Spring 2004

Nebraska Blueprint - Spring 2004

BLUEPRINT

UNIVERSITY OF NEBRASKA-LINCOLN COLLEGE OF ENGINEERING & TECHNOLOGY

Spring 2054

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From the Editor

As my first and last semester as the Nebraska Blueprint editor, I would like to thank everyone that contributed to the creation of this issue. As I took over the reins from the very capable hands of Adam Holmberg, I knew we were entering a transitional period. With one of the smallest staffs, we were still able to accomplish a great deal. I know when I turn it all over to Kevin Mlnarik, it will be a time of great prosperity for the Blueprint. As the Blueprint grows over the next years, I envision a staff of dozens working out in the field and at the many computers in our new office (wherever that will be).

Right now our small, but skilled staff, could use your help to create this vision. If you are a student within the College of Engineering & Technology, or know someone who is, send us an e-mail! We want you to help. I know what you are going to ask: Does an engineer have to know how to write? If you can write an e-mail, you can write for this magazine and become part of our staff. If you cannot write an e-mail, we can show you how. Fortunately for you worry-warts, writing is not the only thing you can do for us. We would like students to be available to take pictures, work on layout, recruit new members, talk to possible advertisers, and distribute copies of the Blueprint. If you have always been interested in doing something like this, but do not feel that you have the adequate training, guidance is something that can easily be provided.

Sadly, I cannot continue working on the Blueprint staff. It has been a long time coming for my graduation, and I realize now that it was well worth the effort. I only wish that I could do in my job what I did at the Blueprint. Writing stories has always been such an enjoyable experience; I know I will miss doing it.

Thank you to everyone who has helped shaped my college career at the University of Nebraska–Lincoln. I invite you to enjoy the Spring 2004 issue of the Nebraska Blueprint.

Thomas E. Cudd

Thomas Cudd
Editor

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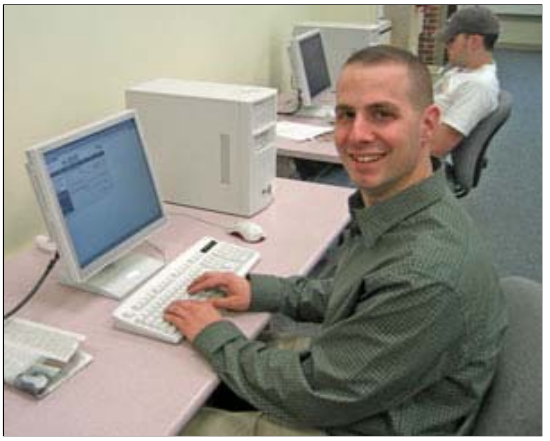
A Well-Earned Yet Charmed Life

How one student met his future head-on

by Tom Cudd

For many years, Adam Brehm has been the ideal student the University of Nebraska-–Lincoln College of Engineering & Technology wants in its programs. While attending classes, Brehm has kept one goal in mind—find a career. With a mixture of real-world experience, and advanced classroom projects, this computer engineering major wanted to have more than a job—he wanted a career that would remain fulfilling for many years.



Adam Brehm checks his email five to six times a day to stay connected to opportunities.

“The JD Edwards Design Studio has been great for getting real-world experience during school. For both my junior and senior years, I was able to work on all aspects of large-scale software projects,” Brehm said. “My junior year, we first created a marketing plan and found a client for our software product and then created an Emergency Response System for our client’s needs,” he continued.

After serving as a project manager for a client’s software product, the company i2rd offered him an internship.

“It allowed me to see beyond just the engineering done in class and see some of the higher level tasks, such as project plans and delegating tasks,” said Brehm. This type of work has also given Brehm the opportunity to talk about his various projects during job interviews.

