

InfoGarden: A Casual-Game Approach to Digital Archive Management

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Digital archives require continual attention for their survival.

Digital data in personal and institutional environments is growing exponentially and faster than expected [1]. Personal digital archives such as email, photos, music, and movies already dwarf collections of physical documents in terms of their number of items. As opposed to physical collections, digital collections will unlikely ever run out of space given the sinking cost and ever increasing densities of digital storage media. But physical documents can survive tens, hundreds or thousands of years of inattention while digital documents require continual maintenance for their preservation [2, 3]. The combination of easy storage and difficult maintenance leads to a cycle of ever greater data amassment followed by ever greater amount of data loss. This is confirmed by Cathy Marshall's studies of digital archiving behavior of individual users. She sums up her findings with "It's easier to keep than to cull but it's easier to lose than maintain" [4]. Consequently digital data appears to be ephemeral and have lead to predictions that the current era would be known as the Digital Dark Age [5] leaving future historians deprived of any personal letters, diaries, and photo collections, sources that traditionally have proven essential for historic understanding.

Attending to digital archives is tedious. All approaches to digital archive management known to the authors require the effort and discipline comparable to one or more full-time jobs. Most users of personal collections of photos, music, or movies seem to be unable to devote the attention to their personal archives to significantly increase the likelihood of archive survival.

A casual game approach. Our hypothesis is that *users are able and willing to spend significant time and effort on archive management if that activity is re-casted as a fun and entertaining casual, single-user computer game.* Such a game could tap into the significant pool of "solitaire cycles" that users usually spend on playing traditional unproductive and distracting casual games. According to the 2007 report by the Casual Games Association, casual gamers average 7-15 hours of (online) play a week [6]. We chose to focus on *casual* game designs such as Solitaire or Tetris because of their simple rules and the ability to play them without much commitment so they fit within short work breaks. More people play casual games than any other type of video game [6].

InfoGarden. We designed and built an initial prototype, InfoGarden, that focusses on a common and particularly tedious aspect of archive management: tagging. InfoGarden represents the status of a digital archive as a garden patch. Neglect of the archive is represented by the spread of weeds. The player can tend to the garden patch by weeding, fertilizing, and planting. The game is casual as it can be interrupted at any time and the rules are very simple: documents without keyword annotations crop up at random places on

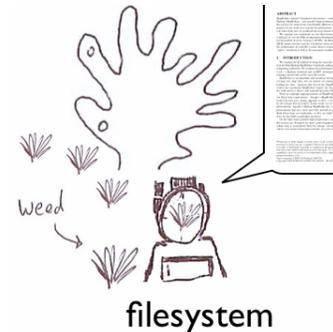


Figure 1: Weeds in crosshairs. Aiming at a weed reveals the document it represents. Here the player is about to shoot the weed with the keyword "filesystem". This will make the weed disappear in an explosion. Plants represent collections of semantically similar documents. Their size and shape is determined by collection size and keyword taxonomy.

the garden patch. Pointing at a weed will provide a view of the document it represents. Projecting a keyword at the weed ("weeding") will make the weed disappear, and a new fruit will appear at a plant that represents semantically similar documents. Projecting another keyword at the fruit ("fertilizing") will make the plant grow in a shape that is determined by the keywords used. The player can create new groups of semantically similar documents by projecting keywords at bare soil of the garden patch ("planting"). Our preliminary experience with playing InfoGarden is encouraging and fun.

1. REFERENCES

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