Banks of the Boneyard

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Introduction

With the arrival of a new academic year, we have the opportunity to enjoy even more fun and success than in the past. Of course, outdoing last year won't be easy—at Engineering Open House 2006, ACM swept the undergraduate research category with SIGMusic's *Turing and the Wolf* (1st place), *RingCycle* by David Kaplan and John Loucaides (2nd place), and SIGMIL's *Footsteps* (3rd place). SIGSoft rounded out ACM's EOH accolades with their *Collaborative Text Editor* placing 3rd in the EOH theme category, *"Beyond Imagination"*.

Besides the official EOH judging, ACM also had internal awards to recognize notable projects. The judges were ACM alumni Chris Mullen and Phil Lowman. Here are the results:

Most Wacky: SIGEmbedded, *A Night at the Roxbury*

Best Individual Performance: David Kaplan and John Loucaides, *RingCycle*

Best Presentation: SIGMusic, *Turing and the Wolf*

Best Teamwork: GameBuilders, *Phantom Breach* and *Red Girder*

Best Overall: SIGSoft, *Collaborative Text Editor*

Best Technical: SIGSoft, *Scheedule*

Congratulations to all EOH awardees! This year we'd like to enter even more EOH projects (so we can sweep *all* the award categories this time). All ACM members are welcome to use the vast array of hardware and software resources available in the ACM office to work on their projects. In addition, ACM will help pay for any project expenditures approved by our executive board, which consists of all Special Interest Group chairs and elected officers.

As you might have gathered by now, EOH is our major event in the spring semester; every fall ACM runs the *Reflections Projections Student Computing Conference.* Now in its 12th iteration, this year's conference will be held the weekend of October 20–22, 2006. This year we are excited to announce many notable speakers from both academia and industry, including:

Max Levchin, *co-founder of PayPal, founder of Slide.com, and ACM alumnus*

Robert X. Cringely, *PBS columnist and creator of "Triumph of the Nerds"*

Joel Spolsky, *author of blog "Joel on Software" and CEO of Fog Creek Software*

Yale N. Patt, *Professor of Electrical and Computer Engineering, University of Texas at Austin*

Burnie Burns, *co-creator of "Red vs. Blue"*

Jawed Karim, *co-founder of YouTube and ACM alumnus*

Everyone is invited to attend the talks free of charge; registration is recommended so that we can gauge attendance and plan accordingly. For more information, please visit the conference website:

`http://www.acm.uiuc.edu/conference/`

In addition to speakers, this year's conference will host the following exciting events.

The Reflections Projections Job Fair on Friday, October 20, prior to the beginning of other conference events. Online resume submission is available to all registered conference attendees.

The **MechMania** AI programming competition. Each 3-person team's AI is pitted against others in tournament competition following the 18-hour development session. Team registration is currently open on the conference website.

The **PuzzleCrack** puzzle-solving competition. Compete against other conference attendees to solve a series of challenging puzzles.

It looks like ACM is in for a fantastic year; we hope you'll join us for the ride!

Anthony Philipp
ACM Chair

Sameer Sundresh
ACM Secretary

LUG

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The Linux Users Group (LUG) had a successful 2005-2006 school year starting with an Ubuntu installfest in September. We had several talks over the year on topics including LaTeX, Linux emulation tools, scripting with Rexx, and network content filtering. We also spent many nights hacking away with the newest Linux technology including Xgl, the OpenGL accelerated Linux desktop environment.

LUG has a lot of exciting plans for the 2006-2007 school year. We're planning on another installfest in the fall with the brand new Ubuntu 6.06 "Dapper Drake". We also want to increase Linux familiarity for incoming CS and engineering students with a series of tutorials on using the Unix and Linux resources on campus which are required for CS 101, CS 125, and other classes. To spread Linux usage for Windows users, we're working on a Linux virtual machine image for VMware Player. This allows Windows users to run Linux inside of an existing Windows XP system without requiring a reformat or other time consuming process. This also allows people to evaluate Linux side by side with Windows without requiring a reboot. Later on in the year we're planning on setting up talks with IT personnel from Fortune 500 companies on running Linux in a large corporate environment.

MacWarriors

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MacWarriors is ACM's Special Interest Group for Macintosh enthusiasts. This year we explored web development on Mac OS X with web frameworks like Django and Turbo Gears. For our Engineering Open House project we developed WebTunes, an iTunes-like web interface that allows the user to stream their music to any web enabled access point. We have already begun planning projects for next year, including LaserLine 2.0. New laser scanner hardware is being built that will be far more accurate than the speakers we have used in the past and work is beginning on a brand new version of the LaserLine software. We hope to build a Cocoa application next year, which supports the industry standards for laser displays and at the same time learn a bit about programming on Mac OS X. As part of our plans we are going to be holding a series of talks on Mac OS X development and the Cocoa frameworks, from the basics of Objective-C programming all the way up to advanced concepts like CoreData and Bindings. If

you have any interest in programming on the Mac, or would like to learn about the cutting edge technologies in Mac OS X check out MacWarriors.