Not only has he had a great deal to talk about, Brehm has had many places to share his experience . He has had on-campus interviews with National Instruments, Sprint, Cerner, General Dynamics, Union Pacific, and Garmin. These interviews led to onsite interviews with Union Pacific in Omaha, Neb.; Sprint and Cerner in Kansas City, Mo.; National Instruments in Austin, Tex.; and General Dynamics in Scottsdale, Ariz. His internship experience also led to discussions about full-time employment with i2rd.

In this ever-changing economy, a student has to start earning experience as soon as possible in order to rack up the kind of credentials that are necessary to get a second look from companies.

“I worked in the CBA ITS Department starting my freshman year. I started as a help desk technician,” Brehm explained. “And when Kauffman first opened, I became the tech support coordinator for the building and the program.”

He went on to explain how this work led to a promotion to the assistant systems manager where he helped with systems administration on various server tasks. Even with all of this great

experience, it was sometimes necessary to work in an area that was not related to his future career path.

“During the summer of 2001, I worked as a desktop services intern at ConAgra Foods. Although I wasn’t necessarily doing the kind of work that I wanted to do, it was valuable to see how large corporations work on different levels,” Brehm said.

The position involved providing support to more than 600 computers and users. He also learned that working on that scale involved a team of six employees, other interns, and consultants. It was during the summer of 2003 that Brehm ended up working at i2rd as a product manager for a particular software application, where he was able to learn a great deal more.

“I was able to do software development, as well as create marketing documents, make sales calls and work with other developers to make sure that all enhancements were complete before software releases,” Brehm said.

After accumulating all of this hard work and experience, it was necessary for Brehm to be able to sell his abilities to prospective employers. Brehm, who has been developing his resume since high school, slowly started phasing out high school exploits as professional opportunities began to fill up his employment section.

“Friends and family contributed to creating an aesthetically pleasing and informative resume,” Brehm added. Even with a sister-in-law who works in Human Resources, Brehm has other tactics for improving a resume.

“One of the best things that I think anyone can do is to swap resumes with their peers and work together to take the best features of everyone’s resume and apply it to your own. When I did this with one of my friends, both of our resumes improved greatly as we were able to offer a different point of view,” Brehm said. He also acknowledged that he never took advantage of Career Services because he thought that an engineering resume would have to look different than other majors.

Once a resume gets that vaunted interview, it is important to know what type of interview a prospective employee is heading into.

“A big thing to realize is that even though you may be interviewing for a technical position, most companies are not going to be asking you technical questions, especially during the first interview with the company. Behavioral questions have become the norm, and people need to understand that and prepare accordingly,” Brehm said. He went on to say that feeling comfortable is probably the most important part of the interview process, but comfort can only be learned with practice.

Once past the campus interview, many students often mutter, “And this is why I got into engineering in the first place.” Onsite interviews for Brehm included flight and hotel accommodations as well as having lunches and dinners in upscale restaurants paid for, all while being ushered around by a current employee (and usually UNL graduate) who shows new recruits the sights, attractions, and even apartment complexes. Even the locations he drove to reimbursed traveling expenses and supplied a hotel room for the night before the interview. In some of the warmer locales, Brehm was able to hit the links in the middle of November.

Even with the possible distractions that an on-site interview had to offer, they still turned out quite positive.

“I had three official job offers—one from Union Pacific in their IT Audit Department, one from Cerner as a software engineer, and one from National Instruments as an applications engineer in their Engineering Leadership Program,” said Brehm. “I accepted the position from National Instruments and will start June 7.”

Deciding which offer to accept took serious consideration. In addition to the position and its requirements, factors such as location and career advancement can be vital when deciding where to work.

"I've always seen myself involved in engineering, but on a higher level"
–Adam Brehm

"The biggest thing it came down to was the job description and what my career goals are. I've always seen myself involved in engineering, but on a higher level. The NI position will allow me to utilize and enhance my skills on the business side of engineering right away," Brehm said. "Another very important thing I was looking for was corporate culture and work atmosphere. The ELP program at NI is comprised solely of individuals three years or less from graduation so it's a very young atmosphere. You're not just stuck in a tiny cubicle, you share a very large work space with other engineers."

