Black Box Patent Tools
Hope or Hype?

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Bedkin IP

What’s out there?

- actimine
- amplified
- Patentfield
- Patentcloud
- RESOLUTE patents
- IQ 
- IP3 SCREENER
- TEQMINE
- elementary IP
- Al Patents
- ambercito
- EVALUERSE
How Do AI Enabled Patent Tools Work?

Does It Matter If It’s a Black Box or Not?
How Good?

- the world’s most advanced patent analytics platform
- the fastest and easiest way to search patents
- extraordinarily quickly and easily
- accurately, and reliably finds prior art
- quickly and easily identifies highly relevant prior art
- Invalidation Search in 3 Minutes
- Faster, more accurate, and more comprehensive prior art search
- more comprehensive results
- giving you a far greater confidence level in the validity of your results
- Cut the review time of invention disclosures by 50%
Metrics

Compare the performance of each tool to the results of the best professionals.

What has both A & B missed?

How to Compare to Manual Searching

Example 1: Invalidity & Patentability searches

Example 2: Categorization of a data set
Example 1
Invalidity & Patentability Searches

- Tool #1 Completely automatic features
- Tool #2 Automatic option or combination option
- Tool #3 Automatic option or combination option
- Tool #4 Combination option (not a database)
Evaluation Process

• Thorough search strategy
• Review of results

Manual search

• Push a button
• Insert text for similarity
• Break down automated results into clusters and select the on point clusters

(Semi) Automatic Search

• Overlap
• Evaluation of background

Comparison of results

Elements Examined

Percentage of found references with automatic tools compared to the manual search

Manual

Automatic

Best of Manual

Total number of references to review


Total number of references to review
Evaluation Results – Search A

Percent of Manual Results Found by Automatic Tools

<table>
<thead>
<tr>
<th>Tool</th>
<th>Manual</th>
<th>Automatic Overall</th>
<th>Automatic Most Relevant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tool #1 Auto 1</td>
<td>6</td>
<td>25</td>
<td>25</td>
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<tr>
<td>Tool #1 Auto 2</td>
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</tr>
<tr>
<td>Tool 2 Auto</td>
<td>23</td>
<td>58</td>
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</tr>
<tr>
<td>Tool 2 Semi-Auto</td>
<td>30</td>
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<tr>
<td>Tool 3 Auto</td>
<td>18</td>
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</tr>
<tr>
<td>Tool 3 Semi-Auto</td>
<td>17</td>
<td>67</td>
<td>67</td>
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Final Comparison of Tools
Best Method from Each Tool

MAX 67% for Validity
MAX 44% for other searches
Example 2
Categorization of a Data Set

Topic: Magnetic Stimulation of the Human Nervous System

Categories:
- Peripheral Nervous System (all sensory nerves, motor nerves, etc.)
- Brain
- Spinal cord

Data Set Creation

1466 US records
Categorization Methods

- **Automatic**: One-click analytics, work with what you get.
- **Semi-Automatic**: One-click analytics, minimal user interaction of analytics by grouping concepts.
- **Semi-Manual**: No analytics, full user control, create categories by keyword limitations of data set.
- **Manual**: No analytics, full user control, read every reference (title, abstract, specification, and claims).

### Total References Retrieved with Each Method

<table>
<thead>
<tr>
<th></th>
<th>Brain</th>
<th>Peripheral</th>
<th>Spinal Cord</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manual</td>
<td>400</td>
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<td>100</td>
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<tr>
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<tr>
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<td>800</td>
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<td>800</td>
</tr>
<tr>
<td>Semi-Manual</td>
<td>1000</td>
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</table>

The Semi-Manual and Semi-Automatic methods bring in significantly more records for peripheral, but nearly the same number of records for brain and spinal cord.
Comparison for Brain

Overlaps for measure of accuracy

Accuracy of Each Method?

Example: Automatic Method - Correct References vs Noise

Total in Brain category: 508 refs.

- Correctly Tagged: 370 references
  Correct rate = 370/508 = 73%

- Incorrectly Tagged: 138 references
  Noise rate = 138/508 = 27%

Some references have been missed.

Hit Rate: Nbr of correct refs / nbr of refs in manual method.

370/486 = 76%
Hit Rate of Each Method

Percentage of found* references in each method

<table>
<thead>
<tr>
<th>Method</th>
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*found= references included in the Manual method collections

Noise Level of Each Method

Percentage of noise* in each method

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*Noise= incorrectly tagged reference
Conclusion: the Semi-Automatic method is better than the Semi-Manual

- Better in finding the right refs and exact same percentage of noise
- Less references to review

Average Hit Rate and Noise Level for Each Method

- Less than 50% of references are identified through pure automatic methods.
- Noise in non purely manual methods: 43-52%
- A 40% increase in number of references identified correctly can be achieved by addition of user contribution.

Time Spent
Conclusions

- Accuracy of automated tools can be as good as 67% or as low as 0% of a manual search*
- There is no way of finding out metrics - you'll have to do the work yourself.
  - Set up a centralized, more efficient method?
- Metrics will differ by:
  - Tool
  - Technology
  - Type of search
  - Concepts
- Remember to take into consideration the added noise - takes time to review
- Make choices with end-user needs in mind

*based on these examples
Thank you

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