Project Proposal: Creative External Memory
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1. Main Idea

Using paper sketchbooks for something like 15 years now, I love them and suffer from their drawbacks mostly resulting from the physical constraints of a paper book. Especially when the number of sketches grows it is increasingly hard to find a particular one. And even if you can remember one specific sketch and might even have the corresponding sketchbook at hand it will take some extra time to flip through the pages to get it. And by the time you finally found it you have probably forgotten, why you were looking for it.

Is it possible to overcome some of these disadvantages? And can we use the computer to accelerate the creative process? Or to put it in other words: How can we make our sketches easier to access and how can the computer help us to create new ones? Good thoughts get lost or buried. How can we keep them? How can we find them? What is the effect of sharing them with others?

Sketchbooks can enhance creativity. One reason for that is that they support our memory, helping us to remember thoughts and ideas. Another one can be seen in their allowing us a dialogue with these externalized ideas. It is an interesting question what might happen if such a world of ideas could also be made accessible for others or might even serve as a collective sketchbook or memory representation.

The aim of this project is to explore in a very divergent process a large number of possible approaches rather than to favorite a single solution.

2. Structure

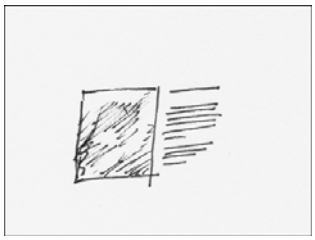
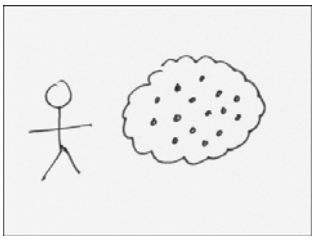
The project is roughly divided into two parts, one basic part mainly addresses software issues and a second part, dedicated to the physical interaction with sketches.

A major part of the project will be the collection and exploration of GUI concepts, which mainly focus on accessing and using large amounts of data. The aim of the software part is to make the access and modification of the sketches by one person easier and to support the creation of new sketches and ideas.

2.1 Software

2.1.1 One User, one database, multiple ways of access

The project will start with a simple setup. We define a simple sketch format, which consists of one image and a text. All sketches will be stored in one database, which is filled, accessed and modified by one user. In a later stage of the project other data formats like sounds, movies or applications might be included.

2.1.1.1 Design

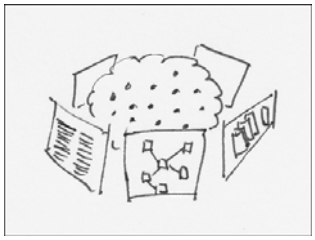
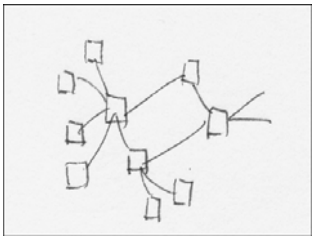
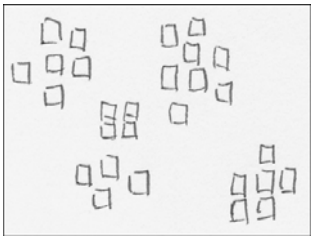
The focus of the first part will be to design processes like the following:

Creating And Modifying Sketches

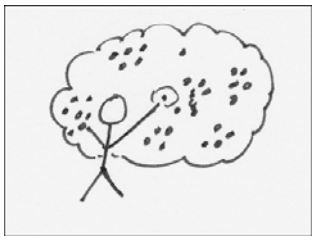
The questions of how to create and modify a sketch on a computer will be addressed briefly as a lot of convincing solutions for this already exist (e.g. Curio, Alias Sketchbook).

Browsing

The fragmented collection of connected, related or unrelated sketches and ideas will be stored in various formats (e.g. JDBC, XML, MySQL or Folders & Files). This growing set of fragmented information, the sketches – each of them consisting of one image and a short text – will be visualized in various ways. The idea is to explore numerous ways of depicting and browsing this data, using for example hierarchical, associative or collective arrangements. The contents of the sketches will be the sketches of the project themselves. Thus the content of this subject will grow with the progress of the project. Every solution will be added as a sketch and becomes part of the problem. Instead of trying to create one single perfect view of all the data this project will focus on finding numerous dynamic ways of looking at it. Aspects, which determine the representation of the data might include time, categorization, relations and collections among the sketches or emotional states which relate to the sketches or the corresponding project.