Brehm noticed that many companies are starting to recover from previous recruiting cuts. He had to make sure that his last semester at UNL was less rigorous, but with a senior design project taking place during the same time as many interviews, Brehm knew he needed an early start. After a stressful period of searching and uncertainty, the light is extremely bright at the end of the tunnel.

"I'm really happy that I had my position lined up before the semester began but now the anticipation is killing me. It's really exciting to think about how the years of hard work are about to pay off with a job that I think will enjoy a lot, not to mention that I'm looking forward to having a nice salary," said Brehm.
Through his valuable job-searching experiences, Brehm has learned a few things that could probably help many others find jobs. If a job seeker knows that looking for employment is full-time work, then they are on the right track.

"I arranged my semesters so that I would have a pretty easy last semester and the time and space to find a job. I would suggest that you take a very light semester when you are planning to find a job. It would be especially helpful to keep your Fridays completely open as Fridays are typically used as onsite interview days," said.

As long as a prospective worker knows what lies ahead in an interview, they can be prepared as well.

"If you had a really good internship, pick a project you worked on during the internship to discuss. Most employers want to know that you can think on your feet and you can speak about your experiences. The technical skills are assumed," Brehm clarified.

Adam Brehm has shown that with effort put into creating a resume, preparing for interviews and gaining the right experience, any College of Engineering & Technology student can land that big job they've worked for.

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A closer look at the Biological Process Development Facility

by Kevin Mlnarik

A group of scientists at the University of Nebraska–Lincoln are forming an important barrier against a potentially devastating terrorist attack. They aren't protecting people with guns or roadblocks, but with high tech equipment and clever science.

Meagher, in his Othmer Hall laboratory.

These scientists are creating the processes with which to develop botulism vaccines. According to researcher and UNL professor of chemical engineering, Michael Meagher, "We're going to make life difficult for those trying to come up with new strains of biological agents."

Botulism is a disease caused by a toxin, and the toxin, in turn, is created by a bacterium. When the botulism bacterium divides it creates, as a byproduct, botulism toxin—a potent pathogenic protein that interferes with the ability of nerves to carry information. The bacterium that causes botulism can thrive in places that have little access to oxygen—including improperly canned food, and unclean wounds.

The botulism bacterium has been cultured as a weapon by many countries, including the United States, Russia and Iraq for use as a biological weapon. It creates a terrifying array of symptoms for someone who has contracted the disease. Once an unlucky person gets botulism their muscles go limp, and they may develop slurred speech and difficulty swallowing. If left untreated the muscles that control breathing will become weakened and paralysis of the arms and legs will follow. Physicians can administer botulism antitoxin, which will help minimize some effects of the disease, but ultimately about 8% of the roughly 110 Americans that get botulism each year will die from its effects.

To make the threat of botulism even more frightening is the relative ease with which it can be produced. Botulism bacteria has existed naturally on earth for millennia, and will reproduce on its own if it has food and a suitable environment. Given significantly less technology than that required to make a nuclear bomb, a group can create huge amounts of botulism toxin. Disputed claims have been made that Iraq had enough botulism toxin at the end of the first Gulf War to kill the entire population of the world three times over.

Protecting people against botulism is much more difficult than creating botulism. The daunting

task of fermenting and purifying botulism vaccines has been taken on by researchers led by Meagher. Using UNL's Biological Process Development Facility, Meagher and his team are using a $6.5 million grant from the National Institute of Allergy and Infectious Diseases to manufacture a process by which a vaccine can be produced.

One of the challenges Meagher and his team face is the nature of the botulism bacteria; there are seven distinct types of the bacteria, and each one produces a unique toxin. All of these toxins require their own distinct vaccine.

To understand how the vaccines are being produced it's neccsary to understand how vaccines work in the body.

