

Using Intimacy, Chronology and Zooming to Visualize Rhythms in Email Experience

Mirko Mandic, Andruid Kerne

Interface Ecology Lab | Center for Study of Digital Libraries | Computer Science Department
Texas A&M University, College Station, TX, 77843, USA
{mirkokrug, andruid}@csdl.tamu.edu

ABSTRACT

Experiences of intimacy and connectedness through social networks are vital to human sense of well-being. We live in an electronic habitat. Electronic mail functions as a medium of interpersonal exchange. As it accumulates, email data becomes more than a collection of reminders. It is a diary we didn't know we were keeping, and a potential source of valuable insight into the structure and dynamics of one's social network. Current interfaces do little to help users see patterns of social interaction within email data.

We introduce a multiscale email interface that utilizes computed intimacy measures and chronology as parameters for information visualization. Rhythms of intimacy in email experience are made visible as patterns of color and shapes in a zoomable chronological grid. Qualitative user experience data indicates that such an email visualization can provide striking insights into the experience of social connectedness over time. These insights potentially enable users to better manage how they invest time and energy into personal and work relationships, and thus to improve overall sense of well-being.

Author Keywords

Email, email visualization, email interface, intimacy, intimate computing, experience design, social networks.

ACM Classification Keywords

H.4.3 Communications Applications: Electronic Mail.

INTRODUCTION

Email has developed into one of the most extensively used computer applications and a ubiquitous communication medium. As of four years ago, there were about a billion email accounts worldwide [3] and in 1998, an estimated 3 billion messages were sent daily only in the USA [4]. Email has become our primary electronic "habitat" [1]. However, beyond a few notable exceptions [1,4,9,11,12] the form of

the medium hasn't developed in a manner that matches its rise in significance, and email interfaces have gone through very few changes since their inception. Popular email applications enable users to organize messages in folders. This is problematic, and as a consequence, about half of email users do not sort their messages into folders, but instead, keep all of them in their inboxes [13].

Email is a primary facilitator of online communication. Yet, current interfaces do not offer much insight into the structure and dynamics of one's social network [12], especially with regard to communication patterns [9,10,11]. According to [10], users "display typical patterns of response behaviors" in email communication, and these patterns are closely related to relationships. Commonly used email interfaces present messages as visually monotonous and increasingly long lists that tend to hinder the user's ability to monitor her contacts', and maintain her own "responsiveness image" [10].

The thousands of messages in one's inbox are more than just a large collection of "to-dos" and reminders, pictures and attached documents. They are a vibrant, clear record of one's past, *a diary we were never aware we were keeping*. The large data sets created by the use of email make email an obvious field in which to apply visualization techniques.

In recognition of email's personal and social role, we address intimacy by visualizing it chronologically. Applying notions of intimacy, and techniques of information visualization, we have constructed faMailiar, a system that facilitates seeing rhythms of social engagement in large email collections. By rhythms, we mean significant patterns over time, which can be felt. A preliminary experience-oriented user study indicates that this visualization can make users aware of rhythms within their email usage that have otherwise remained concealed. This awareness enables them to identify relationships that require more or deserve less attention.

METRICS OF INTIMACY IN EMAIL

In order to represent intimacy in an email visualization system, we need measures that quantify it. We define intimacy computationally for an email message (or set thereof) as a combination of two metrics: contact intimacy category and message intimacy weight.

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