SIGACT

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ACM's Special Interest Group on Algorithms and Computation Theory (SIGACT) focuses on developing methodologies or heuristics for solving hard computational problems which come up in many different areas of computer science and science in general. Some of the topics include search algorithms, distributed systems, and NP-completeness. If you've never heard of any of these topics, don't worry. SIGACT is open to anyone who likes to solve tough problems or improve upon existing solutions. We don't require prior knowledge of programming or computational tools. In fact, the only real requirement is some sort of interest and motivation to be a creative thinker.

With this year coming to an end, we are evaluating and documenting the work done this year in order to make improvements. Also, we are currently in the process of planning group trips to conferences this summer; we hope to network and learn about other organizations similar to ours. For next year, we are aiming for a more substantial and thorough research project based on some current open research problems in this area. In addition, we plan to have more seminars, tutorials, and discussions on the latest research in theoretical computer science. Finally, as continuing chair of this organization, I want to thank ACM for supporting this special interest group in its first year, especially with the technicalities involved in maintaining this group. We have enjoyed this first year, and hope to see even more interest develop in years to come.

For more information about SIGACT, please check the website for updates on new meeting times as well as upcoming events for the fall semester.

SIGArch

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SIGArch, the Special Interest Group on Computer Architecture, focuses mainly on hardware design and programming in low level languages. Our best-known project is Caffeine, the networked vending machine which dispenses soda with a swipe of your I-Card–this project involved lots of PIC programming. There is also our Pinball machine, which was designed to play itself using a camera for vision and some relays to control the flippers. Out future plans for SIGArch are to get Pinball back up and running, maintain and upgrade Caffeine, and rebuild a large multi-snack vending machine to dispense a variety of items on the swipe of your I-Card. Come to our meetings as we are always looking for new memebers to join! We will also be having some soldering and assembly code tutorials at the beginning of the year! Our meetings are at 6PM on Thursdays in the ACM Office, 1104 Siebel.

SIGArt

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SIGArt is the ACM Special Interest Group on Artificial Intelligence. Our primary activity during the year is working on a project for Engineering Open House, but we also do tutorials if there is enough interest. This year we designed a traffic simulator and created an algorithm that used global information to choose the paths the cars took in order to reduce traffic density and avoid traffic jams. We had a lot of fun presenting the project at EOH and the CS Affiliates Conference.

Next semester, we hope to do a more hard-core AI project. One idea that we have is to play around with neural networks, perhaps using them to make faster evaluations of game states, or even making a game-

playing agent. We are, however, always open to new project ideas that would involve artificial intelligence principles.

SIGBio

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SIGBio was long defunct until its resurrection in the spring of 2005. Like some great hulking zombie, SIGBio rose from the swamp mud and lumbered forth in search of brains. Tasty soft brains. To help us better locate this delicious cranial treat, we've built an electroencephalogram machine. With an EEG we can detect electrical activity in large groups of neurons, helping us discern which heads are worth biting. Armed with this knowledge, we feast triumphantly.

Our noble leader is graduating in May 2006, and we will be left hollow and bereft of direction. A ten day mourning period will be enforced around campus. Despite this great loss, we will not succumb to depression. Next year we plan to share brain recipes with other student organizations around the globe. We might also invite some researchers to speak about how hungry they get working around brains. A light snack will be served.

SIGEmbedded

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SIGEmbedded participated in a last minute EOH project, in conjunction with SIGPLAN and SIGArch, entitled "Wireless Sensor Networks, Wearable Computing, and the Coming Era of Ubiquitous Embedded Intelligence." The project enables a user to play a game of Tetris on a PDA simply by moving one's head. The user is asked to wear a flamboyant jester hat containing an embedded wireless sensor node and accelerometer, which intereprets changes in the positions of the user's head and broadcasts them effectively to the PDA, which then updates its display. Both the jester hat itself and the sheer genious of the project entertained dozens of visitors over the two days of EOH, with players ranging from toddlers to faculty.

More information, including a detailed overview, game controls, specifications, posters, videos, and pictures can be found on our website. If you're interested in changing the world with us, join SIGEmbedded.

SIGGRAPH

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SIGGRAPH is ACM's Special Interest Group on Graphics. We are dedicated to (you guessed it) computer graphics. We hold weekly meetings where we have either a tutorial, programming session or guest speaker. Members of SIGGRAPH are interested in anything from game development to production-quality animation to long walks on the beach. We hold frequent tutorials in OpenGL, Maya and anything related to computer graphics.

For Engineering Open House 2006, SIGGRAPH created a virtual dinosaur island called Mesozoic Park. SIGGRAPH is proud to announce that the project is going to become a permanent installation in Orpheum Children's Museum. While not incredibly research-oriented, this project was a great opportunity for members of all skill levels to participate. All members of our chapter truly enjoyed this project. SIGGRAPH also hosted a guest lecture by Professor John Hart on his master's thesis in fractals. Many members of SIGGRAPH also worked on the Sounds and Visions project.