One of the primary functions of the immune system is to find and destroy substances that are foreign to the body. These substances can be found in viruses, inside transplanted organs, and in some other substances—such as botulism toxin.

When the body encounters a foreign substance the immune system works to create antibodies that are capable of destroying or disabling the invader. In some diseases, the process of finding the invading substances and making antibodies takes enough time that the invader can begin attacking the body before the immune system is ready.

A research assistant performs an experiment in one of BPDF's many labs.

When a doctor administers a vaccine against a disease, he or she injects proteins identical or similar to those found in the disease. This stimulates the patient's immune system to produce antibodies to the disease's protein. If the immunized patient is exposed to the disease later in life their body can immediately attack the invader, since their immune system is already capable of producing the antibody. This rapid response to a previously seen invader is the reason why chicken pox is rarely acquired more than once.

While creating a vaccine for botulism Meagher and his team first researched proteins that were capable of stimulating the body to produce an antibody against botulism toxin. The immune system identifies most foreign substances by investigating receptors on the outside of the substance. In order to make a vaccine, the researchers needed to create a protein that mimicked a receptor on the botulism toxin. They're essentially creating proteins that trick the immune system into creating antibodies for botulism. After a suitable protein was found, they had to find a way to quickly reproduce these proteins.

For this task they genetically modified a small number of yeast cells so each cell produced the required protein. These yeast cells were then placed in fermentation tanks where they reproduced. Next, these proteins were isolated from the yeast cells and carefully purified. These purified proteins then became the basis for the vaccine. The team was required to find the best conditions under which to create the proteins, and to develop a method that consistently created high quality samples. This process was then repeated for each of botulism's seven strains.

Presently, vaccines created by the researchers are being tested on animals, and thus far they have shown positive results. "In mice, the vaccine works," said Meagher. "The best scenario is that we never have to use these vaccines, but the American people will not tolerate our government not being prepared."

For better or worse, the future will always be uncertain. All researchers can do is prepare for the future and hope for the best. Thanks to Michael Meagher and his team, people can be freer to hope for the best; we can breathe just a little easier, and that's the greatest freedom there is.

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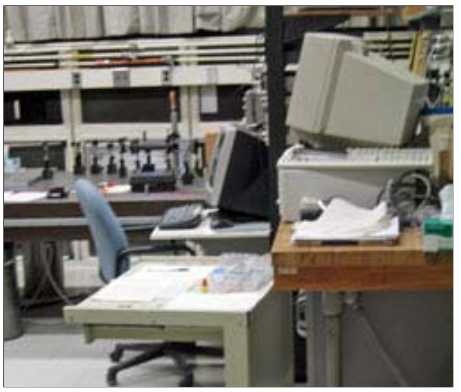
The future of quantum computing at UNL

by Tom Cudd

The field of quantum computing always inspires thoughts of futuristic lifestyles and people flying around in jet cars. Little do people know that the future is at the University of Nebraska–Lincoln right here, right now.



Various equipment in Keck Laboratory is used to study spin-logic structures and arrays, in addition to materials.

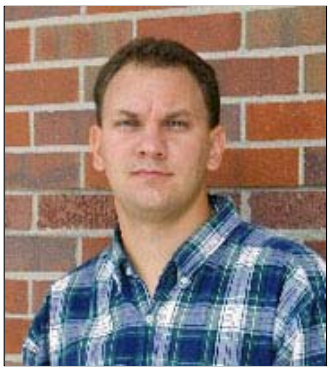
A quantum computer is a machine that would be able to realize a fundamentally new mode of information processing. Where traditional computers process binary information, a quantum computer would process information that is quaternary. Instead of bits, you would have qubits, or quantum bits of memory. There are a few different areas of quantum computing that can be studied—algorithms, implementation, and quantum information. Algorithms include implementation at a higher level. This can be enough for quantum mechanics and some research in the field. Implementation involves the physics of creating the mechanisms to use the quantum. Quantum information involves coding theory.

