Banks of the Boneyard

the journal of the association for computing machinery university of illinois student chapter.

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ACM FALL PICNIC 1995

by The Grillmaster BRANDON "Lee" LONG

There is nothing quite like the smell of burgers and brats cooking on the grill. On September 30th at the Illini Grove, it was even enough to overpower the south farms. We expect no less from the ACM Fall Picnic.

Grillmater **Brandon "Lee" Long** was at it again this fall. After being dutifully awakened by Minister of Propaganda and Bratmeister **Brian Swetland**, he arrived to find the state of the grills provided by the Illini Grove completely unacceptable. Fortunately, there was time to retrieve the Grillmaster's Weber, and the Picnic was saved. The Grillmaster was particularly thrilled to point out that no Vegiburgers were consumed. "It just goes to show," he pointed out, "that programmers are omnivores too." Homecoming Queen **Amy Ryan** even went so far as to swallow a bee whole.

The picnic got off to a slow start, as the people arriving were the ones who had just happened to read the last minute email by Supreme Court nominee **Ben Gross** and changed out of their boxers just for this event. Others blamed it on the lack of Mountain Dew. By 1:00pm, the picnic had attained critical mass, and volleyball and frisbee were well underway. While in pursuit of "**Joe Gross**' Super-Cool Frisbee," **Jeremy Hicks** demonstrated that even the most skilled Computer Scientist can still fall prey to the wiley picnic table. As for the sand volleyball, world-renown Terraformer **David Jeske** was quoted saying, "This sand is the worst I've seen this side of the Urals." Sig**Dave** was heard saying "Acorns fully hurt." Don't worry if you don't understand, few people do.

Not even the timely arrival of the University Police could stifle the fun. The officers politely refused any burgers, citing University statutes prohibiting the possession of red meat while on duty.

As the burgers started coming off the grill, general queuing theory humour ensued. It was a disgusting descent into complete geekdom, and will not be encouraged in this article.

At this time, the access time of Librarian Jill Smith's earrings is still being hotly debated.

(staff photo)

INSIDE

From The Chair

by Jonathan Stark

It's really amazing - The October 30th issue of US. News and World Report listed 20 "Fast-Track' jobs, and of those 20, nearly a half were computer related. Software Engineer, Computer Animator, Computer Mapper, Information Specialist, WebMaster, On-line Content Developer, and Computer Security Expert were seven of the 20 hottest upcoming jobs they listed. But that's not really the amazing part; the computer's time has come. The amazing part is the way industry and the world suddenly sees the computer, and how it values people who can talk to computers. Tucked away in that same issue of the business world's weekly newsletter of choice are articles like "Getting A Degree by E-Mail", "Selling Yourself On-line: A paper resume? It's passe", "The Home-Page Help Wanteds", and "Cyberjobs".

The on-line frenzy is everywhere. If there ever was a good time to be in the computer industry, it's now. Literacy is being replaced by Computer literacy as a basic "assumed" skill for many jobs.

So, you may ask yourself, "where do I go to pick up all these skills ?" ACM may be your answer. As the largest Engineering Society on the UIUC campus, Association for Computing Machinery has a lot to offer to both an experienced software or hardware hacker and a novice with little or no experience. Our Special Interest Groups range in their topics of interest from Computer Graphics to Operating Systems development, to Computer Architecture, etc. And each one of the SIGs is always welcoming new members,regardless of previous experience.

The practical experience gained while working on projects in ACM is an incredible trophy to brandish on your resume, and working in groups with other members will give you the team working skills that are needed to be effective in the corporate world.

Getting involved in ACM is really a wonderful opportunity. It costs little more than some time and commitment, but its rewards and benefits are priceless. Browse this newsletter, read the SIG updates, see what you like for yourself. If you see something that interests you - drop us a line, or stop by our office, 1225 Digital Computer Lab.

