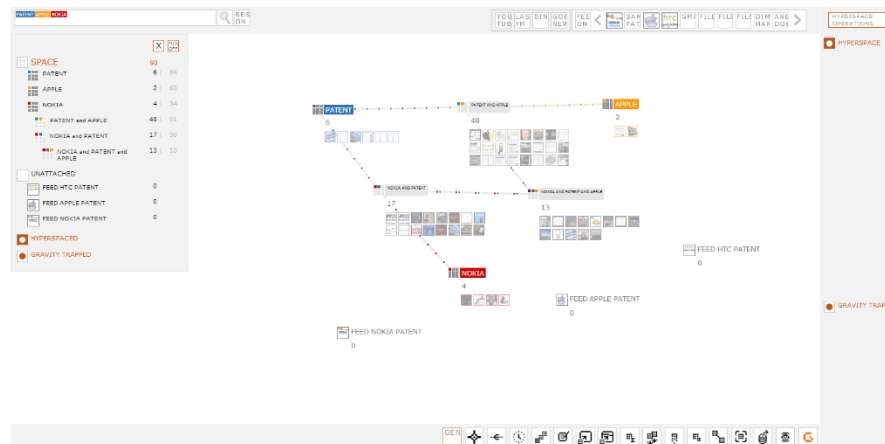# Gravity Patents™

A01 Gravity in Patent search

Application Concept

Gravity Patents™ is a new generation patent application interface for searching, sorting and managing large amounts of data from different sources in a natural way close to the way we operate with palpable objects in the physical world. Gravity Patents ™ brings an incomparable level of complexity visualized and managed on one screen, significantly reduced search time, a self-educating system, multi-criteria search capability, various operations with data files, combinations with additional sources (public information sources, scientific libraries, stock quotes, book markets), and is perfect for mobile tactile devices like smartphones, phablets, tablets, large touchscreen displays, touchboards, etc.

How it works

It introduces an innovative graphic organization of the display that allows it to conveniently handle large amounts of data objects of any type or combination of types (documents, emails, files, links, publications, database entries, etc.) while demonstrating their relevance to multiple criteria.

The Gravity Patents™ interface uses multiple ways of representing levels of relevance. It makes use of traditional devices but also introduces speed of movement as a visualization tool.

Gravity Patents™ steps away from one dimensional list organizations. The data on the screen is represented on a two (and possibly multidimensional) work plane.

Data objects are grouped in points on the plane where searching and sorting criteria have been defined. The visualization can be custom tailored to screen resolution, type of device and user preferences.

The Gravity Patents™ added value

Intellectual property is one of the fundamental areas in many companies today. Scaling risk, reducing expenses, improving R&D and innovation processes are just some of the results of well-managed intellectual property. With Gravity Control™ patent search:

1. Takes a significantly reduced time
2. Can be used with a self-educating mechanism
3. Offers multi-criteria search options
4. Can be integrated with various operations on the data files included
5. Can be combined with
   a. public information sources
   b. scientific libraries
   c. stock quotes
   d. book markets

Significantly reduced time and ease in performing a patent search

Using Gravity Control™ the time needed for performing patent searches can be significantly reduced because an IP expert or a regular user could use data from different databases all in one screen implementing the chosen classifications and using various visual aids like a background map for instance to locate the results in the respective geo-location.
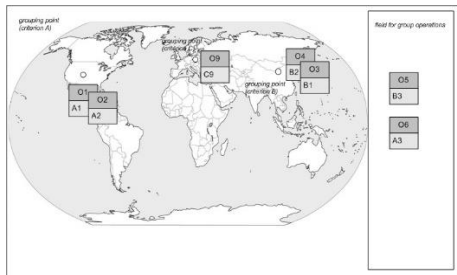
Saving the grouping points together with an auxiliary background image allows the creation of convenient work templates to be applied to groups of patents (e.g. an attribute mask of countries of the world can be applied to the patents in the field for group operations in which case they will move toward their country of origin or they may be sorted according to a graphic scheme of patent classes).