The idea of quantum computing arose in the 1970s and 1980s when physicists and computer scientists began to entertain the idea of a computational device based on quantum mechanics. In the ensuing years, some strides have been made, but logistical difficulties also hinder the process of quantum computing. However, there are improvements on the horizon said Charles Cusack, computer science lecturer, who is teaching a course in special topics—an introduction to quantum computing.

“Quantum computing is growing enough that if you pick the right niche, you can really see results,” said Cusack.

Coding theory, in particular, is of great interest to large corporations and the government due to the research in cryptography.

“If they can build a quantum computer big enough, you could have access to every public key code out there,” Cusack said. “Those without them would then be unable to protect their data from those with them. Quantum computers would protect from errors and eavesdropping,” he added, while discussing the benefits of quantum computing.



Charles Cusack

"Using quantum cryptography, you can absolutely secure data and the computers would be able to tell if data is being spied upon." This occurs because, in quantum mechanics, a particle's properties are changed when it is intercepted.

"If two computers agreed on a key, it can't be defeated," Cusack said. Unfortunately, there are still many strides to be made in order to reach this level of research. "One of the difficulties is to be able to write an algorithm with a high probability to get the answer that you want," said Cusack.

For many years, the University of Nebraska–Lincoln has been at the forefront of quantum computing technology and research. In November of 2000, former UNL professor Supriyo Banyopadhyay and the Quantum Device Laboratory were in a competition to receive federal funding to build upon what is known as "quantum dots" technology. These electronic structures are so small it would take 10,000 of them to equal the diameter of a human hair follicle.

In a UNL news release, Bandypodhyay explained some possible applications for this technology.

"The obvious application is that you can make very small structures and if you can store information in them, you can have very high information storage density. You can also use these structures to do very efficient, very high-speed computation. You can build quantum computers."

He went on to explain that while the current design of a computer could never handle two to the 1000th power bits of data, a quantum computer would only need 1000 atoms to do this much processing.

When Bandyopodhyay spoke to the Daily Nebraskan in November of 2000, he stated, "A complicated code might take 10 to 100 years to solve with a classical computer, but a quantum computer could crack the code in a matter of seconds."

"Quantum computing is growing enough that if you pick the right niche, you can really see the results"
–Charles Cusack

At the time, the quantum computing research team, made up of electrical engineers Rod Dillon, Ned Ianno, Latika Menon, Paul Snyder, and P. Frazer Williams, had been working on the research for three years. Even now, we are still at least a few years away from any kind of working small-scale quantum computer in the lab. We can expect this technology to appear on our desktop within the next 25 years, give or take.

This same research group also worked on creating a military intelligence gathering method. "As small, powerful computers with wings, these bees have to be somewhat intelligent," said Ianno. Ianno was also asked about the implications of this technology in artificial intelligence. "I am not so sure that artificial intelligence is possible, but if you shove enough information into a quantum computer, it certainly can mimic thinking," he said.

Some of this forward thinking landed UNL much sought after funding. In May 2003, the W.M. Keck Foundation in Los Angeles granted $750,000 to UNL to establish the Center for Mesospin and Quantum Information Systems as well as The Fast Dynamic Laboratory to reside in Behlen Laboratory. According to the W.M. Keck Center Web site, these labs are pioneering work in areas of maximizing data storage density, increasing processing speed, and decreasing power consumption.

Just last fall, Dr. Herman Batelaan and his associates captured light. This polarized bit of light within a cell of vaporized rubidium atoms is the first step towards creating a qubit. According to

a UNL news release, storing this light is important to storing information in a quantum computer system.

“If you have light going a certain way, you have an electric field that oscillates,” Batelaan explained. “It can oscillate horizontally or it can oscillate vertically. Those are the zeroes and ones of your qubit in this case.” Storing the light like this means that something can actually be done with it.

In a Daily Nebraskan interview, Ben Williams, then a junior physics and computer engineering major who was on the research team, discussed what this could mean for the field of quantum computing.