The Banks of the Boneyard

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Association For Computing Machinery

Partially paid for by S.O.R.F. and the Department of Computer Science

Upcoming Events

ACM MOVIE NIGHTS

New (cleaned up) version of **STAR WARS TRILOGY**
Friday , November 10th, 7pm **STAR WARS**
Saturday , November 1 1th, 1pm **EMPIRE STRIKES BACK, RETURN OF THE JEDI**
Friday , November 17th, 7pm **ALIENS**
(with the Simpsons prior)

All movies are on the BIG Screen in room 1320 DCL

Quote of the Month:
by Jeff Thompson

They said:
Here is SCO
Make it GO.
I said NO.

Hacker Hype

by Jeff Thompson

With the release of HACKERS, the dark side of the Internet has been thrust into the limelight once more. As many of you may have noticed, the media has recently taken a keen interest in hackers. Several arrests have made national newspapers and magazines. Unfortunately, it seems that very little of the story is actually told.

The actors in this drama are often dehumanized and made out to be people of pure malice. These are often people who are completely misunderstood, or even worse, misrepresented by the media. I have met several people who the media would consider hackers. Some of these people do fit the stereotype that is portrayed by the media, but the fact is that most of these people do not. They are simply people who are striving for knowledge in a society that does not promote the free access of information. These are the people who were never allowed to follow their curiosity. They were told to follow the paths and the curriculum that was laid in front of them, because people older and wiser than them had formed them. Many people were stunted and lost their drive for knowledge, others broke free. These people are not at all a bunch of hoodlums living in run-down basements trying to destroy networks.

Hackers are everywhere, from every walk of life, every type of lifestyle. Being a hacker has nothing to do with race, religion, or sex. It has but one criterion. A burning desire to aquire knowledge: to know whatever it is that you do not know. It is a quest that can never end, and I believe it is the noblest. It is an unwritten rule that one does not just call him or herself a hacker. The rule says that it is a title that is bestowed on you. The fact is that being a hacker is something that you are born as. It is neither earned nor bestowed. It has nothing to do with power or control. It is simply a way of being. Are you a hacker?

The following is the hackers' creed that was referred to in the movie HACKERS. Read the creed and judge for yourself. It is a description of what many have experienced time and time again - the quest for knowledge crushed. But for many it cannot be driven out, for you see, knowledge yearns to be free.

The following was written shortly after my arrest...

\/\The Conscience of a Hacker/\/

by, +++The Mentor+++

Written on January 8, 1986

Another one got caught today, it's all over the papers. "Teenager Arrested in Computer Crime Scandal", "Hacker Arrested after Bank Tampering"...

Damn kids. They're all alike.

But did you, in your three-piece psychology and 1950's technobrain, ever take a look behind the eyes of the hacker? Did you ever wonder what made him tick, what forces shaped him, what may have molded him?

I am a hacker, enter my world...

Mine is a world that begins with school... I'm smarter than most of the other kids, this crap they teach us bores me...

Damn underachiever. They're all alike.

I'm in junior high or high school. I've listened to teachers explain for the fifteenth time how to reduce a fraction. I understand it. "No, Ms. Smith, I didn't show my work. I did it in my head..."

Damn kid. Probably copied it. They're all alike.

I made a discovery today. I found a computer. Wait a second, this is cool. It does what I want it to. If it makes a mistake, it's because I screwed it up. Not because it doesn't like me...

Or feels threatened by me...

Or thinks I'm a smart ass...

Or doesn't like teaching and shouldn't be here...

Damn kid. All he does is play games. They're all alike.

And then it happened... a door opened to a world... rushing through the phone line like heroin through an addict's veins, an electronic pulse is sent out, a refuge from the day-to-day incompetencies is sought... a board is found.

"This is it... this is where I belong..."

I know everyone here... even if I've never met them, never talked to them, may never hear from them again... I know you all...

Damn kid. Tying up the phone line again. They're all alike...