Self-educating system

Gravity Control™ is designed a self-educating system. What that means is that every time and expert uses the system it will gain from his or her knowledge and implement it while a non-expert user operates with it. The skilled in the art are well aware of the methods for entering logical operations by means of auxiliary interfaces like, for instance, choosing an element executing logical *and* from a list. This knowledge can then be passed onto users who were not trained to execute such complicated operations and freely use it in their everyday work.

Multi-criteria search capability

In Gravity the user will be given the ability to add numerous search criteria in the work-plane and to keep on redefining their search (e.g. by accessing the full text of the patent and the count of most used terms from the data dictionary chosen in the application settings).

Operations with IP files

The user can move patents of interest to the field for group actions after or during the graphic representation of the relevance of sorted objects and there they can perform different actions like: printing the whole patent, sending by e-mail, copying to another database, viewing images, etc.

Possible Data Sources and classifications

- European Patent Office
- World Intellectual Property Organization
- Bulgarian Patent Office

- International Patent Classification
- Nice Classification
- Vienna Classification

Gravity Patents™ for Landscape Analysis

What tools can Gravity Patents™ offer for Landscape Analysis?

Simultaneous sorting of a data set by several criteria at once

One of the major advantages of Gravity control for performing landscape analysis is the possibility to sort and search by several criteria simultaneously. As the screenshot below shows, each individual criterion is assigned a grouping point on the work plane and attracts the documents relevant to it.
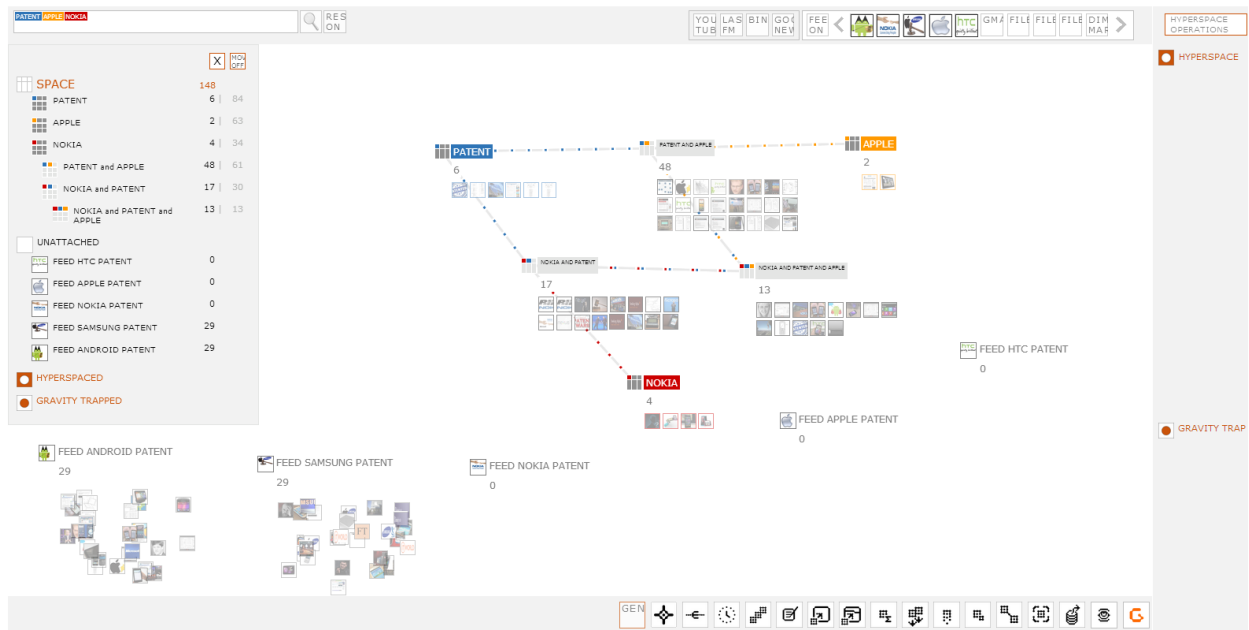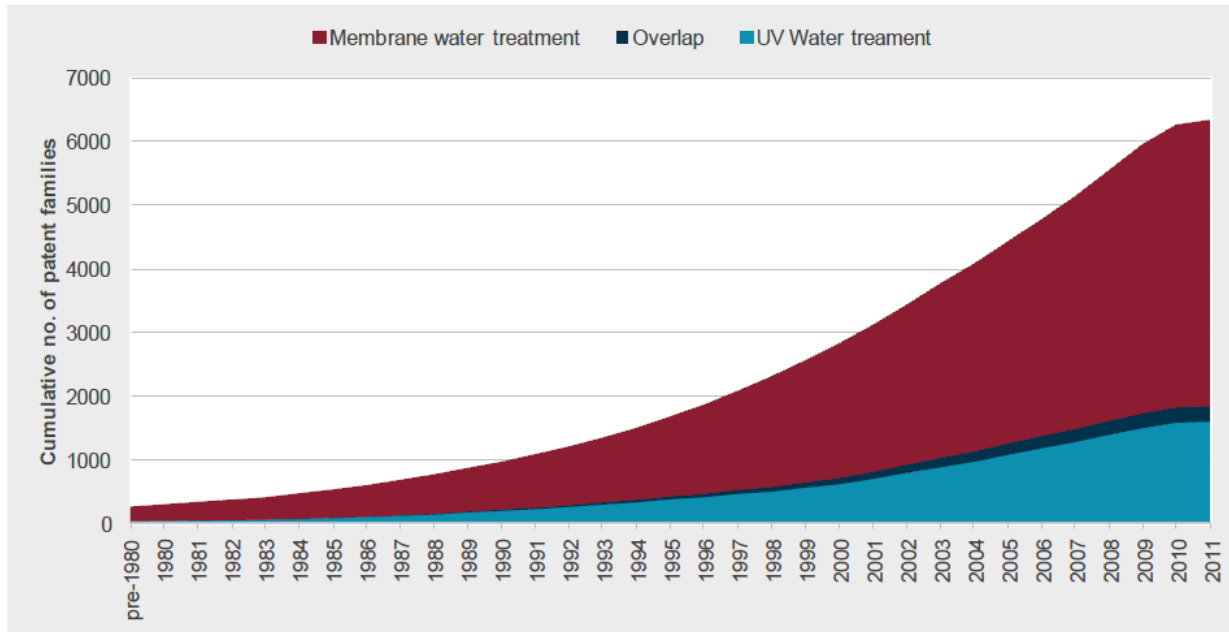
However, if a document is relevant to more than one of the defined criteria it will be attracted to a resultant grouping point. This way the interface can clearly demonstrate areas of overlap between topics of interest, be it related technologies, competitive companies or collaborators, inventors and applicants or even all of them at the same time.