“It would exponentially increase computer speed and processing beyond any computer we have now,” Williams said. Among other benefits, coding problems that cannot be worked on now will someday be possible with quantum computers.

With so many research opportunities in this area right here at UNL, the future may not be now, but it may be sooner than we think.

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Fifty years forward for Nebraska Engineering Students

by Cecelia Orwig

Fifty years from now, this University will be virtually unrecognizable. The Antelope Valley Project will have long been completed. Many buildings will have been renovated or torn down several times over. And just as the complexion of the campus will have changed, the daily life of every student will be very different. Class schedules will contain subjects we have only considered deep within our imaginations. From *The literary impact of Michael Crichton* to *Basic Quantum Computing*, life will be very different. Let's follow Student N37568943R, (Norville Rogers), a mechanical engineering junior, through an average day. It is Tues., Jan. 20, 2054.

Early Monday night, approx. 10 p.m., Norville set his alarm and falls into bed. Today, Tuesday, his alarm rings at 5:10 a.m. Considering the default of most alarm clocks to be a nine minute 'snooze,' he hits his alarm 17 times only to wake up at 7:55 for his 8 a.m. MECH 337 *High Mix/Low Volume Manufacturing* class. He hops on his thrift shop 2035 model Huffy hover bike and heads across the street to class.

It didn't take long for him to learn that his roommate, Fred Jones, a Broadcasting major from California, had set his alarm back four hours to 1:10, while changing the clock time ahead two hours ahead from when he went to bed so that it read midnight. In short, he was quite disturbed to find he was in Nebraska Hall at 3:55 a.m., which made navigating the halls exponentially more difficult (think cloudy 4 a.m. mindset). Upon returning to his room in Abel, he proceeds to put shaving cream on Fred's hands and pillow, reset his alarm and clock, and go back to bed. Subsequently, with his alarm going off at the correct time, he hits it the usual 17 times, and heads off to class.

After learning the finer points of manufacturing fundamentals, unit operations and manufacturing line considerations for work in process, manufacturing lead time, economics, and qualify monitoring, we see him run up the hall to MECH 364 *Thermodynamics and Biothermodynamics* to study more of the basic principles of thermodynamics along with an introduction to the thermodynamics of multicomponent systems with and without chemical

reactions.

Today he begins the sections of the course that deal with the non-classical aspects of small systems and non-equilibrium thermodynamics, both of which are important in biological processes. He listens with his eyes closed as his instructor describes how this can be applied to life processes at the molecular level and at the level of organisms interacting with their environment. Dragging himself from the classroom, he finds that the instructor ran a bit over time, and he has approximately three minutes to get from Nebraska Hall to Manter Hall for his 10:30 a.m. BSEN 354 *Structural Aspects of Biomaterials*, where he struggles to grasp the mechanical and structural aspects of biological tissues and their replacements, while reviewing the natural and synthetic load-bearing biomaterials for clinical and medical applications. Why he chose to take this class, we will never know.

By this time, his brain is beginning to swell (or so it seems). Luckily, he is now off to his CIVE 301 *Design of Planar Machinery* 11:30 a.m. class. He was interested in the design aspect of the class despite the fact that it was primarily intended for civil engineers. This class primarily focuses on synthesis, analysis, and design of planar machines. They discuss the usage of linkages, cams, reciprocating engines, gear trains, and flywheels.

With hunger bearing down on him, he reaches for his satellite phone, only to find that Velma Dinkley, computer engineering major and close friend, has sent him three video-mails and a photo of a very angry poodle (I can't say "why" it's a poodle… it just is) because he's running late for their lunch plans. He hops on his Huffy hover and races to the Student Union. Velma has apparently been having a rough morning, CSCE 851 *Advanced Quantum Computing* has proven more difficult than usual and she actually had to pay attention in class. Norville joins her and they have a pleasant lunch, discussing the past weekend's adventures. Sadly, our dear friend has a 1 p.m. class on East Campus, and must reach the Tunnel-Tran (a train that slides at great speeds through a vacuum tube) at 12:50 p.m. in order to reach her next class in time.