You bet your ass we're all alike... we've been spoon-fed baby food at school when we hungered for steak... the bits of meat that you did let slip through were pre-chewed and tasteless. We've been dominated by sadists, or ignored by the apathetic. The few that had something to teach found us willing pupils, but those few are like drops of water in the desert.

This is our world now... the world of the electron and the switch, the beauty of the baud. We make use of a service already existing without paying for what could be dirt-cheap if it wasn't run by profiteering gluttons, and you call us criminals. We explore... and you call us criminals. We seek after knowledge... and you call us criminals. We exist without skin color, without nationality, without religious bias... and you call us criminals. You build atomic bombs, you wage wars, you murder, cheat, and lie to us and try to make us believe it's for our own good, yet we're the criminals.

Yes, I am a criminal. My crime is that of curiosity. My crime is that of judging people by what they say and think, not what they look like. My crime is that of outsmarting you, something that you will never forgive me for.

I am a hacker, and this is my manifesto. You may stop this individual, but you can't stop us all... after all, we're all alike.

+++The Mentor+++

SigNet

by Jeff Thompson

Have you ever wanted to call your friend's home phone from your computer? **You Will!** And SigNET is going to bring it to you. SigNET, the Special Interest Group for Computer Networking and Security has finalized its idea for this year's Engineering Open House. We will be writing an application that will allow you to connect to a server which will dial a local phone number for you and digitize the audio for transmision over the Internet. Your computer will then play it through a speaker and allow you to talk into a microphone.

In other news, SigNET had just finished its introductory workshop series: an overview of the TCP/IP networking protocols, as well as an introduction to socket programming on UNIX based platforms. Our members can now write chat programs and muds, among other client-server applications.

We are also looking into soliciting firewall companies to loan their products to us so that we can setup and test the firewall systems.

If you have any interest in computer networking or security please feel free to stop on by to one of our meetings. New members are very welcome. We are a group dedicated to aquiring and spreading knowledge. We meet every wednesday at 7pm in 1330 DCL. Our web site is `http://www.acm.uiuc.edu/signet/` If you have any questions please mail `signet@uiuc.edu`. I look forward to seeing you at our next meeting.

SigMusic

by Dan Wellman

The Special Interest Group for Computer Music is the ACM's group for people who have ever had an interest in computers, music, and sound. Whether you're a beginner who wants to see how the music magic is worked or an experienced user who always wanted to build that special project, SigMusic is the place to be.

Our Fall '95 Concert is upon us!! Bring all your friends to the SigMusic Concert on Wednesday, November 29th in lecture hall 1320 Digital Computer Lab, 8:00 PM. We'll be showcasing songs written by our members, with styles ranging from fractal generated music to techno. SigGraph has been working hard to provide some psychedelic visuals to make this concert an experience for the ears, eyes, and karma.

Over the past month we've attended some cool lectures by professors on campus. Professor Lippold Haken gave us a tour of his lab, including some impressive pitch shifting demos and examples of some algorithms which make instruments "talk" like humans. We also met in the Music Building's Computer Music Project lab with Professors James Beauchamp and Sever Tipei and learned about the computer music classes offered plus got to hear some student compositions.

If you program, join our vocoder development team. A vocoder is an effect which takes two input sources, typically a human voice and a synthesizer tone, and makes the synth "speak" your words. Our destination platform is a Pentium PC with a SoundBlaster, and we need people to write C code, assembly, sound routines and Fast Fourier transformations. If you're interested in learning about how these things work or are a pro and want to hone your skills, join our team!

In November we'll be holding some beginner workshops on computer music. On Nov. 1st we'll be learning what this MIDI beast is and see how you can get a computer and a synthesizer to talk to each other and make music. Nov. 8th we'll be looking at ScreamTracker, the free solution for closet music tinkerers. As usual, new members are always welcome to our meetings!

