionalities.
- **Medium Risk**: Composite scoring and classification integration offer differentiation opportunities but still present overlap risks.

Recommendations

1. **Innovate Visual Mapping**:
   o Avoid direct replication of graphical elements. Consider unique alternatives such as network graphs, cluster maps, or semantic visualizations.
2. **Enhance Claim Analysis**:
   o Introduce advanced natural language processing (NLP) techniques or machine learning algorithms to extend beyond basic word frequency analysis.
3. **Differentiate Scoring Metrics**:
   o Incorporate unique composite metrics, such as AI-predicted innovation potential or market relevance scores.
4. **Focus on Image Analysis**:
   o If the software includes image analysis, ensure a distinct approach (e.g., using deep learning for image recognition or focusing on patent drawings).
5. **Explore Licensing**:
   o Engage Black Hills IP Holdings for potential licensing agreements to mitigate risks and enable deeper integration of overlapping features.

Future Monitoring

1. **Patent Portfolio Expansion**:
   o Monitor whether Black Hills IP files additional patents expanding on the mapping or visualization features.
2. **Market Deployment**:
   o Track commercialization of tools based on this patent to assess enforcement risks and competitive positioning.

5.1.7. US-10860657-B2: Systems for Generating Visual Maps of Patent Concentration

Patent Summary

Patent Number: US-10860657-B2
Title: Systems for Generating Visual Maps of Patent Concentration
Assignee: Black Hills IP Holdings, LLC
Inventor: Steven W. Lundberg
Key Dates:

- **Priority Date**: October 3, 2011
- **Filing Date**: October 5, 2011
- **Grant Date**: December 8, 2020

Abstract Overview:
This patent describes a **system and method for patent mapping**, focusing on **managing prior art and generating visual maps of patent concentration**. It allows users to manage databases of prior art, patents, and reference citations. It dynamically visualizes the relationships between patents, portfolios, and prior art, and tracks changes to associations over time.

Key Functionalities

1. **Database Management**:
   o Maintains a database of prior art portfolios, patents, and reference citations.
   o Links patents and prior art to portfolios, allowing dynamic updates and tracking.
2. **Mapping and Tracking**:
   o Tracks the flow of prior art references between patents and portfolios.
   o Visualizes relationships, including timing and levels of association.
3. **Dynamic Visualization**:
   o Provides a graphical user interface (GUI) that displays:
      ▪ Dates of reference citation flow.
      ▪ Levels of association between patents and portfolios.
   o Uses indicators (numerical or visual) to represent the strength and status of relationships.
4. **Interactive Analysis**:
   o Enables users to interact with graphical representations, explore connections, and modify associations.
5. **Rejection Insights**:
   o Highlights prior art references used by national patent offices to reject claims.
   o Provides contextual information about grounds for rejection.

Relevance to Proposed Software

This patent directly aligns with the proposed software in several areas:

1. **Patent Landscape Visualization**:
   - The visual representation of patent concentration and relationships mirrors the software's aim to map patent landscapes.
2. **Database Management**:
   - The use of interconnected databases for prior art and patent portfolios aligns with the software's data integration features.
3. **Interactive User Interface**:
   - The dynamic and interactive GUI for exploring patent relationships matches the software's design philosophy.
4. **Tracking and Insights**:
   - The ability to track prior art flows and provide rejection insights overlaps with the software's analytical tools.

Key Claims

Independent Claims:

1. A method for managing prior art, including database creation, mapping references, and visualizing flow and associations.
2. A system for dynamic visualization of patent relationships, using a GUI to represent associations and changes over time.

Dependent Claims:

1. Identifying and linking patents and prior art to portfolios.
2. Providing numerical and visual indicators for reference flow levels.
3. Highlighting grounds for rejection based on prior art references.
4. Enabling dynamic updates to portfolios and relationships.

Potential Overlap with Proposed Software

1. **Visualization of Patent Relationships**:
   - Both systems focus on visualizing patent relationships, presenting a risk of overlap in methods of graphical representation.
2. **Database Integration**:

o The interconnected databases for patents, prior art, and portfolios overlap with the software's planned backend architecture.
3. **Dynamic Updates and Tracking**:
   o Tracking and displaying the flow of prior art references aligns with the software's real-time analytics features.
4. **User Interaction**:
   o The interactive GUI allowing exploration and modifications aligns closely with the software's interactive elements.

Risk Assessment

- **High Risk**: The visualization of patent concentration and relationships is central to both systems, posing a significant risk of overlap.
- **Medium Risk**: Database integration and tracking features offer differentiation opportunities but still present potential conflicts.

Recommendations

1. **Innovate Visualization Techniques**:
   o Explore unique visualization methods, such as radial graphs, heatmaps, or patent "trees," to differentiate from the patent's visual mapping.
2. **Expand Insights Beyond Prior Art**:
   o Focus on broader data insights, such as licensing opportunities, market trends, or competitor analysis, to differentiate from prior-art-specific tracking.
3. **Enhance Tracking Features**:
   o Introduce predictive tracking tools (e.g., forecasting prior art flows) to add unique functionality.
4. **Avoid Numerical Indicators**:
   o Avoid using numerical flow level indicators; instead, use semantic or qualitative labels for associations.
5. **Licensing and Collaboration**:
   o Consider partnering with Black Hills IP Holdings to integrate advanced mapping features while mitigating potential risks.

Future Monitoring

1. **Patent Family Expansion**:
   o Monitor for additional filings related to visualization or database management by Black Hills IP.

2. **Commercial Deployment**:
   - o Track whether Black Hills IP deploys tools based on this patent to assess market impact and enforcement likelihood.

5.1.8. US-11308320-B2: Advanced Boolean Logic and Natural Language Processing for Refined Searches

Patent Summary

Patent Number: US-11308320-B2
Title: Multi-Segment Text Search Using Machine Learning Model for Text Similarity
Assignee: Cognition IP Technology Inc.
Inventors: Bryant Lee, Andrew Tjang, Andrew Perry Chu, Uday Pulleti

Key Dates:

- **Priority Date**: December 17, 2018
- **Filing Date**: December 17, 2019
- **Grant Date**: April 19, 2022

Abstract Overview:
This patent describes a **system and method for advanced text search** using machine learning. The system processes input text, such as patent claims, by splitting it into clauses and using a machine learning model to calculate **text similarity** with stored references. It supports **multi-segment text analysis**, produces **similarity scores**, and generates insights through synthetic texts and claim charts.