Norville finishes out his day of classes with a 2:30 p.m. MFEQ 360 *Microfabrication Equipment Laboratory*. Although this is a three-hour lab class Norville seems to enjoy it. Today they are focusing on plasma-assisted etching and film deposition. Once this is over, he hovers back to the 13th floor of Abel Hall where he kicks Fred out of bed for his night classes.

So ends our day fifty years in the future. Whether we're attending *The literary impact of Michael Crichton* or studying *Basic Quantum Computing*, the future will surely be filled with surprises. And clearly, students will always be students, running late, sleeping in class and otherwise enjoying their youth. *Le plus ça change…*

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Computer engineering versus computer science

by Tom Cudd

When students first decide they want to enter the world of computers, many do not realize it is a diverse field in which one person cannot hope to specialize in more than just a few areas.

To most people, being involved with computers equates to the different fields of information technology and technicians who are simply expert computer users. For those students who decide to attend school at the University of Nebraska–Lincoln, they soon learn there are a variety of choices available to them.

If there were a sliding scale for the computing field, computer science would be at one end with electrical engineering at the other. Computer engineering would be a mix of the two somewhere in the middle, but leaning to one side or the other depending on a particular emphasis. Dr. Charles Riedesel, the chief undergraduate adviser for the University of Nebraska–Lincoln Computer Science and Engineering Department explained some of the similarities and differences between computer science and computer engineering programs.

“There is a lot of overlap between the two areas. The math is the same and the physical sciences are comparable,” Riedesel said. “Even the computer science courses are the same for the first couple of years.”

After the first year or so, learning about digital logic is the only similarity left between computer engineering and science.

“The hardware that computer science students see is at a higher abstraction. They work with digital logic and how to design a processor, but do not have to look at the electrical components underneath,” said Riedesel.
For computer science majors, the general studies are more open compared to computer engineering. Because of the Arts and Sciences College, computer science majors can receive a math minor with minimal class additions to their degree.

“Many students can add a lot of breadth with a double major or a second minor,” said Riedesel. “Minors with computer science lead to more flexibility.”

In the past, computer science majors have picked up minors in business to move into the entrepreneurial area. Some computer science majors work toward a biological sciences minor with hopes of working on human genome research.

Where computer science majors can lead to experience in areas outside computing, computer engineering majors are more experienced with the hardware of a computer. Their careers are geared toward embedded systems and designing lower-level hardware. The use of design projects to understand the electrical components behind computers is highly emphasized.

Computer engineering majors are usually within one semester of getting an electrical engineering degree. One recent development involves students who aspire to earn both computer and electrical engineering degrees.

While the computer science and engineering department is happy with the current system, there are some possible changes that may affect 100 and 200-level courses. Beginning computer engineering students may receive more electrical engineering experience during their first year. Possibly taking Introduction to Electrical Engineering may ease what many computer engineering students refer to as “the plunge” into ELEC 215. A possible expansion to CSCE 230: Computer Organization would allow a hardware lab for computer engineers.

Something that both computer engineering and computer science majors will see is the addition of the Altera Field Programmable Gate Array (FPGA) boards. This has been a powerful teaching tool to which many students have responded positively. In response to requests, students gain a hands-on approach to the design of computer systems.

While both computer science and computer engineering majors offer many skills to be learned, students should meet with an adviser to decide where their strengths lie.

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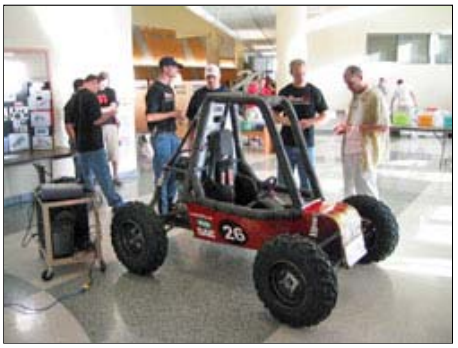
Why Don't Engineers Get Involved?