SigMusic meets on Wednesdays at 7:00 PM in front of the ACM Office (1225 Digital Computer Lab) and then typically heads on over to 1102 DCL. Send e-mail to `sigmusic@uiuc.edu` for more info, as our workshops will probably be in different locations. "Resistance is futile, you will be amplitude modulated." (OK, enough cheap humor.. grumble grumble).

Linux

by Mark Roth

The UIUC Linux Users' Group is a forum for Linux users at UIUC to get together, help each other, and collaborate on projects. At each meeting, we announce recent happenings in the Linux community, work on current projects, and have an open forum for people to ask each other questions and discuss other matters of interest to the Linux community here at UIUC. Linux is a free implementation of the UNIX operating system, currently running on 386/486/Pentium or compatible PCs.

Our major project right now is the UIUC Linux Distribution. We are in the process of compiling all the sources and putting together a new distribution of the complete Linux system. The distribution will be aimed at more experienced users, and is not meant to replace Slackware or other distributions with different goals. If you're interested in this project, feel free to get involved!

The LUG meets at 1900 on Tuesdays in room 1102 DCL. If you have any questions, feel free to mail `lug@uiuc.edu`.

SIGBIZ

by Ramu Yalamanchi

SigBiz has seen great progress since its recent return as aACM special interest group. The focus of SigBiz has been defined as the following: “To encourage cross-college interaction and investigation while nurturing an understanding of business issues in technical enterprises.” SigBiz has an underlying theme of encouraging budding entrepreneurs. In the recent past, the computer science department at the University of Illinois, Urbana-Champaign has seen a number of highly successful entrepreneurs. Success breeds success. In order to keep the momentum of Netscape, Spyglass, and SPRY (to name a few), SigBiz provides a platform to collect and foster successful entrepreneurs providing tools for success.

On Friday, October 13, a core group of members attended the MIT Enterprise Forum held at the Beckman Institute. The MIT Enterprise Forum is a group which originated with entrepreneurial MIT alumni twenty some years ago. The group extended to major cities throughout America and drew more than just MIT alumni. The Chicago chapter of the MIT Enterprise Forum brought a group of highly successful venture capitalists, lawyers, and successful business people to provide opportunities to budding entrepreneurs in Urbana-Champaign. A number of interested SigBiz members attended the forum and interacted with people from industry. The forum provided positive exposure for our SIG to some successful Chicago people involved in technical enterprises.

On Monday, October 30th, 7:00 PM, SigBiz held its first general meeting, entitled “The World Wide Web and Electronic Commerce: The Making of Technical Entrepreneurs.” The meeting was opened by Professor Pete Delisle. Pete Delisle will be serving as the faculty advisor for our SIG. Professor Delisle was followed by Brad Whitmore and Carlos Pero from Ravenna Communications. Brad and Carlos are involved in the web development business. Finally, Luke Nosek and Scott Banister spoke about their company SponsorNet. SponsorNet has an innovative idea for gaining exposure on the web.

SigBiz meets each Monday at 7:00 in front of 1225 DCL and then goes to a room for this week’s business discussion. Typically, the 2nd and 4th Mondays have special general events. On the second Monday of each month, SigBiz holds a grill session. The grill session is intended to provide constructive criticism to entrepreneurial ideas that are awaiting evaluation. An idea is presented to the SIG followed by a technical and business critique of how the idea may survive. Those interested in having their ideas grilled are encouraged to contact Castedo Ellerman (`castedo@uiuc.edu`). On the fourth Monday of each month, SigBiz holds a general meeting with speakers from industry who talk on some aspect of entrepreneurship.

SigBiz encourages interested individuals from all disciplines to attend our meetings.

SigArch

by Jonathan Stark

The Special Interest Group for Computer Architecture (SigArch) has been playing marbles for the last few weeks. With Engineering Open House quickly sneaking up on us, we’ve been working to complete our educational entry for judging with a world of marbles. Using “marble flow” as a model for “electron flow”, we hope to build many elementary gates and a working adding machine using “MML” (Marble-Marble Logic).

