# Gold Digger: A searching behaviour game

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**Objective**

Information management is becoming an essential part of our professional and personal lives. Whether it is in order to write a report, to do research, or simply to look for inspiration, we often turn to the internet, and increasingly less to paper-based media, to search for the information we need.

Yet, to be able to make use of the vast resources at our disposal, it is increasingly important to be effective in finding ways to shorten the time spent searching, while maximising the amount of useful information found, or the 'rate of gain'.

The aim of this project was therefore to provide insights into the strategies users apply to search for information and shed light on how they make searching more effective. There are however many different parameters that influence our rate of success when searching for information, such as our familiarity with the kind of information we are searching for, and our skill in using the searching tools themselves.

The challenge and main objective of this project was to create a context in which all users can have the same starting conditions irrespective of pre-existing abilities, and subsequently analyse and investigate their searching behaviour.

**Strategy**

I decided to design a game as an ideal environment to investigate searching behaviour as it is abstracted from any potentially biasing context. This game would simulate the actions and decisions users would face while searching for information, but not actually present them with an information retrieval task.

This way, the game would make it possible to put users on the same starting point, since previous insight on information retrieval would not be applicable. As an experimental platform, it allows easy modification of its parameters and could therefore be used to carry out multiple experiments with different focus. Finally, the game also presents a familiar environment to users where they can have fun and will be motivated to use the system over a long time.

**Execution**

In Gold Digger, searching is represented by entering a mine. Examining one of the pieces of information we find and thereby acquiring useful information, is represented by digging and obtaining gold. The amount of gold that the player is able to extract from a given mine, is determined by their ability to decide whether the mine is still profitable to dig in or if it is better to move to a new mine instead, much in the same way we would decide to examine the list of links returned by a search engine one by one, or enter a new query instead. Because digging and moving both have a cost in time units, the player will need to find the most profitable way to act before the end of the

day. Entering a mine also has a cost, so players will need to make sure to acquire enough gold before the end of one day to be able to continue mining.

Players can purchase a variety of items that will allow them to gain more gold, dig or move at a lower cost or even be able to get clues on the profitability to dig in a mine. These items represent the 'enrichment strategies' we use while looking for information, for instance having different tabs open on a browser to quickly flick through different pages. Finally, players are also able to gain special achievements for their performance and be ranked in leaderboards.

Gold Digger is therefore an effective and creative representation of information retrieval that gathers invaluable information to further analyse search behaviour and can easily be adapted to evolving research aims, as well as keeping players engaged and motivated to take part. As a result, a very large amount of (completely anonymised) data on registered users' performance has been generated and is currently being processed.

**Effectiveness**

Today, the ability to retrieve greater amounts of useful information in smaller amounts of time is becoming an invaluable skill to navigate both our professional and private lives.

The insights Gold Digger can provide will help to improve information retrieval techniques, to optimise content design, and could make the skills needed to search for, find, manipulate, and make sense of vast amounts of information more accessible.

Personally, Gold Digger improved my web development, project planning, and data analysis skills and I am excited to develop it further and keep pushing the boundaries between research and gaming. Gold Digger is now live and playable at (for Chrome, Firefox and Safari):

http://golddigger.pythonanywhere.com/