On engineering and apathy

by Tom Cudd

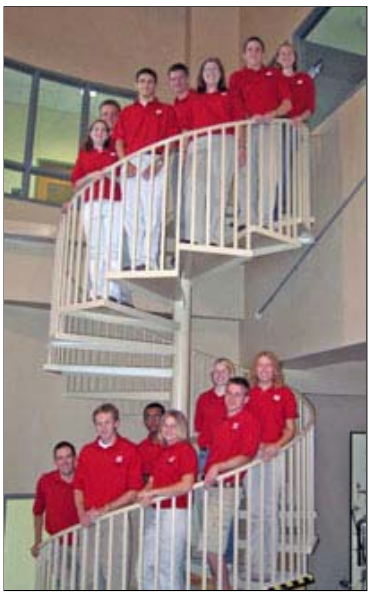
Since coming to school at the University of Nebraska–Lincoln, I have noticed how wonderfully involved all the students on this campus can be. There always seem to be people who want to give that extra effort back to this community.



While there are many students from many majors who volunteer their time to academic as well as service organizations, most of those students are not engineers. Even while I type this out and try to think of the involved engineering students, I realize that those I can come up with are the anecdotal exception rather than the rule. There is an utter lack of College of Engineering & Technology students who maintain an active profile on this campus.

I remember that before I ever came to UNL, people would always ask me what I wanted to major in. Whenever I said computer engineering, I mostly heard, "There is a lot of money in that field," or "You are never going to have trouble finding a job." It never occurred to people that I might have actually enjoyed working with computers.

I fear that many of my colleagues have the same attitude that those teachers and guidance counselors expressed towards my future direction. (Now don't get me wrong, my other choice was music, but since I liked computers and music equally, the one that could enhance my chances of success was the major that won out.)



Some people say that there is no such thing as a selfless act. While I do not intend to debate this issue, not many engineering students do much to benefit someone other than themselves. Engineering programs are some of the largest that UNL has to offer and I would venture a guess that they have some of the lowest involvement numbers. It seems that some engineers' ideas of involvement include playing video games with their friends or… well that's pretty much it. If playing video games IS your idea of involvement, then make a club out of it. Creating an organization here at UNL does a lot to teach someone about teamwork and organization.

If students feel that volunteering their time could only happen if it helps them, I would encourage those students to think of a few things first. Involvement in academic and service organizations can probably add as much to a resume as work-related experience in your discipline.

Employers know that a student is going to school to learn a subject; it's whether or not a student can work with a team or communicate that really adds to the depth necessary in most engineering and technology environments. Keeping up membership with a certain group can indicate loyalty and dedication, some of the intangibles that can swing a job to a person with less technical experience and more personal experience.

And don't forget, helping out feels good. If anything, join an organization to create that warm and fuzzy feeling inside. All I am trying to point out here is that in the long run, getting into the heart of the community has a long-lasting impact on you, those you have helped, and those who see a better image of this school. The College of Engineering & Technology needs you to help yourself by helping others.

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From March 11-14, the UNL ASME student chapter hosted the ASME Region VII Regional Student and Administrative Conferences in downtown Lincoln, at the Cornhusker Hotel. Students organized the entire conference, which included an impromptu design competition, career fair, oral and poster presentations, speakers, a tour of the SAC museum and training sessions. The keynote speaker, Brett Kennedy, from the Jet Propulsion Lab, spoke about the challenges of designing the Mars Explorer robots. “More than 95 students and 35 professionals attended,” said student chapter president, Andy Malone.

In the main design competition on Friday night, students had to design robots that were able to retrieve cylinders (simulated land mines), climb over barriers, then return to the starting point in three minutes or less.