Modeling electron behavior with marbles allows us to add a fun and educational show into the festivities of EOH, but we’re also working on several other projects. Our network video project is coming along quite well, with meetings on Tuesday nights. Much of the design has already been completed. The goal is to be able to plug a standard video camera directly into a network and deliver real-time video across the ‘net.

The LED Nametag Project is also being revitalized. After last year's prototype, which weighed enough to rip the shirt off of anyone trying to wear it, the project is being redesigned to minimize the weight. We have an informal race between the production of the new LED nametag and the Cylindrical Display, a full color imaging system that fell upon hard times in EOH competition last year when the slip ring that delivers power to the unit melted and destroyed the brushing assembly.

SigArch has much to accomplish before EOH, and we really need all the help we can get. No experience is necessary (though a love of playing with marbles might be helpful) and meetings are open to anyone who wants to attend. We meet in the ACM Office (1225 DCL) and go from there to our secret laboratory every Thursday at 6:00. Hope to see you all there! If you are interested or want to learn more, email `sigarch@uiuc.edu`.

SigMicro

by Paul Watts

As of this week, SigMicro will be officially changing its name to SigPWCSUWGITSCF: The Special Interest Group for People Who Can't Say "Unix" Without Going Into Tourette's Syndrome-like Cursing Fits. Please update all your references.

SigMicro is progressing along smoothly with its main project for this semester, the Electronic Textbook Exchange. Most of the Web page planning is complete, and we have started to link the pages together with CGI scripts. Our database is yet to be worked on, so if you would like to learn the basics of database programming along with the rest of us, come along!

We have also agreed on the following workshops for this semester: a vi workshop, which will be coming very soon, and an Advanced Win32 workshop, tailored for Windows programmers who know 16-bit Windows and want to know the new and exciting things you can do with the Win32 API.

Have any ideas? Bring them to our meetings, every Thursday at 8:00pm in 1102 DCL. We welcome all newcomers, regardless of programming experience. We also welcome people with very funny impressions of Bjarne Stroustrup, but presentations may be preempted due to a shortage of Norwegian-to-English dictionaries.

MICROBREWING TECHNOLOGY

by David Morgan

On October 3, 1995, a start-up company called "Be" issued a press release announcing the unveiling of their unique new platform, the BeBox. Not intended for mass-market sale, the BeBox totally abandons the software legacy of the 80x86 and Macintosh platforms, forging ahead with a new SMP (Symmetric MultiProcessing) architecture and their own multi-threaded GUI operating system.

The first BeBox model sports a pair of PowerPC 603 CPUs, surrounded by a cornucopia of I/O including PCI, ISA, IDE, SCSI, 4 serial ports, 1 parallel port, 2 MIDI ports, tons-o-audio, 3 Infra-red ports and the coveted "GeekPort." Hardware and Software developers worldwide are dying to get even a glimpse of the machine. The current list-price for the BeBox is about $1700. Currently, Be is only selling the machines to developers, at a "substantial discount." Hardware tinkerers can even license the entire hardware and software design from Be for a mere $50 per machine built.

Be was founded by Jean-Louis Gassee, a former Apple executive (who posts frequently to `comp.sys.powerpc`). He compares Be's role to that of the Samuel Adams, as Be produces a small quantity (compared to the computing magnates) of machines for discriminating buyers. Be is on the Web at `http://www.be.com`.

WebMonkeys is ACM's Special Interest Group for the World Wide Web. This semester we've held workshops and discussions on topics like Java, CGI, Perl, and Netscape 2.0 extensions such as frames. We plan to work with VRML and LiveScript in the future.

WebMonkeys are currently trying to choose a project for EOH. Drop us a line (`monkeys@uiuc.edu`) or come to a meeting: we'd like your input! Project ideas currently on the table include:

A web interface to Illinet Online, the online library catalog. It would sure beat the current telnet interface! This is a project that was started by SigUNIX last year, but never completed.