Key Functionalities

1. **Text Segmentation and Analysis**:
   - o Splits input text (e.g., patent claims) into **clauses** for granular analysis.
   - o Applies machine learning to perform **text similarity matching** with reference documents.
2. **Similarity Scoring**:
   - o Produces **similarity scores** to measure how closely clauses match stored text portions.
3. **Office Action Parsing**:
   - o Parses office action documents to extract reference information, claim text, and citation statements.
   - o Maps extracted statements to corresponding lines in reference documents.

4. **Synthetic Text Generation**:
   o Generates **synthetic office action text**, identifying where clauses are disclosed within reference documents.
5. **Feedback Integration**:
   o Updates the machine learning model based on **user feedback**, improving search accuracy over time.
6. **Multi-Model Classification**:
   o Classifies text using multiple machine learning models tailored to specific document types or contexts.
7. **Output Formats**:
   o Outputs results in **claim charts**, showing associations between clauses and matched references.

Relevance to Proposed Software

This patent aligns closely with the proposed software's advanced search functionalities and analytics capabilities:

1. **Advanced Search and Filtering**:
   o The similarity scoring and machine learning-driven analysis overlap with the proposed software's core functionality.
2. **Claims Parsing and Matching**:
   o Both systems involve parsing claim text into segments and matching them with reference documents.
3. **Feedback-Driven Learning**:
   o The machine learning model's feedback loop aligns with the proposed software's iterative improvement mechanisms.
4. **Visual and Synthetic Outputs**:
   o Generating claim charts and synthetic text aligns with the software's goal of providing clear and actionable outputs.

Key Claims

Independent Claims:

1. A method for text search using machine learning to calculate similarity scores and generate synthetic office action text.
2. A system for text segmentation, similarity scoring, and visualizing associations through claim charts.

Dependent Claims:

1. Using **word embeddings** or **tensor encodings** for similarity calculations.
2. Incorporating **user feedback** to refine machine learning models.
3. Multi-model classification for contextual relevance.
4. Generating and displaying synthetic office action text.

Potential Overlap with Proposed Software

1. **Text Parsing and Matching**:
   o Both systems split claims into segments and perform text similarity searches, posing a risk of functional overlap.
2. **Machine Learning Integration**:
   o The reliance on machine learning for similarity matching is a shared approach, requiring differentiation in implementation.
3. **Synthetic Outputs**:
   o Generating synthetic office action text is similar to providing user-ready outputs like customizable FTO reports.
4. **Visualization of Results**:
   o The use of claim charts overlaps with the software's aim to visually represent analysis results.

Risk Assessment

- **High Risk**: The core text segmentation and similarity matching features are highly similar, necessitating differentiation in methodology or implementation.
- **Medium Risk**: Outputs like claim charts and synthetic text require careful attention to avoid replication.

Recommendations

1. **Innovate Similarity Scoring**:
   o Move beyond basic similarity scoring by integrating contextual relevance, semantic analysis, or domain-specific adjustments.
2. **Expand Feedback Mechanisms**:
   o Include predictive analytics or confidence scoring to enhance the user's decision-making process.
3. **Diversify Outputs**:
   o Focus on unique visual formats (e.g., heatmaps, interactive graphs) instead of static claim charts.
4. **Machine Learning Differentiation**:
   o Explore alternative models or techniques (e.g., transformer-based models like BERT or GPT) to differentiate from traditional neural networks.

5. **Synthetic Text Extensions**:
   - Use synthetic text generation for broader purposes, such as suggesting alternative claim phrasing or flagging potential claim conflicts.

Future Monitoring

1. **Patent Family Growth**:
   - Track related filings by Cognition IP Technology Inc. to anticipate additional claims or improvements.
2. **Commercial Products**:
   - Watch for software tools released by Cognition IP that implement this patent to assess competitive risks.

5.1.9. US-2019073730-A1: Methods for Automated Claims Parsing

Patent Summary

Patent Number: US-2019073730-A1
Title: Computer-Implemented Methods of and Systems for Analyzing Patent Claims
Assignee: Search For Yeti, LLC
Inventors: Thomas J. Perkowski, Jay Guiliano, Frank Rathgeber, Aaron Levine

Key Dates:

- **Priority Date**: March 15, 2013
- **Filing Date**: April 4, 2018
- **Publication Date**: March 7, 2019

Abstract Overview:
This patent discloses an **advanced relational database and user interface system** designed for analyzing patent claims. It focuses on parsing claims, identifying claim concepts, and organizing these into concept groups. The system also links claims to prosecution history and prior art references, enabling detailed analysis and the generation of prosecution history charts.

Key Functionalities

1. **Prosecution History Analysis**:
   - Identifies claims allowed during patent prosecution.
   - Tracks applicant and examiner statements linked to these claims.
2. **Claim Parsing and Conceptual Grouping**:
   - Parses patent claims into sub-limitations using predefined rules.
   - Maps sub-limitations to **scope concepts**, stored in a structured library.
3. **Prior Art Analysis**:
   - Sets up data schemas for prior art references.
   - Analyzes prior art using graphical user interfaces (GUIs).
4. **Natural Language Processing (NLP)**:
   - Employs NLP to break down claims into smaller segments.
   - Links claim sub-limitations to predefined **scope concepts** for indexing.
5. **Interactive User Interfaces**:
   - Provides tools for visually linking claims, sub-limitations, and related scope concepts.
6. **Prosecution History Charts**:
   - Generates detailed charts summarizing claim prosecution history and prior art analysis.

Relevance to Proposed Software

This patent closely aligns with the functionalities of the proposed software for FTO analysis, particularly in:

1. **Automated Claims Parsing**:
   - Parsing claims into sub-limitations and linking them to predefined concepts matches the software's focus on claims analysis.
2. **Prosecution History Insights**:
   - The generation of prosecution history charts overlaps with the goal of visualizing patent analysis data.
3. **Integration with Prior Art**:
   - The ability to analyze prior art references and connect them to claims aligns with FTO objectives.
4. **NLP and Machine Learning**:
   - Both systems rely on advanced NLP techniques for analyzing and indexing claims.