For next year, SIGGRAPH is going to be doing another EOH project, which is yet to be determined. We are interested in undertaking a project of larger proportions and making parts of the project more research-based. However, we firmly intend to design the project so members of all skill levels can par-

ticipate. If you have any inkling of an interest in computer graphics or game development, join SIGGRAPH.

SIGMIL

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SIGMIL is ACM's Special Interest Group on Military Applications. We have weekly presentations on various subjects, mainly focusing on security research and education. Past topics have included buffer overflows, shellcoding, syscall hijacking, FPGAs, cellular networks and advanced cryptography. This year we also participated in two different security competitions which involved defending and attacking machines on a network. This put into practice many of the skills we studied throughout the year.

For the new school year we are going to create an educational server with different hacking, programming and intellectual challenges to help people learn the fundamental skills that we use on our projects and assume at our presentations. We will also be participating in the Engineering Open House as we have in past years. Previously we have presented projects involving analysis of random number generators, audio and visual steganography, and most recently a tracking system using a network of RFID readers. While we formally are interested in computing, we have had presentations on other subjects such as law, privacy and politics. Anyone interested in any of these topics is encouraged to join. We meet on Fridays at 7pm in the ACM office.

SIGMusic

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SIGMusic is ACM's Special Interest Group on computer music. We encompass a wide veritey of interests ranging from sound synthesis to algorithmic composition.

This past semester, we produced some software that would play back melodies, and then use some standard compositional techniques to generate variations on those melodies, as well as generate transitions between two melodies, even if they were in vastly different keys.

We also produced music for the annual spring Sounds and Visions presentation, using both our project, as well as more standard compositional tools.

Plans for next semester are still up in the air, and we always welcome both new members and new ideas. Feel free to come to our meetings if you have interests in any of these areas.

SIGOps

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SIGOps is concluding its work this semester with a paper comparing the number of messages passed looking up meta-data in a network where the meta-data propagated/stored based on randomness/usage, versus the number of messages passed looking up meta-data in a similar network which also has a central meta-data storage server. Anyone who is interested in the paper can contact Brandt <dusthime@uiuc.edu> for a copy.

Development will continue into this summer. Brandt Dusthimer will be working on it full time and Chris Hathhorn, the other major contributor, will be working on it part time. Anyone else who might be interested in contributing should contact Brandt.

As a final note to all those who have been following development, the current version of SharedFS is expecting to get a major rehaul this summer. It will probably be moving towards a different peer-to-peer network model since a fundamental flaw was found with the current one.

SIGPLAN

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SIGPLAN is ACM's Special Interest Group on Programming Languages. Our local student chapter primarily consists of weekly presentations and discussions on various programming language topics. This year, we discussed topics including Java generics vs. C++ templates, duck typing, extensible programming languages, futures contracts trading in Haskell (which turned out to be our primary income source), the PyPy Python interpreter written in Python, and Apple's Open Scripting Architecture. Towards the end of the spring semester, SIGPLAN hosted a couple of faculty talks, including one by Prof. David Goldberg on Genetic Algorithms, and another by Prof. Sam Kamin on Compositional Semantics and Program Generation. We'd like to continue hosting faculty talks in the future.

Another thing we'd like to work on in the new school year is a longer-term programming project. While there was some talk of developing a database language last fall, the complexity of implementing a full database management system came in the way. SIGPLAN also served as a subcontractor to SIGEmbedded on their Engineering Open House project: starting at 10pm on the night before EOH, we used just-in-time design methodologies to create a Tetris® game controlled by moving your head. If you have any project ideas or just want to discuss or learn about programming languages, you should join SIGPLAN.

SIGSAC

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SIGSAC is the Special Interest Group on Security, Auditing and Control. We have been working on some guides that describe best practices for personal computer security. We were asked to do these by the CITES security officers and we are now ready to use feedback from network admins around campus to further improve these guides: https://www-s.acm.uiuc.edu/wiki/space/best+practices+guide

We hope to spend some time looking into SELinux security extentions to the Linux kernel and develop policies that would benefit the ACM cluster machines as well as other computer labs around campus and possibly working on a way to securely update and enforce these policies from a centralized location. You do not need to have any prior experience to join SIGSAC, and generally the less expereince you have the more useful you will be in helping to develop these guides or policies. We currently meet on Tuesdays at 8pm, but this time may change based on feedback from members. Even if you don't have time to come to the meetings, you can join discussions on our mailing list. Check our website for more info.

SIGWin

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SIGWin, the Special Interest Group on Windows Development, last year began a project called Wipt, the Windows Installer Package Tool. It allows automatic download, installation, and upgrading of Windows software, similar to the APT tool used in Debian. Development is continuing on Wipt, however, we are looking to start a new project this fall that would have a more general appeal. Two years ago, we created Star Trek.NET, a distributed voice command system. We are always looking for new members, and we will be doing tutorials on C♯ and other Windows topics in the fall. Come join us!