An online ride board. This was actually suggested by one of the travel agencies here in C-U. It would provide a place where folks could post rides needed and rides offered, and after finding a match the details could be discussed via email.

A really snazzy new UIUC People page. I'm not sure if this would make a legitimate EOH project, but there is some interest in revamping the pages with better layout and more automation, perhaps verifying signups using ph passwords. Work has already begun on this project.

If you have a cool idea for a WebMonkeys EOH project, speak up! WebMonkeys meets on Mondays at 6:30pm in 1102 DCL. If you'd like to stay informed about our events, mail `monkeys@uiuc.edu` and ask to be put on the mailing list. Visit us at `http://www.acm.uiuc.edu/webmonkeys/`.

Upcoming Event

SigMusic

CONCERT

Wednesday, November 29, 8:00pm in 1320 DCL.

Free concert of member-submitted electronic music combined with computer-generated graphics from **SigGraph.**

SIGGRAPH

by Max Levchin

SigGraph is the Special Interest Group for Computer Graphics. This semester, SigGraph is working hard to get the beta version of DataRace Project ready for the upcoming Engineering Open House. DataRace is our home-brewed three-dimensional networked game, loosely based on the concepts of *Neuromancer* by William Gibson, CyberPunk, ShadowRun and the demented imagination of our members. As the project has been in development for the past 3 years, we have accumulated enormous amounts of features-to-be-added and nifty-little-things-that-must-be-in-the-game, however the design of the game play is **still** not finalized. Come to our meetings (DataRace Development Team actually meets one hour before the SigGraph general meeting, at 8pm in Grainger Room 229 every Thursday) to add your unique idea to the pot or send some email to `siggraph@uiuc.edu`.

Other projects this year are: "The Animation", a large piecewise-assembled animation of member-contributed segments, which our animation gurus will help combine. The SigGraph and SigMusic Concert Collaboration will culminate on November 29th, when the SigMusic will present a selection of the best music pieces by the group members. SigGraph will provide the "video-atmosphere" for the concert with all real-time SGI and PC-based graphics. There's still time to contribute a piece of code of your own for the concert, so please feel free to join us at our meetings, 9:00pm at 1102 DCL on Thursdays.

By the way, SigGraph is once again nurturing a secret project that will only be announced after the ACM Conference this weekend. Come to find out what this SigGraph secrecy is all about!

SigVR

by Jason Hartman

SigVR is the Special Interest Group for Virtual Reality. Our group welcomes anyone having an interest in exploring or experimenting with virtual reality. For those of you still unfamiliar with this new ultimate way to percieve reality, it can be defined as a wholly immersive environment. While 'in VR' the user actually feels and thinks that he or she is in a particular environment without consciously understanding that the environment is generated by a computer.

This school year SigVR will be to continuing to work on the PeLViS project, Personal Low-Cost Virtual Reality System. PeLViS is composed of a head-mounted display (two portable Casio TVs and VGA to NTSC signal converters mounted on a specially constructed helmet), two PC's (386-based, with a serial port), and custom-written software. This year we hope to add a body-tracking system using micropower impulse radar technologies, improve the head-mounted display, and add more interesting features to the software.

SigVR meets every Thursday at 8:30pm in 1330 DCL. For more information, send email to `sigvr@acm.uiuc.edu` or check out our web page: `http://www.acm.uiuc.edu/sigvr`. We welcome all newcomers, so come over and check us out!

SigSoft

by Alan Braverman

Last month I announced that the Special Interest Group for Software Development has a new mission this semester: the exploration of new and better programming environments (in lieu of cryptic Unix editors, compilers, and makefiles). We took a brief look at VisualWorks Smalltalk and Objective C under NeXTSTEP. We were also planning to purchase Plan 9, the new operating system and development environment from AT&T Bell Labs, but SORF denied our request for funds, as usual.