Key Claims

Independent Claims:

1. Parsing claims into sub-limitations and associating them with **scope concepts** for indexing.
2. Linking prosecution history statements to claims and generating prosecution history charts.

Dependent Claims:

1. Natural language processing to analyze claim limitations and map them to predefined concepts.
2. Visual indexing of claims and sub-limitations for user interpretation.

Potential Overlap with Proposed Software

1. **Claims Parsing**:
   o Both systems parse claims into sub-limitations for further analysis, requiring differentiation in parsing rules and indexing methods.
2. **Visualization Tools**:
   o Generating prosecution history charts and visual indexing overlaps with the proposed visualization outputs.
3. **Prosecution History Integration**:
   o The ability to link claims to historical examiner-applicant statements and prior art is a shared feature.
4. **NLP for Claims Analysis**:
   o The use of NLP for parsing and indexing may present risks of functional overlap.

Risk Assessment

- **High Risk**: The claims parsing and concept mapping functionality overlaps significantly with the proposed software.
- **Medium Risk**: The prosecution history integration and chart generation features require careful differentiation.

Recommendations

1. **Innovate Parsing Techniques**:
   o Use advanced parsing models like transformer-based NLP (e.g., GPT, BERT) to improve accuracy and distinguish from rule-based systems.
2. **Expand Concept Mapping**:
   o Introduce dynamic concept mapping that adapts based on user-defined rules or domain-specific insights.
3. **Enhanced Visualization**:
   o Develop interactive 3D visualizations or dynamic dashboards to differentiate from static prosecution charts.

4. **Prosecution History Extensions**:
   - Include predictive analytics to flag potential prosecution issues based on historical data trends.
5. **Prior Art Analysis**:
   - Enhance prior art analysis by integrating external databases and offering comparative visual tools.

Future Monitoring

1. **Patent Family Growth**:
   - Monitor for continuations or related filings from Search For Yeti, LLC.
2. **Commercial Deployments**:
   - Track tools or software released under this patent to assess market presence and functionality overlap.

5.1.10. US-2020050638-A1: Systems for Analyzing the Validity of Intellectual Property Claims

Patent Summary

Patent Number: US-2020050638-A1
Title: Systems and methods for analyzing the validity or infringement of patent claims
Assignee: Parker Douglas Hancock
Inventor: Parker Douglas Hancock

Key Dates:
- **Priority Date**: August 12, 2018
- **Filing Date**: August 12, 2019
- **Publication Date**: February 13, 2020

Abstract Overview:
This patent describes a system and method that use **natural language processing (NLP)** and **information retrieval techniques** to assess the validity or infringement of patent claims. It includes functionalities for indexing references, creating search indexes, generating queries from claim limitations, executing searches, and outputting results with relevancy scores. These results are further enhanced with visual tools like charts and highlighted summaries.

Key Functionalities
1. **Indexing References**:
   - Splits reference documents into **lexical units** and organizes them into search documents.
   - Generates citations that map specific sections of references.
2. **Search Index Creation**:

- o Builds searchable indexes from the processed reference documents, enabling efficient retrieval.
3. **Query Generation**:
   - o Uses claim limitations to create structured queries, with options for modification using technical thesauri or previously defined terms.
4. **Search Execution**:
   - o Executes queries on the search index to identify references matching claim limitations.
   - o Outputs results with **relevancy scores** for each match.
5. **Output and Visualization**:
   - o Provides **charts** summarizing claim limitations and corresponding matches in the references.
   - o Highlights matching portions of the references and constructs summaries from these highlights.
6. **Enhanced Querying**:
   - o Allows iterative query refinement based on extracted keywords and secondary searches.

Relevance to Proposed Software

This patent demonstrates significant overlap with functionalities required for advanced **FTO analysis software**, particularly in:

1. **Natural Language Processing for Claims Analysis**:
   - o Both systems use NLP to analyze claim limitations and match them against reference documents.
2. **Search and Query Optimization**:
   - o The structured approach to query generation and execution is directly applicable to FTO workflows.
3. **Visualization and Summarization**:
   - o Visual tools like charts and summaries align with the need for interactive and user-friendly FTO reports.
4. **Automated Relevancy Scoring**:
   - o The use of scoring systems for relevance adds value to claims analysis and can enhance decision-making.

Key Claims
Independent Claims:
1. Method for analyzing claims using reference indexing, search query generation, and relevancy scoring.
2. System for indexing references, executing searches, and outputting results.

Dependent Claims:
1. Highlighting matched text and generating visual summaries.
2. Modifying queries using technical thesauri or earlier limitations.
3. Iterative querying for improved result precision.

Potential Overlap with Proposed Software
1. **Query and Search Mechanism**:
   - o The process of generating structured queries from claim limitations and executing searches could overlap, requiring differentiation in query structures or data sources.
2. **Visualization Techniques**:

o Charts and summaries that link claims and references may closely resemble the proposed software's output.
3. **Relevancy Scoring**:
   o Both systems rely on scoring mechanisms for evaluating matches, which presents a medium to high risk of overlap.
4. **Reference Indexing and NLP**:
   o The approach to parsing and indexing reference documents is a core similarity, particularly the use of lexical units and structured indexing.

Risk Assessment

- **High Risk**: Query generation and search execution workflows mirror the proposed software, requiring careful differentiation.
- **Medium Risk**: Visualization tools and relevancy scoring overlap with proposed reporting features.

Recommendations
1. **Innovative Query Mechanisms**:
   o Implement **dynamic query generation** using AI models like GPT to differentiate from predefined or rule-based methods.
2. **Enhanced Scoring Algorithms**:
   o Use explainable AI for relevancy scoring to provide interpretable insights into why specific results were deemed relevant.
3. **Interactive Visualization**:
   o Develop **interactive dashboards** that allow users to dynamically filter, adjust, and interpret visualizations in real time.
4. **Expanding Data Sources**:
   o Integrate diverse external data sets, such as litigation outcomes or technical publications, to enrich reference indexing and analysis.
5. **NLP Customization**:
   o Train domain-specific NLP models that leverage proprietary or niche datasets to enhance claim parsing and indexing.

