Eric Allman: The man who made email go

It was 1980. Soda Hall hadn’t even been built. Personal computers hadn’t yet been commercialized.

Eric Allman (B.S.’77 EECS, M.S.’80 CS) was pursuing his master’s degree and working on Berkeley’s INGRES project, one of the world’s most influential relational database management systems. INGRES staff like Allman had access to the powerful Arpanet network, the nascent form of the Internet developed by the U.S. Department of Defense (DOD). Access—limited to academics working on defense projects—was a luxury coveted by anyone else who knew about this powerful networking system.

Fights erupted, Allman says, among faculty and graduate students wanting accounts on the machine. Allman, the only one who knew anything about email, took action.

“At one point I figured, OK, I can write some software that glues this one software to this other software. It was a quick hack, but it worked.”

From that simple exercise evolved one of the first implementations of SMTP (Simple Mail Transfer Protocol). Allman perfected his quick hack on his own time and distributed the program to Berkeley’s Computer Systems Research Group (CSRG), which contracted with the DOD for developing an operating system that would facilitate collaboration among researchers.

The product, better known as sendmail, now delivers more than 70 percent of the world’s email.

DKIM (DomainKeys Identified Mail) and milter (mail filter) to better protect our electronic mail from interlopers. Allman founded Sendmail in 1998, after email became too “mission critical” for him to handle alone; until then, he had been distributing and supporting the software free.

Allman, an El Cerrito native, was 14 when he first got his hands on a computer, an IBM 1401, and one of the first things he did was to recode the operating system. A self-described “social outcast” who was gay but still in the closet, Allman says computers allowed him to escape from the world.

“When I came to Berkeley in 1973, it was a truly exceptional time,” he remembers. He learned from Ken Thompson [B.S.’65, M.S.’66 EECS], one of the original authors of UNIX who was on sabbatical from Bell Labs, and he rubbed shoulders with some of the most famous names in the business, including Bill Joy (M.S.’79 EECS) and Eric Schmidt (M.S.’79, Ph.D.’82 EECS). While Allman’s name may not be as famous as these, he prefers it that way.

“It requires a different ego to write this kind of software,” he says. “A lot of people want to code video games; they want you to know it’s their software. But with a mail transfer agent, you want it to be invisible. The only time people even know it exists is when it’s broken. And you never want it to be broken.”

By Patti Meagher

www.sendmail.com

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Play it Again, IRENE
Research project preserves old record-

Henry Wang had never heard of Enrico Caruso until last year, but the 21-year-old EECS senior now spends hours studying the famed Italian tenor’s rendition of La Donna è Mobile.

Wang is lending his engineering know-how to a project dedicated to preserving collections of music, speeches and other audio recordings dating back to the earliest days of recorded sound. Known as IRENE, the ambitious effort is led by Lawrence Berkeley National Laboratory physicist Carl Haber, who has enlisted the help of UC Berkeley engineering and physics students like Wang through the campus’s Undergraduate Research Apprentice Program.

IRENE owes its start to a serendipitous moment. In 2000, Haber heard a National Public

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A study released earlier this year by the UC Berkeley School of Information and Pratt School of Engineering at Duke University tracked the educational backgrounds of immigrant entrepreneurs who were key founders of technology and engineering companies from 1995 to 2005. The report, *Education, Entrepreneurship and Immigration*, shows a strong correlation between educational attainment—particularly in the fields of science, technology, engineering and math—and entrepreneurship. It concludes that immigrants are an increasingly significant driving force in creating new U.S. businesses and intellectual property.

Among the findings:

- **22.5%** There was at least one immigrant key founder in 25.3% of all engineering and technology companies established in the U.S. between 1995 and 2005.
- **$52 billion** The study estimated that, nationwide, immigrant-founded companies generated more than $52 billion in 2005 sales and created nearly 450,000 jobs as of 2005. The majority of these immigrant entrepreneurs came from India, United Kingdom, China, Taiwan, Japan and Germany.
- **96%** Of the immigrant founders, 96 percent held bachelor’s degrees and 74 percent held graduate or postgraduate degrees, including 26.8 percent with Ph.D.s and 47.2 percent with master’s.
- **1.6%** Only 1.6 percent of these immigrants came to the United States to start a business. Most, 52.3 percent, came for higher education, and 39.8 percent came for jobs.
- **53%** Of immigrant founders of tech and engineering firms, 53 percent completed their highest degrees at U.S. universities, and about 72 percent of those degrees were in three fields: engineering (43.5 percent), computer science/information technology (18.5 percent) and applied sciences (10 percent).
- **31%** Of the engineering and technology companies founded between 1995 and 2005 in the 11 technology centers surveyed, 31 percent had an immigrant as a key founder, compared to the national average of 25.3 percent.

By Abby Cohn
CITRIS Research Exchange

“Safe Drinking Water for Developing Countries,” a lecture by Ashok Gadgil, senior staff scientist at Lawrence Berkeley National Laboratory, will take place at 12 p.m. Wednesday, December 5, at 290 Hearst Memorial Mining Building, the Maria & Dado Banatao Conference Room. The talk is free and broadcast live online at the time of the event at mms://media.citris.berkeley.edu/webcast.

Become a geek with cash

The reality show “Beauty & the Geek” will be casting in the Bay Area soon and is seeking contestants from Cal. If you are a shy, intellectual “geek” who can turn a beauty into a scholar, or a beautiful, sociable woman who can turn a geek into a stud, email your name, age, city, phone number, picture and an explanation of why you are auditioning to casting director D.J. Feldman at Beauty_Geek_Casting@yahoo.com. The deadline is Saturday, December 1. Last season’s champions took home $250,000.

E-Week comes but once a year

The 2008 Engineers Week is scheduled for February 19 through February 22. All engineering student societies are encouraged to get involved and help host events throughout the week to make it one of Cal’s best E-Weeks ever! Anyone wanting to help out should contact Q.J. Flores at vp@ejc.berkeley.edu. Remember, E-Week comes only once a year, so don’t miss out!

Reception for December grads

Congratulations on your upcoming graduation from Berkeley Engineering, and welcome to the alumni community! We’d like to honor your success at a festive chocolate fondue and champagne reception. Join your classmates, faculty and College staff in the Betty and Gordon Moore Lobby of the Hearst Memorial Mining Building at 5 p.m. Wednesday, December 5. Send an email to bears@berkeley.edu before Friday, December 1, to RSVP and reserve your special gift.

WITH EECS PROFESSOR DOUG TYGAR

Tygar received his Ph.D. from Harvard University in 1986. He joined the Berkeley faculty in 1998. His research interests include computer security, privacy and electronic commerce. His current research involves security issues in sensor webs, digital rights management and usable computer security. He has won a National Science Foundation Presidential Young Investigator Award, an Okawa Foundation Fellowship and a teaching award from Carnegie Mellon. Tygar has written three books.

If you had a few extra hours, what would you do?
I enjoy learning foreign languages and reading in my spare time. One of my more unusual interests is Chinese opera. I’m crazy about it and have a small library of Chinese opera DVDs at home.

What is one thing you would like to learn how to do?
I wish I had the chance to learn how to play the piano!

What should students do to ensure a successful career?
There are three things I recommend: (1) Get to know your professors, graduate students, and undergraduate students in your area of interest. (2) If you are interested in going to graduate school (and certainly if you are in graduate school), get involved in research. (3) Get some industry (or government) experience through summer jobs or internships. It will provide you with priceless experience and help you focus on what you want you want to do after you receive your degree.

If you would like us to feature your favorite professor, please email his or her name to engnews@coe.berkeley.edu.