Meanwhile, many SigSoft programmers were itching to try their hands at advanced Unix programming topics like networking and graphical user interfaces under the X Window System. For the remainder of the semester, we will probably be tackling these efforts using C or C++, along with the aforementioned cryptic Unix editors, compilers, and makefiles. For some implementation practice, Chon Yi `<cs-yi@uiuc.edu>` suggested a great programming project: a networked version of the Monopoly board game. Jay Kreibich `<jak@uiuc.edu>` suggested something with a little less game logic but the same basic programming constructs: networked Candyland. I'm guessing that we can start with Candyland and eventually turn it into Monopoly.

In other October news, we held one SigSoft meeting at Murphy's Pub on Green Street, where our esteemed chairperson treated everyone to drinks in a fit of generosity. The last meeting in October was devoted to a crash course introduction to programming in the X Window System. We'll do more of that in the near future, so don't worry if you missed it. SigSoft meets every Wednesday at 6pm in 1102 DCL. New members are always welcome. See our home page for more details: `http://www.acm.uiuc.edu/sigsoft/`.

SigBio

by Arwin Levinson

SigBio is making excellent progress on our human anatomy WWW project. We are making a pictorial anatomy dictionary right on the World Wide Web! We also have plans to visit labs to see, first hand, how people at UIUC are using computers in their biology research. New members are always very welcome and so are new ideas!

CRYPTO TIME

The SIGNET MONTHLY CHALLENGE

by Jeff Thompson

SigNET presents its monthly cryptographic puzzle. The first person to respond with the correctly decrypted plain text and the decryption method will receive their name printed in pretty letters in the next issue of the Banks of the Boneyard in the SigNet Monthly Challenge section. All cypher text can be decrypted in finite time (though you may not always think so). Please submit your responses to **signet@uiuc.edu** You must email the plain text, the explanation of the decryption method (code is acceptable) and your name.

This is a common cypher that should be relatively easy to break. Three cypher texts are provided.

You must decrypt all three. Each text is encrypted with the same method, so being able to decrypt one should result in the ability to decrypt the others. One piece of plain text is provided, to make the solution a little easier to achieve. I doubt I will be as nice next month.

Plain Text #1:

Pine is not elm. Thank goodness.

Cypher Text #1:

Xqvm qa vwb mtu. Bpivs owwlvmaa.

Cypher Text #2:

Izm gwc i kzgxbwozixpmz?

Cypher Text #3:

Aw epg lql bpm kpqksmv kzwaa bpm zwil?

The Cypher text #1 is the encrypted version of Plain Text #1. In order to win this challenge you must mail in the plain text which corresponds to Cypher Text #2 and #3 as well as a description of the algorithm or code used to solve the problem. This challenge is a warm up exercise soon to be followed by more “interesting” cyphers. Have Fun!

A little bit of explanation is due here, we believe. During the reigning years of Douglas Beeferman as the editor of the ***Banks of the Boneyard*** , the newsletter would have a Computer Science or Mathematics related puzzle every month. These puzzles were usually written by Daniel Simms, the Editor's right hand man and The Layout Person.

This year, we are going to attempt to continue the tradition, with SigNet's monthly cryptographic challenge. Take a look for yourself, if this problem seems a little too simple, the next month's one may take you a little longer!

If you would like to submit your own puzzle or problem, please send it (with an attached solution) via email to `boneyard@uiuc.edu.` The editors will review your submission, and perhaps publish it in one of the next issues of ***Banks.*** If your idea is extremely good, we may base a prize-based competition on it!

Finally, it would be nice of you to let us know what you think of this "new" feature of the ACM@UIUC newsletter. Drop a line to the above address, if you like!

Programming An Operating System

by Paul Swanson

The design and implementation of ACM/OS (A Complete, Minimal Operating System) is constantly evolving out of the many discussions that SigOps has had since the beginning of the year. The OS is being developed to run on an i386 computer, using protected, 32-bit code. ACM/OS should not have any dependencies on existing software.

