



From the Editor in Chief...

When Email Was Good

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My email inbox is full of offers to refinance my mortgage, make cheap long distance calls, modify my anatomy, and share in the misappropriated wealth of many children of the formerly powerful and now deceased of Nigeria. I wonder if, in the future, we will look back fondly on the days when email still worked — just as some of us remember the golden age of network newsgroups, when network news was good for more than information about close-cover-before-striking training, women with atypical hobbies, and techniques for cleansing one's credit record. The problem is, of course, that even if 9,994 out of every 10,000 junk emails get ignored, the return on the other six is enough to make the entire endeavor profitable.

Social Evolution

I have three sources of hope for the continued usefulness of email. The first lies in social evolution. In the 1920s, Edward Bernays, one of the creative geniuses of public relations, got considerable attention by getting women's rights marchers to hold up cigarettes as "torches of freedom." Rather than a champion of human rights, Bernays worked for the American Tobacco Company. His message was that cigarettes were the cat's meow, and it worked: women flocked to smoking.

Nowadays, that little publicity stunt seems laughable. It takes considerably higher production values, more expense, and greater cleverness to avoid having your advertisement channel-surfed. The public has developed an immunity to advertising and has become more sophisticated about the quality and motives of commercial speech. We can only hope that social Darwinism takes us to a time when everyone who is dumb enough to fall for a text spiel that claims they personally have been chosen as a depository of illicit African millions will already have been fleeced, and that not

even one in 10,000 such emails will provoke a response. To be convincing will require an MTV-quality mpeg, and few children of the formerly powerful of Nigeria will be able to afford it.

Political Evolution

The second class of solutions is political. For example, this morning's newspaper has a story about the new "don't call me" registry for phone solicitors. (Residents of certain US states can now register with the government their dislike of certain classes of phone sales calls, and the government promises to punish solicitors who pester people on the new registries; see, for example, <https://www.nynocall.com>.) Once enough people register for this list, telemarketing will follow the electrical assembly, software, and customer-service industries overseas. All phone sales pitches will sport Jamaican accents, out of reach of US law and aided by the advent of cheap voice-over-IP telephony. (Internet technologists' karma is to be the source of their own demons.)

Political solutions to spam include demanding that advertisements start their subject lines with "ADV:" (required by several US state laws, though you may never have seen such a message), charging for email (even a fraction of a cent apiece would suffice), or building sufficient accountability into Internet protocols to make spammers identifiable, and thus accountable. I'm particularly amused by Habeas (www.habeas.com), which licenses a certain copyrighted haiku to emailers. Such emailers promise not to include the poem in spam, and mail-filter programs are to understand that emails with the poem in their headers are not to be spam-filtered. Habeas promises to sue anyone who includes their copyrighted poetry in spam, entitling Habeas to share in the sequestered wealth of Africa.

Technological Evolution

I have the most hope, and the most despair, for

technological solutions. The Internet was a technology developed for researchers primarily on the basis of trust. There have been some growing pains, so to speak, since we let the riffraff in.

Spammers have to have your email address before they can spam you. Sending a message to a newsgroup or signing on to certain free email accounts is a sure way to attract offers for wonder diets. If you want your email address on your Web page, you could copy the spammer's trick of putting an html comment in its middle, or you could try to trap email address-searching spiders by providing them a bottomless pit of bogus addresses at the top of the page (see <http://members.hostedscripts.com/antispam.html> for an example). I have no idea whether current spam spiders are really that dumb.

Once spam is headed your way, you'll likely want to flush it automatically. Content-based filters, such as Spam Assassin (www.spamassassin.org), represent the state of the art in this area. Such filters recognize particular words (for example, "Free!!!") in message headers and bodies, and cull messages that tickle too many filters. (Thus, you might have trouble getting this column past some filters.) I find this reminiscent of the first generation of Internet search tools, which found text matches in Web page headers and bodies. Such tools inspired less-than-scrupulous authors to modify their pages to be more enticing to search engines. Judging from the contents of my mailbox, some spammers employ similar techniques: "Fre<!html-comment>e!!!".

Paul Graham describes an evolution of the filtering idea, arguing that Bayesian learning of which words are used in spam is sufficient for building a high-quality filter (www.paulgraham.com/antispam.html). Like antibodies, this idea attacks the essence of the spammer's message, rather than its shifting form. Clearly, this will push some spammers towards dealing in Kahnian bananas.

Web search tools evolved by being more contextually sensitive to the rendering of pages (for example, ignoring all text in the same color as the background) and by becoming more collaborative. Google, the reigning king of search engines, provides a good illustration of this idea: a page's ranking is determined primarily by the links to it from the rest of the Web. We're beginning to see parallel ideas in the message-filtering space. With the Razor collaborative spam-detection tool (<http://razor.sourceforge.net/>), users submit messages they deem

How to Reach IC

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to be spam, and the tool computes “signatures” (numeric metrics of similarity) for the known spam. These can be compared to incoming messages. Some of the Razor metrics deliberately evolve over time, which will provoke Batesian mimicry by spammers.

Another way to filter spam is to demand that mailers confirm their mailings. The simplest approach is to have the mail program reply to suspicious messages with a request for confirmation. Junk mailers without a valid return address, or otherwise incapable of responding to a flood of confirmation messages, will find their missives trashed. Of course, spammers will evolve and set up automatic programs to respond to such simple requests.

One of the more intriguing antispam evolutions is represented by Henry Baird’s Completely Automatic Public Turing test to tell Computers and Humans Apart (Captcha), which uses images of distorted text that are human readable, but computationally infeasible for robotic deciphering (www.parc.com/solutions/captcha/default.html). The hope is that computing will not become cheap enough to allow a spammer to build a robot to respond to a deluge of Captchas.

Conclusion

Well, at least email works for now. If you’d like to get in touch with me about something other than helping me finish college, bet in a virtual casino, or any of those messages asking who knows what because they’re in Chinese, I can still be reached at filman#64;computer.org. ☐

New Editorial Board Members

It’s no secret that *IEEE Internet Computing*’s success is due in large part to the hard work of our volunteers. The magazine is particularly grateful to those who serve on the editorial board, which sets the theme calendars, selects topic areas for coverage, and oversees the peer-review process. On behalf of the staff and existing volunteers, we are pleased to welcome *IC*’s newest board members.



Geng-Sheng (G.S.) Kuo is a professor of telecommunications at National Chengchi University, Taipei, Taiwan. His current research interests include broadband switching router technologies, broadband IP networks, resource allocation in mobile communications networks, GMPLS-based optical communications, and optical MEMS-based switching. Kuo received a PhD in systems engineering from Case Western Reserve University, Cleveland, Ohio. He was editor in chief of *IEEE Communications Magazine* from 2001 to 2002. He is currently writing a book, entitled *GMPLS in Future Mobile Broadband IP Networks*, which will be published by Wiley & Sons. Kuo is *IC*’s liaison to the IEEE Communications Society. Contact him at gskuo@ieee.nccu.edu.tw.



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