Future Monitoring
1. **Patent Developments**:
   o Track updates to this patent or any related continuations or family filings.
2. **Market Activity**:
   o Monitor for commercial products or services based on this patent to assess real-world overlap risks.
3. **Legal Precedents**:
   o Stay updated on enforcement or litigation cases involving this patent to understand its scope and potential implications.

5.2. Summary and Recommendations

The selected patents illustrate substantial overlap with the proposed software's functionalities, highlighting specific risks and potential opportunities:

5.2.1. Key Risks
1. **Direct Overlaps**:
   o High-risk areas include **claims parsing, patent mapping, and data integration** workflows. Examples include patents such as US-9858319-B2 (Patent Mapping) and US-2019073730-A1 (Automated Claims Parsing), which align closely with proposed features.
   o Relevancy scoring and **visualization tools** are also present in patents like US-11308320-B2 and US-2020050638-A1, requiring differentiation in implementation.
2. **Moderate Risks**:
   o **Search optimization and prioritization mechanisms**, as seen in patents like US-11682091-B2, align with proposed search tools. These functionalities necessitate careful evaluation and potential design modifications.
3. **Pending and Ungranted Patents**:
   o Some pending patents (e.g., **US-2020050638-A1**) currently offer design freedom but could later present barriers if granted with broad claims.

5.2.2. Opportunities
1. **Design Differentiation**:
   o By leveraging **proprietary algorithms, AI models, or domain-specific datasets**, the software can avoid overlap with indexed methods and predefined scoring mechanisms outlined in the reviewed patents.
2. **Licensing and Partnerships**:
   o Engage with high-risk patent holders like **ClearstoneIP**, **Black Hills IP Holdings**, and **Cognition IP Technology Inc.** for potential licensing agreements, collaboration, or white-labeling.
3. **Expired and Expiring Technologies**:
   o Investigate expired patents or technologies nearing expiration for foundational elements, particularly in older **patent portfolio management** and **landscape mapping systems.**
4. **AI-Driven Innovations**:
   o Incorporate **generative AI or advanced NLP models** (e.g., GPT) to introduce unique functionalities such as dynamic claims parsing or contextual relevancy analysis, which were not explicitly covered in existing patents.
5. **Strategic Monitoring**:
   o Track grant statuses of pending patents, such as **US-2020050638-A1**, and regularly update the Freedom-to-Operate analysis with new filings in relevant technology spaces.

5.2.3. Actionable Steps
1. **Develop Unique Features**:

- Focus on **novel query methods, explainable AI in relevancy scoring, and real-time interactive dashboards** for visualization, avoiding direct replication of existing methods.
2. **Assess Licensing Opportunities**:
   - Prioritize negotiation for patents that address essential features like **automated claims parsing** or **data visualization tools**.
3. **Expand Prior Art Analysis**:
   - Deepen exploration of **expired patents** or unrelated domains to identify design elements and avoid costly rework.
4. **Establish a Patent Watch Program**:
   - Maintain ongoing surveillance of **key assignees, pending applications, and technology trends** to anticipate changes in the intellectual property landscape.

6. Appendix – Patent List:

Full table of analyzed patents with links and basic details (e.g., title, publication date, etc).

id	title	assignee	inventor/author	priority date	filing/creation date	publication date	grant date
US-9959582-B2	Intellectual property information retrieval	ClearstoneIP	Jesse D. Sukman, Joseph R. Aliperti, Gabriel S. Sukman	12.04.06	23.10.14	01.05.18	01.05.18
US-2019073730-A1	Computer-Implemented Methods of and Systems for Analyzing Patent Claims	Search For Yeti, LLC	Thomas J. Perkowski, Jay Guiliano, Frank Rathgeber, Aaron Levine	15.03.13	04.04.18	07.03.19	
US-9858319-B2	Patent mapping	Black Hills IP Holdings, LLC.	Steven W. Lundberg, Tyler L Nasiedlak	03.10.11	13.08.15	02.01.18	02.01.18
US-10902042-B2	Patent claim reference generation	Gary J. Speier	Gary J. Speier	07.06.06	08.06.15	26.01.21	26.01.21
US-10860657-B2	Patent mapping	Black Hills Ip Holdings, Llc	Steven W. Lundberg	03.10.11	05.10.11	08.12.20	08.12.20
US-10891701-B2	Method and system for evaluating intellectual property	Rowan TELS Corp.	Carl Reed Jessen, Lewis C. Lee, Michael Howard Ebinger, Ryan Glenn Roemer, Chad Eberle	15.04.11	12.07.16	12.01.21	12.01.21
US-2022230137-A1	Patent mapping	Black Hills Ip Holdings, Llc	Steven W. Lundberg, Thomas G. Marlow	23.10.08	31.01.22	21.07.22	
US-9659071-B2	Patent mapping	Schwegman Lundberg & Woessner, P.A.	Steven W. Lundberg, Janal M. Kalis, Pradeep Sinha	27.07.05	23.11.15	23.05.17	23.05.17

US-2022051358-A1	Methods and system for managing intellectual property using a blockchain	Moses T. Ma	Moses T. Ma	03.04.17	25.10.21	17.02.22	
US-11308320-B2	Multi-segment text search using machine learning model for text similarity	Cognition IP Technology Inc.	Bryant Lee, Andrew Tjang, Andrew Perry Chu, Uday Pulleti	17.12.18	17.12.19	19.04.22	19.04.22
US-10311442-B1	Business methods and systems for offering and obtaining research services	Hydrojoule, LLC	James Justin Lancaster	22.01.07	16.01.12	04.06.19	04.06.19
US-2023410233-A1	Crowdsourced and social media ip search and analytics platform with startup/industry partnerships and virtual incubator/accelerator including automated patent valuation system	Erich Lawson Spangenberg, Daniel Lawrence Bork, Pascal Asselot, Brian Joshua Berman	Erich Lawson Spangenberg, Daniel Lawrence Bork, Pascal Asselot, Brian Joshua Berman	23.10.17	27.03.23	21.12.23	
US-2020050638-A1	Systems and methods for analyzing the validity or infringment of patent claims	Parker Douglas Hancock	Parker Douglas Hancock	12.08.18	12.08.19	13.02.20	
US-11809387-B2	Pharmaceutical/life science technology evaluation and scoring	Dr/Decision Resources, Llc	Brigham B. Hyde, David Greenwald	28.11.11	10.10.19	07.11.23	07.11.23
US-2024287607-A1	Biomarker identification	Immunexpress Pty Ltd	Richard Bruce Brandon, Leo Charles MCHUGH	20.06.13	11.01.24	29.08.24	
US-8332740-B2	Systems and method for management of intangible assets	Graham John D	John D. Graham	19.01.00	07.12.09	11.12.12	11.12.12