The individual criteria can also be composite or compiled using regular logical expressions such as *and, or* and *not*.

As at the activation of the sorting process the objects start moving to their respective grouping points, this creates the opportunity to use their speed of movement as a visualization tool for their level of relevance, when calculable. As more relevant objects move faster than less relevant objects, the user gets immediate visual information on which objects might be of greatest interest to them.

Easy access to individual item details and available operations

The large amount of data objects represented on one screen naturally limits the amount of detail available for each of them at a glance. As reviewing the details of individual objects is crucial to conducting an effective research, Gravity Control provides easily accessible detail panes that may not even require a click. Depending on the chosen object, these reveal useful data about single documents (including but limited to name, link, file details, attributes, tags, summary, active buttons available operations and even video playback) or details about a group (list of elements, summarized data, most common and uncommon attributes among the elements, etc.)

Search by example

The new graphic organization also provides the tools for easily reversing the direction of a search. After finding an objects of interest, through browsing or using user-defined search criteria, the researcher can review all its attributes and choose to turn one or more or a combination of them into grouping criteria thus finding similar objects or documents.

Efficient representation of large amounts of data

The new graphic organization of the Gravity Control work plane makes it possible to comfortably represent some 24 times more individual objects on the same screen compared to scroll page view in list organizations.

Simultaneous work with different data types and sources

The Gravity control interface can simultaneously load into the work plane data objects of different types and sources, including patents, scientific publications, media publications, private documents, correspondence, contents of custom databases, and many more. It can also work with live feeds - from RSS sources for instance. This makes it well suited for tracking events, tendencies, products, technologies and even publishers across fields, identifying more possibilities for cooperation or development.

Keeping results and adding to them

Gravity control makes it easy to add both new search criteria and new data items to the work plane. The addition of items can even be automated if they come from a live source such as an RSS feed for stock exchange rates or business news. The good news is that by adding to the workplane the software does not dismiss previously achieved results. All the user defined grouping point with their groups of relevant documents remain on the screen while new data is added to them. Refining and adding search criteria will only affect those of the already sorted items that are also relevant to the them.

Event Horizon capabilities

In the cases when documents need to be examined in sets by date (e.g. files from the last five years and before), this can easily be done with the help of the Event Horizon. This feature divides the work plane into two (and eventually more than two) dividing the loaded objects according to the user-defined criterion. The documents below and above the horizon are sorted separately and can be sorted by the same criteria set, or a different criteria set. This could be useful for examining trends over different time periods on the same screen.
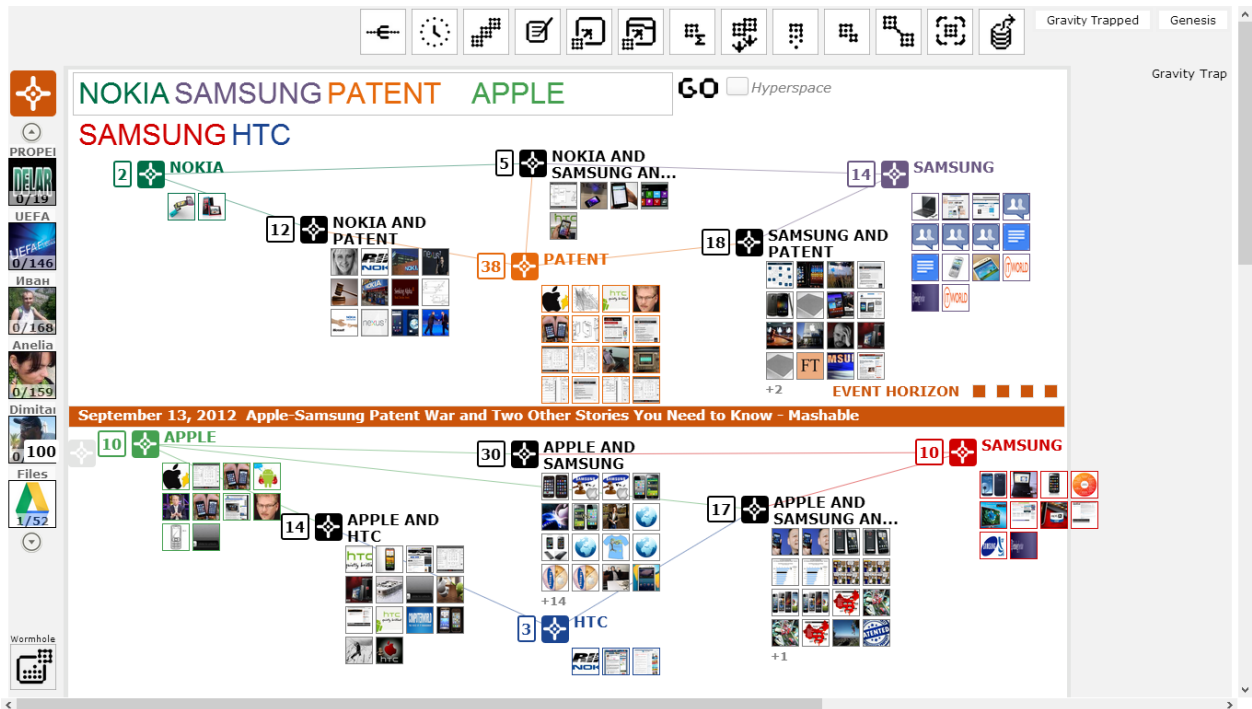
The event horizon can also be modified to allow sorting by criteria other than date, such as numeric or logical values, which will significantly widen its applicability.