Our primary goals from the start have been modularity, simplicity, and raw speed; secondary goals include stability, security, and utility. Compatibility and portability are not considerations. With this model in mind, ACM/OS is free from most constraints that many commercial operating systems have to consider.

ACM/OS has adopted a microkernel[1] design to accommodate the modularity and simplicity goals. Kernel services for ACM/OS are limited to interrupt allocation (for interrupt-driven devices), memory mapping (for memory mapped devices), basic memory allocation, task and thread setup, and memory sharing. The kernel does not include support for devices; while this would make development much easier, the end goals of modularity, security, and stability would be compromised.

Going a step further than most microkernels, ACM/OS does not include support for virtual memory[2] and multitasking inside the kernel. Rather, paging and process scheduling can be viewed as interrupt-driven devices, driven off of the Page Fault and Timer (both of which map into the i386's interrupt space). However, the kernel was designed with these "extensions" in mind, making it feasible (and possible) to implement them later.

To facilitate raw speed, the only form of inter-process communication[3] that will be supported is shared memory. Typically, message passing is included in an OS design as well, as its implementation and use tends to be much easier. However, in the interest of simplicity (and to encourage the use of shared memory), it is not supported in ACM/OS.

Security (and stability, in some respects) is implemented using the i386's hardware. The i386 knows 4 distinct protection levels, segments, and paging; segments and paging are typically used to ensure that a task stays within its memory boundaries. A typical approach to memory protection is to give each task a separate address space and utilize the paging hardware, which provides read/write and privilege protection on a page by page basis.

However, ACM/OS will use the i386's segments for memory protection, and save the paging hardware for virtual memory. Design and implementation of the OS will be more complex, but segments provide protection with a byte, instead of page, granularity (each page on the i386 is 4k bytes).

Many experimental operating systems are written in higher-level languages and ignore the possibility of getting anything useful done. The kernel of ACM/OS, on the other hand, will be completely written in i386 32-bit assembler, and its eventual utility is an ever-present concern in its design and implementation.

ACM/OS, while still a long way off from even usable, is not entirely vaporware. A significant portion of the kernel has been written and is being tested, and coding the paging and scheduling "devices" will start soon. SigOps will also start writing important and usable device drivers (such as keyboard, video, and disk) and other utilities (a command-line interface and program monitor will be first).

[1]macrokernel and microkernel - two opposing approaches to kernel design. The macrokernel approach lumps all hardware specific code into the kernel, whereas a microkernel is a simple, minimalistic approach. For example, UNIX was designed around a macrokernel, and VSTa was designed around a microkernel.

[2]virtual memory - using hardware (typically disk) other than memory transparently as memory. Swapping and paging are the mechanisms on a Virtual Memory Manager.

[3]inter-process communication (IPC) - the mechanism by which two processes pass data. Common IPC methods include message-passing, pipes, and shared memory.

SigOps: `http://www.acm.uiuc.edu/sigops`

VSTa: `http://www.cen.uiuc.edu/~jeske/VSTa`

UNIX: `http://www.utexas.edu/cc/docs/ccug1.html`

SigUNIX

by Paul Bleisch

SigUnix is busily planning our string of instructional workshops on all aspects of Unix. At the last few SigUnix meetings many excellent ideas have been suggested. We are now contacting local experts to help us ease the pain of using Unix operating system. Topics that have been suggested range from programming languages such as Python, Perl and Tk/Tcl to introduction to basic user and system Unix security.

Along with our workshop events, SigUnix is also formulating ideas for projects for1996 Engineering Open House (EOH). One project would involve writing a Motif based system administration tool that would help those new to administrating Unix machines. Tasks such as user creation and deleteion, device configuration, and basic security issues would be managed through an easy-to-use graphical user interface.

Whether you are interested in Unix programming, or simply trying to figure out how to use Unix, you should join SigUnix at our regular meeting on Wednesdays at 8pm; new faces are always welcome. at the room 1225 in Digital Computing Lab.

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