US-7912701-B1	Method and apparatus for semiotic correlation	IgniteIP Capital IA Special Management LLC	Wayne Randal Gray, Radhika Suryakant Shah	04.05.05	04.05.07	22.03.11	22.03.11
US-9336304-B2	Patent analytics system	Gary J. Speier	Gary J. Speier	10.11.08	10.11.09	10.05.16	10.05.16
US-8983963-B2	Techniques for comparing and clustering documents	Software Ag	Klaus Fittges, Khalid El Mansouri	07.07.11	07.07.11	17.03.15	17.03.15
US-2018068409-A1	Patent mapping	Lucid Patent Llc	Steven W. Lundberg, Janal M. Kalis, Pradeep Sinha	10.08.04	31.05.17	08.03.18	
US-9547287-B1	System and method for analyzing library of legal analysis charts	Eugene M. Lee	Eugene M. Lee	28.08.01	14.09.12	17.01.17	17.01.17
US-2012278244-A1	Evaluating Intellectual Property	IP Street	Lewis C. Lee, Chad Eberle, Michael Howard Ebinger, Ryan Glenn Roemer	15.04.11	15.04.12	01.11.12	
US-2013013295-A1	Method and system for providing initial patent claim analysis	Lee Eugene M	Eugene M. Lee	21.03.01	14.09.12	10.01.13	
US-2014279584-A1	Evaluating Intellectual Property with a Mobile Device	IP Street	Lewis C. Lee, Tammy M. Krieger	15.03.13	15.03.14	18.09.14	
US-2018300829-A1	System for intellectual property landscape analysis, risk management, and opportunity identification	Fractal Industries, Inc.	Jason Crabtree, Andrew Sellers	28.10.15	29.01.18	18.10.18	

US-2017075877-A1	Methods and systems of handling patent claims	Marie-Therese LEPELTIER	Marie-Therese LEPELTIER	16.09.15	16.09.15	16.03.17	
US-2014365386-A1	Intellectual Property (IP) Analytics System and Method	David W. Carstens, Kevin Mark Klughart	David W. Carstens, Kevin Mark Klughart	05.06.13	05.06.14	11.12.14	
US-2007073625-A1	System and method of licensing intellectual property assets	Shelton Robert H	Robert Shelton	27.09.05	27.09.05	29.03.07	
US-2008059485-A1	Systems and methods for entering and retrieving data	Finn James P	James Finn	23.08.06	23.08.07	06.03.08	
US-2009138415-A1	Automated research systems and methods for researching systems	James Justin Lancaster	James Justin Lancaster	02.11.07	03.11.08	28.05.09	
US-2007078886-A1	Intellectual property asset manager (IPAM) for context processing of data objects	Rivette Kevin G, Rappaport Irving S, Luke Hohmann, David Puglia, Dewolfe Andrew S, David Goretsky, Adam Jackson, Scott Kurowski, Brian Park, Rabb Charles Jr, Brent Rosenquist, Matthew Scnitz, Smith David W, Thierry Paradan	Kevin Rivette, Irving Rappaport, Luke Hohmann, David Puglia, Andrew DeWolfe, David Goretsky, Adam Jackson, Scott Kurowski, Brian Park, Charles Rabb, Brent Rosenquist, Matthew Scnitz, David Smith, Thierry Paradan	19.11.93	31.08.06	05.04.07	
US-2008140557-A1	On-line auction system and method	Epatenttrade, Inc.	James O. Bowlby, Chun-Nan Chen, Stephen P. Aranoff	10.10.06	16.05.07	12.06.08	

US-2008215474-A1	Systems and methods for management of intangible assets	Innovation International Americas, Inc.	John Douglas Graham	19.01.00	22.06.07	04.09.08	
US-2022375012-A1	System and method for freedom to operate compliance	Erich Lawson Spangenberg	Erich Lawson Spangenberg	12.03.21	10.03.22	24.11.22	
US-1168209 1-B2	Management systems and methods for claim-based patent analysis	ClearstoneIP, Inc.	Gabriel Sukman, Joseph Aliperti, Jesse Sukman	12.01.18	26.08.22	20.06.23	20.06.23
US-2023114019-A1	Method and apparatus for the semi-autonomous management, analysis and distribution of intellectual property assets between various entities	Nicole Ann Shanahan	Nicole Ann Shanahan	07.04.17	19.09.22	13.04.23	
US-2014324808-A1	Semantic Segmentation and Tagging and Advanced User Interface to Improve Patent Search and Analysis	Sumeet Sandhu, Anurag Bist	Sumeet Sandhu, Anurag Bist	15.03.13	17.03.14	30.10.14	
US-2016117770-A1	System for managing intangible assets	John D. Graham	John D. Graham	19.01.00	30.12.15	28.04.16	
US-2008005103-A1	Intellectual property search, marketing and licensing connection system and method	Invequity, Llc	Paul Ratcliffe, Cory Sorice, Steven Walk	08.06.06	08.06.07	03.01.08	
US-2010174698-A1	Method for a customized and automated forward and backward patent citation search	Global Patent Solutions, Llc	David E. Odland, Kathryn P. Odland, Justin Seth Kniep, Angela Christina Stigen, Zheng	06.01.09	06.01.09	08.07.10	

