Purdue ACM Newsletter, Fall 2013

ACM Callout Attracts 200 New Students

The ACM kicked off the fall semester with a callout on September 3rd, sponsored by Hulu.

About 200 students showed up to the callout, interested in learning what the ACM was all about. With the addition of SIGMM last year, the group has been expanding rapidly.

Current ACM President, Isabel Lee, began the presentation by giving a brief overview of what ACM does. At Purdue, ACM is known for fostering a sense of community within the CS department. Whether you're interested in mobile app development, robotics, security, game development, operating systems, or something else, chances are good that there is a special interest group (SIG) within ACM perfect for you.

ACM is also known for hosting tech talks and hackathons for the CS department. These events are a great way for students to connect with corporate partners.

At the end of the callout, attending members were able to walk away with new T-shirts, stickers, and key chains from Hulu as a small preview of all they can gain from membership within ACM.

Above: Isabel Lee, President of the Purdue Chapter of ACM, informs the prospective new members what the group is all about.

SIGBOTS: Back to the World Championship
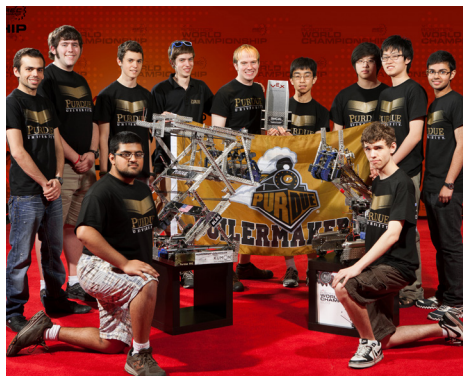
Above: The team once again traveled to the world championship, earning the VEX Innovate Award for their custom operating system, PROS.

SIGBOTS once again returned to the VEX Robotics World Championships last April, making this their third consecutive appearance at the event.

Hosted in Anaheim, CA, the VEX Robotics college challenge world championship is a gathering of the top robotics teams in the world. Each year, the competition consists of a different "game" that each team's robot must play.

The Purdue team is different than most other robotics groups across the country. While most universities' teams exist within the engineering department, SIGBOTS is primarily a Computer Science group.

This difference is very noticeable in the rankings: at the competition, SIGBOTS earned 2nd place in programming skills. The team created their own operating system, aptly named the Purdue Robotics Operating System (PROS), which won the VEX College Challenge Innovate award this year. PROS is currently being licensed to over 90 different teams around the nation.

The team is planning on hosting multiple VEX College Competitions this year, before hopefully returning to the 2014 World Championships in April.

SIGHPC Travels to Leipzig for ISC'13

SIGHPC also attended an international competition this year. The Special Interest Group in High Performance Computing traveled to Leipzig in June to compete in the International Supercomputing Conference student cluster competition (ISC'13).

One challenge of ISC'13 is the power restrictions: each team must build a cluster with equipment that may not exceed 30 amps at 240V.

At the competition, the teams compile selected programs to run the data sets given. Some are easy, some are hard, and some are even impossible. It is up to the teams to decide which data sets are possible in the allotted time and complete as many as they can.

The team performed well for their first time competing at this level, but in the end, the South African team took first place.

When they aren't traveling to student cluster competitions, SIGHPC plans on hosting tech talks and using their OpenStack-based cluster for analytics and training.

The group had a great time in Leipzig and will definitely be competing in future student cluster competitions.

Below: Purdue's High Performance Computing team competed in Leipzig at ISC'13 in June.

Special Interest Groups

SIGs, or special interest groups, are the lifeblood of the Purdue chapter of the ACM. Each SIG is dedicated to a particular domain of computer science, and they allow like-minded individuals to meet and explore their interests as scientists and engineers. SIGs are also an important part of the culture of the Purdue Computer Science department, because they provide a setting for younger students to learn from older ones, who in turn have a chance to pass on their accumulated knowledge and experience.

SIGAPP (Eric Templin)

Centered on development for Android, iOS and Windows Phone platforms, SIGAPP is one of Purdue's oldest SIGs. Since its inception, SIGAPP has developed a range of useful and widely-used applications including a trivia game for the Lawson building's video wall and a motion controlled ball roller game. Their meetings are focused on demonstrating the principles of mobile development to younger members, but they also provide a forum for more experienced members to work on larger projects.

SIGART (Chris Wendt)

SIGART is a dynamic organization dedicated both to the study of artificial intelligence and to improving the skills of its members as scientists and engineers. In addition to working on projects and participating in coding competitions, in the past the group has teamed up with the Computer Science department to help develop a course in data mining, which is now an integral part of the department's machine intelligence track. This semester SIGART has partnered with SIGGD to develop a cunning computer opponent for their upcoming turn-based strategy game.
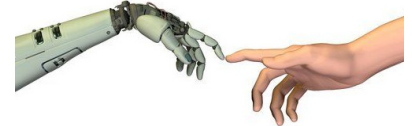
SIGBOTS (Javid Habibi)

SIGBOTS is an exciting program dedicated to participating in colligate-level robotics competitions. This season, the team hosted the Purdue Robotics Challenge, taking 2nd place and the judges' choice award qualifying for the world championships. The club focuses heavily on the robots' software. Their custom built operating system and high throughput image processing algorithm enable a number of advanced autonomous routines. In addition, SIGBOTS is committed to community outreach, hosting an annual scrimmage for high school teams as well aiding them in their robot designs.