Rearranging and Relating
Another important interaction is to use a foundation of ideas and thoughts and author the "big picture" of that material. Strategies might include grouping, creating relations, tagging or evaluating the sketches. The goal is to enhance creativity by designing the reuse and recombination of existing sketches.



2.1.1.2 Technology
The software part of the project will be mainly based on Java. One reason to chose Java was, that the code will run unchanged on various platforms, including Mac OSX and Windows. Apart from that Java is a comparatively forgiving environment which (in combination with OpenGL) still provides a reasonable performance speed for most interactive graphic applications.

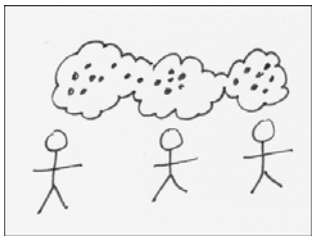
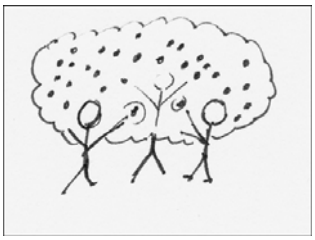
Graphic
We need a basic real-time graphics platform which takes the advantages of JOGL, an OpenGL implementation in Java and provides authors with a set of classes, which will be needed frequently in interactive visual applications.

Database
-> to be discussed with a computer scientist
- local database using JDBC(?)
- XML input/output

2.1.2 Multiple users, one database, multiple access
So far this project is limited to the use by one person. It ignores one powerful characteristic of databases. As they can be filled and accessed by an arbitrary number of participants with an unlimited amount of information they have a powerful potential of provoking synergetic effects. Thus the next step will be to create a space of ideas, which can be used by more than one person and explore the corresponding questions and opportunities.

2.1.2.1 Design
Some important processes to be designed in such an environment are:

Sharing sketches
If more than one person have access to a set of sketches, then certain questions arise like: Who is allowed to view or even modify which sketches? How do the users manage those permissions? How to deal with problems that might come up, if several people work on the same sketch at the same time? Many of these issues already have been successfully addressed in the development of Wikis. The focus of this project mainly is to visualize the solutions to these questions. The ideal scenario is that one can watch how the other participants browse and modify the collective cloud of ideas.

Communication
There should be a communication channel between people who work on a world of ideas together. (Is this beyond the scope of this project? Should communication be done exclusively through the sketches or on tools, which already exist?)

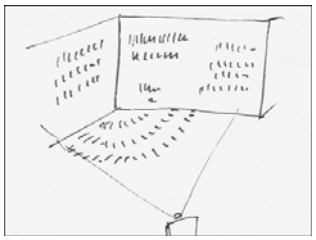
2.1.2.2 Technology
Graphic
- JOGL

Database
-> to be discussed with a computer scientist
- online database using JDBC or MySQL(?)
  -> if necessary conversion software between various database formats
- XML input/output
- maybe Html-Interface (using PHP for example?)

2.2. Body and Space

2.2.1 Physical input of sketches
Physical input and output devices obviously play a crucial part in the creative work with computers. The question is, how to use the intelligence of our hands and other parts of the human body more effectively to interact with the sketches.

2.2.2 Spatial and physical output of sketches
Not only alternative ways of interacting with the data, also simply the way it is displayed will be the asset of a series of experiments, which show some ideas of how a pool of ideas can be shown on various scales. The results could be applied for example to collective brainstorming sessions (alternatives to flipcharts or blackboards) or to visualize what the ideas are that people deal with right now



3. Timetable

Either:
Spring Term: software interfaces (single and multiple users)
Summer Term: installations / hardware interfaces

Or:
Spring Term: Single user + installation(s)
Summer Term: multiple users + installation(s)

4. Research

- Ben Fry's projects
- Curio, OmniGraffle, etc. (sketching and mind-mapping tools)
- W. Bradford Paley / Jefferson Y. Han, "TraceEncounters"
- Buckminster Fuller, Dymaxion Files
- Leonardo's sketchbooks
- Library systems
- Google
- Html
- The Talmud
- Autonomous agents
- …

Topics related to the project:
- Memory
- Creativity
- History
- Cultural Heritage
- Synergy
- …

5. Integration of Students

Work with students in workshops and thesis projects might be related to this topic.