			Rong, Jan Maurice Allen, Jaric Enin Loving				
US-2011258227-A1	Method and system for searching documents	Cpa Global Patent Research Limited	Randy W. Lacasse	30.07.99	02.06.11	20.10.11	
US-10444844-B2	System and method for detecting, profiling and benchmarking intellectual property professional practices and the liability risks associated therewith	Bayo Odutola	Bayo Odutola	12.05.17	06.11.18	15.10.19	15.10.19
KR-2021004 2393-A	Systems and methods for performing a computer implemented prior art search	ÏïÑÎ©îÏ¶¨Ïπ∏ ÏºÄÎØ∏Ïπ°ÏÜåÏÇ¨Ïù¥Ïñ¥Ïã∞	ÎßàÌÅ¨ Îù°Ïù¥Ïñ∏ ÍΣ∏Îù°Î∞îÎïö∞, Ï°¥Ïç∞Îù°ÏÎπÑÎìú Îîâζ†àÏù¥Í∑∏, ÎìúÎØ∏äͶ¨ ÏïÑÎ•¥πΥÎ¥úÏÏà∏πÑπò Îè¥ÏÉΩîÎ∏Å, φúÏïÑÑ¶¨ ÎßàÏù¥Å¥ ÏúåÏä®, Î°úÌìúÎãà Îù∞Î°úÏù¥ ÌíÄè¨Îìú, Ïù¥ ÎéÖ, ÏïÑÑ¶¶Ω Îù¥Î∏Å ÏïÑÑÎñÑÎ∞°, Îè®ÑÎÇ†Îìú ÏúÎ∏Ñ Îä§Ïîôä∏î¶ã∞ÎäÄ, Ï�ΩÏ¬ÄÎ∞Ïôä∏Ä, Ìë¨Ïü†Ïä§ÌÜåÏçÏ∞ Îù∞Îù¥Ïñ∏Î Í≤¥ÎäÄÎ§ÎÑå	28.08.18	28.08.19	19.04.21	
US-2010023371-A1	Marketplace in Ideas	Hartz Nikolai F, Gunter Wachtershuser	Nikolai F. Hartz, Gunter Wachtershuser	10.12.04	02.12.05	28.01.10	
US-9715499-B2	Interactive patent map	Global Prior Art, Inc.	Bruce Rubinger, Vinh DO, Alexander Kaufman, Kuppar Ranganath Udupa	29.12.06	13.11.12	25.07.17	25.07.17

US-2015356174-A1	System and methods for capturing and analyzing documents to identify ideas in the documents	Wipro Limited	Vinay Narayana, Santhosh Kumar Maniyan, Sarayu Kosanam, Manoj Madhusudhanan, Ramprasad Kanakatte Ramanna	06.06.14	23.07.14	10.12.15	
AU-2013234865-B2	System and method for identifying and visualising topics and themes in collections of documents	Bae Systems Australia Limited	Rostyslav BUGLAK, Aaron Lane	23.03.12	22.03.13	26.07.18	26.07.18
US-2005234738-A1	Competitive product intelligence system and method, including patent analysis and formulation using one or more ontologies	Hodes Alan S	Alan Hodes	26.11.03	13.06.05	20.10.05	
US-2020042580-A1	Systems and methods for enhancing and refining knowledge representations of large document corpora	amplified ai, a Delaware corp.	Samuel Davis, Christopher GRAINGER, Yasuyuki Oikawa	05.03.18	05.03.19	06.02.20	
US-8949268-B2	Method and system to capture, share and find information and relationships	Stefano Foresti	Stefano Foresti	13.09.11	18.06.14	03.02.15	03.02.15
US-2015343709-A1	Database and marketplace for medical devices	Osiris Biomed 3D, Llc	Theodore L. GERSTLE, Christopher GERSTLE	27.05.14	27.05.15	03.12.15	
US-2018158159-A1	Systems and methods for improved innovation insights and capture	General Electric Company	Lucas Divine, Ronald Blaski	06.12.16	06.12.16	07.06.18	

US-2017262807-A1	Community Led Open Innovation	H. Brock Kolls	H. Brock Kolls	11.03.16	11.03.16	14.09.17	
US-2018218451-A1	Intellectual property portfolio management system	Griffith Hack Pty Ltd	Jurgen Bebber	24.09.15	23.09.16	02.08.18	
CA-2702552-A1	Methods for processing generic chemical structure representations	Decript Inc., Anton Fliri, Erwan Moysan, Pierre Benichou, Matthias Nolte	Anton Fliri, Erwan Moysan, Pierre Benichou, Matthias Nolte	16.10.07	16.10.08	23.04.09	
WO-2019083974-A1	Crowdsourced ip search and analytics platform with virtual incubator and automated patent valuation system	Spangenberg Erich Lawson	Erich Lawson SPANGENBERG, Daniel Lawrence BORK, Pascal ASSELOT, Brian Joshua BERMAN, Voltolini MAGDA	23.10.17	23.10.18	02.05.19	
WO-2012142551-A1	Evaluating intellectual property	Ip Street, Inc.	Lewis C. Lee	15.04.11	15.04.12	18.10.12	
US-2016042460-A1	Systems and methods for managing intellectual property assets	Hudak Consulting Group, LLC	Jessica A. Hudak, Ashley R. Sloat, Kristen L. Wolff	11.08.14	11.08.15	11.02.16	
US-9633403-B2	Managing sustainable intellectual property portfolio of an enterprise	Tata Consultancy Services Limited	Santosh Kumar MOHANTY, Shampa Sarkar, Taruna Gupta	15.03.13	26.06.13	25.04.17	25.04.17
AU-2013270517-B2	Patent mapping	Schwegman, Lundberg & Woessner, P.A.	Janal M. Kalis, Steven W. Lundberg, Pradeep Sinha	27.07.05	12.12.13	21.04.16	21.04.16
EP-3688631-A1	Method and system for user-verifiable	General Electric Company	Adrian F. Warner, Daniel R. Schneidewend,	28.09.17	12.09.18	05.08.20	

	certification of software for medical devices		Nicholas Nekich, Linda Helvick, Vivek Sachdev				
US-2014379590-A1	Intellectual Asset Portfolio Evaluation Methods And Systems	Questel SAS	Paul B. Germeraad	19.06.13	11.05.14	25.12.14	
US-2012259787-A1	Patent claim matrix and non-literal infringement	Speier Gary J	Gary J. Speier	11.04.11	11.04.11	11.10.12	
US-2021209197-A1	Apparatus and method for frand licensing and transaction costs for more individual license agreements through smart contracts on the basis of blockchain technology	Jonas Block	Jonas Block	17.12.19	16.12.20	08.07.21	
WO-2006015110-A2	Patent mapping	Schwegman Lundberg Woessner & Kluth	Steven W. Lundberg, Janal M. Kalis, Pradeep Sinha	27.07.04	27.07.05	09.02.06	
CA-2948037-A1	Decision support system, method and computer program product	Umm Al-Qura University, Nabeel KOSHAK, Mohammad Ibrahim	Nabeel KOSHAK, Mohammad Ibrahim	03.07.14	01.07.15	07.01.16	
US-2021350484-A1	Frameworks for the analysis of intangible assets	Aon Risk Services, Inc. Of Maryland	Daniel Crouse, Lewis C. Lee, John E. Bradley, III	01.10.18	01.10.18	11.11.21	
US-2023342798-A1	Risk assessment management system and method	Merchant & Gould P.C.	William Schultz, Gabrielle L. Kiefer	21.04.22	21.04.23	26.10.23	