SIGGD (Tyler Wolverton)

SIGGD focuses their efforts on the multidisciplinary study of game development. Encompassing everything from English majors to mathematicians, SIGGD's goal is to integrate its members' diverse talents to developing games. SIGGD's current project is tentatively titled "Space Game", a top down shooter set in space that models gravitational orbits around planets. The project will be developed using Unity3D with art assets being provided by members of SIGGD as well as members of GDU (Game Developers United). The club hopes to find funding next year to send the team to the Independent Games Festival in San Francisco.

SIGHPC (Kurt Kroeger)

SIGHPC is dedicated to the study of high performance computing. The group's goal is to ensure a rich and rewarding experience for undergraduates interested in HPC. This semester they will be discussing in depth topics such as big data analytics, configuration management, and scientific modeling. They recently competed in the ISC Student Cluster Competition in Leipzig Germany by optimizing scientific applications for their platform of Intel Xeon Phis.

SIGOPS (David Zielinski)

Founded in the fall of 2011, SIGOPS revolves around the study of modern operating systems design, as well as networking, file systems, and general low-level programming techniques. Between academic discussions of modularity and scalability, their members tackle projects that span the breadth of systems programming. Next semester, the group plans to work on Raspberry Pi boards, implementing increasingly sophisticated pieces of an operating system as the year progresses.
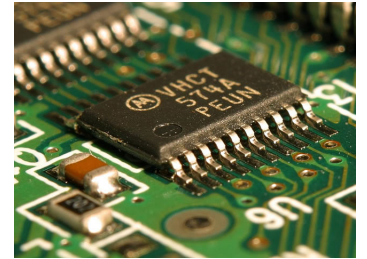
SIGMM (Shawn Carmichael)

The purpose of SIGMM is to explore the multimedia technologies that we use on a daily basis and learn about the way they interact. SIGMM's projects this year have included constructing augmented reality applications, analyzing and automatically recognizing compression techniques, and building an extension to Skype that would allow multimedia objects to be embedded in chat. In addition to studying multimedia, the group places heavy emphasis on improving the programming skills of its members.

SIGSAC (Nathaniel Cherry)

The Purdue SIGSAC chapter is a rapidly growing group of individuals with an interest in computer security research and penetration techniques. In addition to exploring technologies in the field, this year the group has built a chat program encrypted with RSA and extensible to other encryption methods. SIGSAC also holds regular tech talks on subjects in their field, and partners with the CERIAS program at Purdue as well as industry leaders in cyber security to bring interesting and relevant speakers to their events.

Looking Forward

I walked into Purdue with no previous knowledge of programming other than the countless days spent experimenting with my TI-83 in math class. Despite this, I was known as one of the best coders in my class by the time I finished my first year at Purdue. I attribute this growth to my time spent working with the ACM. The sense of community fostered within the group cannot be obtained by simply going to class. The skills and tricks I learned within the SIG I joined helped me excel in my coursework.

With over 100 members now, Purdue's chapter of the ACM is becoming larger and stronger every year. With the addition of SIGMM last year, it seems there is a place for anyone within the organization. As eager freshmen enter their first year at Purdue, they are amazed at the opportunities available for learning and connecting to others within ACM. The diverse mix of skills and knowledge obtained while working in a SIG provide an experience that is simply unattainable within the bounds of a classroom. By hosting coding competitions and tech talks, students are able to show off the skills they have learned. Combined with the opportunities and resources available from the myriad of tech talks, info sessions, and company days hosted here, Purdue students are able to easily connect to corporate partners.

The value of the ACM's human capital is immeasurable. As our older students return from internships and research projects, they are met by a huge group of incoming students eager to acquire a small part of that knowledge themselves. The innovation and creativity that is found as a member of a SIG is an experience that enriches the lives of all students involved. With enthusiastic students coming from many different backgrounds and levels of ability, it is easy to see how the ACM is able to foster this spirit of innovation.

It takes a monumental amount of effort to run an organization like ACM Purdue, and the administrative officers work tirelessly to make sure that rooms are reserved, bills are paid, and everything is running smoothly. Unfortunately, hard work alone won't keep the ACM running. Though our budget is tight, it is also incredibly important – it keeps the robots competitive and the servers running, gives us access to academic and physical resources, and allows us to advertise events like tech talks and callouts. The ACM also provides assistance with recruiting events and tech talks for our corporate partners, and members often look there first for internships and jobs.

The Purdue chapter of the ACM is almost entirely funded by the generous donations of our corporate sponsors. Without your help we would be completely unable to function as an organization, and so your gift directly impacts the hundreds of students who benefit from our services. To donate, simply contact our treasurer, Mitchell Stendal, and he will walk you through the rest of the process. Even a small sum can make a big difference.

I look forward to seeing what the ACM will accomplish this year.

Thank you,
Logan Gore
Secretary, Purdue ACM

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