Timeline capabilities

When the user has already defined a gravity system of criteria, they can follow the changes in the groups of relevant objects over time by using the Timeline. This feature adds objects to their respective groups gradually according to their timestamp. It can be particularly useful for discovering development trends or following media interest trends over time for instance.

Much like the Event Horizon, the Timeline can be modified to work with other types of criteria. You can see this feature in action in our demo video at http://gravitycontrol.net/fce

Reporting and data export capabilities

All of the searching and sorting results achieved through Gravity Control and it's new graphic organization can also be delivered in a standard list or table format for output into other programs or presentation tools.

Extraction of most common attributes

While objects are grouped by common user-defined criteria, the items within the group are very likely to share more than just those. Gravity Control extracts all attributes of single items and compiles a report for those that shared by most members of the group and also possibly those that are shared by least. This directs the user to possible new search criteria to be included or excluded in order to refine or widen the results.

Lexical spectrum analysis

One of the features of Gravity Control that can be particularly useful in widening or refining search results is the analysis of the most common terms within a document. The map of these terms with number and frequency of occurrences is what we call a lexical spectrum. Lexical spectra can also be superimposed and compared to identify documents that stand out from the group and thus be used to direct the search.

Extraction of quoted patents

Combining Gravity Control with full text search, within particular fields of the document or the whole document, will allow the extraction of standardized strings such as patent numbers quoted, providing interesting insight into research patterns and referrals. The number of quotation instances can also be easily retrieved and thus used as a searching and sorting criterion.

Extraction of applicants and inventors

Full text search capabilities will also allow the quick retrieval of names in designated document fields such as applicants and inventors, again turning them into easy to access searching, sorting and analysis criteria.

Representing graphical information

The new multi-dimensional graphic organization of Gravity Control provides for convenient visualization of graphical data such as geographic coordinates. The latter can even be used as grouping points superimposed on a map image while retaining the full functionality of the interface.

In combination with the Timeline feature this can comprehensively represent the relations between offices of first and second filing for example.

Simultaneous representation of hierarchical classification structures - internationally accepted classifications, contacts, etc.

Gravity Control includes the use of classifications as both a starting point for a 'blank' search or a point of reference and a means of deriving new criteria from objects in grouping points or other parts of the work plane. We are currently working on strategies to incorporate multiple classifications of different types (e.g. internationally accepted classifications in various fields, hierarchical contact structures) so that they will be accessible when reviewing a single object's properties and markable for use as grouping criteria. The current progress inspires us to feel optimistic for the added value of this feature.

Multi-user environment

As the modern professional environment becomes more and more collaborative and collaborations take place more and more online, our plans for the development of Gravity Control have always included multi-user capabilities. The simultaneous participation of several professionals on the same work plane could yield better and even more interesting and creative results.

Full text search scopes

Depending on their needs, the researcher can conduct full text searches within the documents in a particular group or groups, selected objects that have been excluded from the searching and sorting by the user, or even within the whole accessible database. Where available, It is also up to the user

to decide whether to conduct it on the complete text of the documents or only on particular structured parts such as the abstract or the claims of a patent.

List of product features

A Gravity Patents application for patent search and landscape analysis will include the following sets of features.

Basic features

- Simultaneous loading and management of different types of objects
- Simultaneous loading of objects from different sources - including local and network drives, online databases and live internet feeds.
- Simultaneous searching and sorting by multiple criteria.
- Visualization of the level of relevance through speed of movement and object order (when calculable)
- Refining and adding criteria without removing from the screen the already received results.
- Switching between levels of detail when viewing grouping points and individual objects
- Video playback within the work plane
- Common operations on objects in the work plane - *open, send, print,* etc.
- Reporting functions - list export of results.
- Calculative functions - basic operations with numeric attributes.
- Retrieval and summary of object attributes in a grouping point.

Additional features

- Full text search for keywords and preset criteria
- Retrieval of criteria from structured fields - names, quotes, etc.
- Retrieval of structured strings from the full text of objects - inline patent quotes, etc.
- Full text lexical spectrum analysis