GB-2530501-A	Methods and systems of handling patent claims	Marie-Therese Lepeltier	Marie-Therese Lepeltier	23.09.14	23.09.14	30.03.16	
US-2011099084-A1	Systems and methods for managing patent licenses	Mpeg La L.L.C.	Lawrence Horn, Scott Mladinich, Lihua Zheng	20.04.09	20.04.10	28.04.11	
US-2012066580-A1	System for extracting relevant data from an intellectual property database	Jesse David Sukman	Jesse David Sukman	12.04.05	27.06.11	15.03.12	
US-11164132-B2	Method and system for generating and modifying electronic organizational charts	Organimi Inc.	Eric Apps, Brett Shellhammer	14.05.12	04.04.20	02.11.21	02.11.21
US-2013198182-A1	Method, system and program for comparing claimed antibodies with a target antibody	Sanofi	Amar Mohan DRAWID, Tai-he Xia	12.08.11	31.07.12	01.08.13	
US-2024112270-A1	Systems for Generation of Liability Protection Policies	Aon Risk Services, Inc. Of Maryland	Nicholas Joseph Chmielewski, Derek Charles Lietz, Lewis C. Lee, Daniel Crouse	31.05.19	11.10.23	04.04.24	
US-2009177554-A1	Method and system for facilitating transfer of an intellectual asset	Matthew David Powell	Matthew David Powell	13.04.06	13.04.07	09.07.09	
EP-2608136-A1	Invention valuation and scoring system	Tata Consultancy Services Limited	Santosh Kumar Mohanty, Shampa Sarkar	22.12.11	21.02.12	26.06.13	
WO-2007149551-A2	System and methods for managing intangible assets	Innovation International Americas, Inc.	John Douglas Graham	22.06.06	22.06.07	27.12.07	

WO-2016157214-A1	Intellectual property management system and tool	Indian Institute Of Technology Bombay	Gouri Ashok GARGATE, Karuna JAIN	28.03.15	28.03.16	06.10.16	
US-2014052649-A1	Data Management System for Generating a Report Document by Linking Technical Data to Intellectual Property Rights Data	Corporacion Medichem, S.L.	Jordi Prat, Merc√® Castella Martinez	16.08.12	14.08.13	20.02.14	
US-10614105-B2	System and method of designating documents to associate with a search record	Bycite Software Ltd.	Israel Twito	18.09.14	17.09.15	07.04.20	07.04.20
US-2006167715-A1	Method and a corresponding system for creativity and innovation management	Gil Thieberger	Gil Thieberger	21.01.05	20.01.06	27.07.06	
US-2013218785-A1	Self assembly of patent applications	Randall William Marusyk	Randall William Marusyk	23.09.11	21.09.12	22.08.13	
US-2022188950-A1	System and method of semi-automated determination of a valuation of a patent application of an entity	Owners Capital Gmbh	Michel Gschwendtner	15.12.20	15.12.20	16.06.22	
US-2021089971-A1	Systems and methods for performing a computer-implemented and feature based prior art search	American Chemical Society	Mark Ryan Grabau, John David FLEIG, Dmitrii Arkadyevich POLSHAKOV, Jeffrey Michael WILSON, Rodney Laroy FULFORD, Yi Deng, Philippe Yves Bertrand AYALA, Donald Eugene SWARTWOUT,	28.08.18	03.12.20	25.03.21	

			Nicholas Thady COCKROFT				
US-11030260-B2	System and method for dynamically normalized semantic distance and applications thereof	Ip.Com I, Llc	Wen Ruan, Samuel C. Baxter, James Thomas Durkin, William Yurich Fowlkes	29.08.18	29.08.18	08.06.21	08.06.21
WO-2013136347-A2	Data management system	Omprakash Sringeri N	Sringeri N. Omprakash, Rudraiah SADANAND, P Ithal SHASHIDHARA	16.03.12	15.03.13	19.09.13	
WO-2019049162-A1	Method and system for ip project management	Ingenious E-Brain Solutions Pvt Ltd	Mohit Gupta, Mrityunjay PATHAK	11.09.17	11.09.17	14.03.19	
US-20100005020-A1	Funding of projects	Alexander Polinsky	Alexander Polinsky	03.07.08	03.07.08	07.01.10	
US-20240095268-A1	Productivity improvements in document comprehension	Grapheme Inc.	Vikas Bhushan Dhar, Sridhar SOWGANDHARAJU, Abhijit Jayant DEO, Ajay Nair	19.09.22	19.09.23	21.03.24	
EP-3751500-B1	System and method for technology recommendations	Tata Consultancy Services Limited	Nagendra Vijaya Kumar Khaderbad, Simanchala Panda, Harikishore Gudipudi, Satish Sreenivasiah	14.06.19	09.03.20	03.05.23	03.05.23
US-20233377074-A1	Quantifying Innovation and a Standardized and Data-Driven Approach to Determine the Value of Intangible Innovation Assets	Jonas Block, Luis Soriano Valdes, Erich Lawson Spangenberg	Jonas Block, Luis Soriano Valdes, Erich Lawson Spangenberg	01.03.22	01.03.23	23.11.23	

US-2012059851-A1	Function-Oriented Mapping of Technological Concepts	Hans Lercher, Manfred Peritsch	Hans Lercher, Manfred Peritsch	05.03.10	04.03.11	08.03.12	
US-6339767-B1	Using hyperbolic trees to visualize data generated by patent-centric and group-oriented data processing	Aurigin Systems, Inc.	Kevin G. Rivette, Irving S. Rappaport, Luke Hohmann, David Puglia, David Goretsky, Adam Jackson, Charles Rabb, Jr., David W. Smith, Brian Park, Warren Thornthwaite, Jorge A. Navarette, Noura Bashshur	02.06.97	29.08.97	15.01.02	15.01.02
US-5991751-A	System, method, and computer program product for patent-centric and group-oriented data processing	Smartpatents, Inc.	Kevin G. Rivette, Irving S. Rappaport, Luke Hohmann, David Puglia, Adam Jackson, Charles Rabb, Jr., David W. Smith, Brian Park, Warren Thornthwaite, Jorge A. Navarrete	02.06.97	02.06.97	23.11.99	23.11.99
US-2005210009-A1	Systems and methods for intellectual property management	Bao Tran	Bao Tran	18.03.04	18.03.04	22.09.05	
US-2005210008-A1	Systems and methods for analyzing documents over a network	Bao Tran, Iketani D T	Bao Tran, D. Iketani	18.03.04	18.03.04	22.09.05	
US-2002118508-A1	System and method for new product clearance and development	Chevron Oronite Company Llc	Nancy Smrcka, Reynaldo Rosales, Thomas Balk	12.02.01	12.02.01	15.08.02	
US-200518	Systems and methods for analyzing documents over a network	Bao Tran	Bao Tran	14.02.04	14.02.04	18.08.05	

2755-A1							
US-2003172020-A1	Integrated intellectual asset management system and method	Davies Nigel Paul, Mariani William A., Schroeder Ralph G.	Nigel Davies, William Mariani, Ralph Schroeder	19.11.01	19.11.02	11.09.03	
US-2006026174-A1	Patent mapping	Lundberg Steven W, Kalis Janal M, Pradeep Sinha	Steven Lundberg, Janal Kalis, Pradeep Sinha	27.07.04	27.07.04	02.02.06	
CN-117035699-A	Collaborative processing method, sharing method, computer device and storage medium	Â∞è‰∏ñÊï∞Â≠óÁßëÊ ä∆(Ê∑±Âú≥)ÊúâÈôêÂÖ¨Âè∏	‰ΩïÈùíÁì¶, È∫Ñ´ëú, Ë¥æÂ§§Ê∂õ, ÁΩó„Êâç§Ë¥ã, Ë¢Â≠êÈïè	11.05.23	30.06.23	10.11.23	
AU-3609100-A	Intellectual property asset manager (ipam) for context processing of data objects	Aurigin Systems, Inc.	Noura Bashshur, Andrew S. Dewolfe, David Goretsky, Luke Hohmann, Adam Jackson, Scott Kurowski, Thierry Paradan, Brian Park, David Puglia, Charles Rabb Jr., Irving S Rappaport, Kevin G Rivette, Brent Rosenquist, Matthew Schnitz, David W. Smith	02.03.99	29.02.00	21.09.00	
WO-2023079087-A1	Computer implemented method for producing a patent-data based indicator	Econsight Ag	Jochen SPUCK, Michael FREUNEK, Kai GRAMKE	05.11.21	04.11.22	11.05.23	
WO-0011575-A9	System, method, and computer program product for managing and analyzing intellectual property (ip) related transactions	Aurigin Systems Inc	Kevin G Rivette, Irving S Rappaport, Luke Hohmann, David Puglia, David Goretsky, Adam Jackson, Charles Rabb Jr, David W Smith, Brian Park, Warren Thornthwaite, Jorge A	21.08.98	23.08.99	26.10.00	

			Navarrete, Robert J Muller, Harvey Alcabes, Donald Brannon, Matthew Schnitz				
WO-0120497-A2	Competitive information management system	Weitz David J	David J. Weitz	13.09.99	12.09.00	22.03.01	
WO-2019053734-A1	System and method for patent data mining	Ingenious E-Brain Solutions Pvt Ltd	Mohit Gupta	15.09.17	15.09.17	21.03.19	
WO-2022120009-A1	Systems and methods for performing a computer-implemented and feature based prior art search	American Chemical Society	Mark Ryan Grabau, John David FLEIG, Dmitrii Arkadyevich POLSHAKOV, Jeffrey Michael WILSON, Rodney Laroy FULFORD, Yi Deng, Philippe Yves Bertrand Ayala, Donald Eugene SWARTWOUT, Nicholas Thady Cockroft	03.12.20	02.12.21	09.06.22	
WO-2013043146-A1	Searchable multi-language electronic patent document collection and techniques for searching the same	Cpa Global Patent Research Limited	Jason David Resnick, Randy W LACASSE	19.09.11	19.09.11	28.03.13	
US-2015046344-A1	Method of creating value from intangible assets	Omar B. Hakim	Omar B. Hakim, George Poletes	10.07.03	12.07.04	12.02.15	
EP-3905065-A1	Computer-implemented method for finding a technical problem solution, database and computer program	Siemens Aktiengesellschaft	Sophia Althammer, Mark Buckley	29.04.20	29.04.20	03.11.21	

US-2005144177-A1	Patent analysis and formulation using ontologies	Hodes Alan S.	Alan Hodes	26.11.03	27.02.04	30.06.05
US-2024013854-A1	Systems and methods for engineering protein activity	Aether Biomachines, Inc.	Stylianos Kyriacou, Pavle Jeremic, Charmaine Chia, Inhee Park, Louis A. Clark, Christian Fitzgerald Clough	10.01.22	18.09.23	11.01.24
US-2021149966-A1	Systems and methods for performing a computer-implemented prior art search and novel markush landscape	American Chemical Society	I Todd Josef WILLS, Christopher Peter Kynnersley BADDELEY, Matthew Jennings McBRIDE	20.11.19	19.11.20	20.05.21
IT-201900016040-A1	DEVICE FOR MANAGING AN INDUSTRIAL PROPERTY PORTFOLIO MANAGED BY AN ARTIFICIAL INTELLIGENCE	Mariacristina Giovanna Ida Rapisardi	Mariacristina Giovanna Ida Rapisardi	10.09.19	10.09.19	10.03.21