FREDONIA
DEPARTMENT NEWSLETTER

COMPUTER & INFORMATION SCIENCES

Spring 2015 Volume 8

Adeus a Nossos Amigos Brasileiros!

by Roger Code (reprinted with permission from *Campus Report*)

Dean Kijinski addresses our Brazilian Students

A Brazilian accent was added to the growing international student population at Fredonia during 2014, thanks to the **Brazilian Scientific Mobility Program** that places high-achieving students in U.S. colleges and universities.

Ten computer information science students from South America's largest country were enrolled in classes in the spring and fall terms, as well as both summer sessions. What they found at Fredonia was a welcoming and enriching campus experience, first-rate professors dedicated to their students and a friendly surrounding community.

"You meet a lot of people from many different countries and you live in a place that has a completely different culture and language," said Jose E. da Silva Tenorio, "it's awesome!" The BSMP, formerly known as Brazil Science Without Borders and administered by the Institute of International Education, an international education and training organization, provides scholarship support to students. The Brazil contingent at Fredonia attended intensive English language courses at Jamestown Community College in the prior semester before joining the Fredonia campus as non-matriculating students.

"All faculty members said they were excellent students, very well prepared," said Reneta Barneva, chair of the Computer and Information Sciences. "We also found them to be very hardworking, respectful and many were also interested in pursuing graduate school in the United States." The greatest challenge confronting the students – most had never lived in a foreign country – was adapting to the language, but that hurdle was scaled relatively quickly.

"Speaking with people was difficult at first, but after a while you just get used to it and how people talk," said Airton J. Gessner. "At the beginning it was difficult, but I got used to it in one month," added Felipe A. Reis Guedes Alves. "I liked the professors and the campus in general, and the people from here are friendly because (Fredonia) is a small town." ***(Continued on Page 3)***

Message from Chair

by Dr. Reneta P. Barneva (Professor and Chair)

One more very productive year is over! In Fall 2014, we were pleased to learn that according to the university's statistics, **we are one of the most successful departments**. Our freshman enrollment has doubled, our department had the highest relative growth on campus (22%), our student retention rate of 95% was the second best on campus, and the exit survey alumni respondents reported 100% employment!

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Additionally, we received excellent news about our **Web Programming Minor!** It was launched in 2011, and is currently the **third most popular minor** on campus! At the same time, we enriched our curriculum to include many innovative courses such as **Ethical Hacking, Cloud Computing, Programming with JS Node, Human-Computer Interaction, Game Development, Android, Ruby on Rails, iPhone, Windows 7 Phone, Alice, Introduction to Multimedia, Computer Security and Ethics, and Social Network Analysis**. These improvements will continue to make our graduates very competitive on the job market.

Much of our success is due to our faculty of accomplished scholars and teachers. Department members are recipients of numerous awards such as the Wilkes Award of the British Computer Society, Fredonia President's Award of Excellence, SUNY Chancellor's Award of Excellence in Scholarship, Kasling Memorial Lecture Award, and Hagan Young Scholar Award. We love to involve our students in research activities – an opportunity often exclusive to grad students at other universities and research centers.

Our Department hosts a very **diverse body of students**. In particular, in 2007, we started a Dual Diploma Program with Ege University in Turkey, which was extended the next year with Izmir University as well. In 2014, we hosted **ten students from Brazil** through the Brazil Scientific Mobility Program. In the recent years we have also had students from China, Japan, Kenya, North Cyprus, Pakistan, Saudi Arabia, Senegal, South Korea, and other countries.

This past Summer, **four of our students were invited to attend a Microsoft summer school** at Jiaotong University, Beijing, which is one of the top universities in China. Jiaotong University covered their tuition, room, and board, and even their airfare! Despite the financial challenges in higher-education, we hired **one new tenure-track faculty** for Fall 2014; and **two new part-time faculty** have joined us as of Spring 2015. These new department members allow us to meet the consistently increasing demand for experts in our discipline.

Furthermore, we are proud of our alumni, who are employed nationwide as computer consultants, programmers, systems analysts, network administrators, project managers, software engineers, hardware specialists, web developers, and educators. Together, we are working to improve the welfare of our campus and the community.

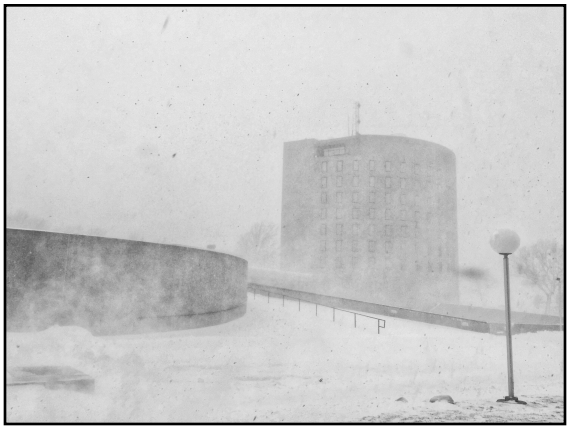
Amigos Brasileiros!

(continued from Page 1)

Students were impressed with the quality of instruction by Fredonia faculty. “All the professors at Fredonia were excellent, but I had the opportunity of having more classes with Robert Olson and Stephen Raghunath, and I can say that I really liked their classes,” Gessner said. “They know how to put together the theory and practice, and that is very important in our technology field.”

Simply living on campus in a residence hall was a new experience for these students more accustomed to living in houses or apartments near their universities and relying exclusively in public transportation to get around. At Fredonia, they resided in Gregory, Igoe and Eisenhower halls.

Another adjustment for students coming from the southern hemisphere was adapting to a much-colder than normal winter in Western New York. But those chilly conditions simply increased their access to popular outdoor activities, such as ice skating and downhill skiing. “We don’t have snow in Brazil, so that was really different. Snow is beautiful, but it’s too cold for me,” said Gustavo E. Reis Guedes Alves.



Snow falling upon Fredonia

On the extra-curricular side of campus, the students played soccer at the intramural level, participated in the Relay for Life cancer fundraiser and attended assorted concerts and sporting events. “One activity that I enjoyed was attending some soccer games,” Gessner said. “They made me remember Brazil where, as a kid, we used to play soccer in any corner we could find.”

There was also a side trip to Darien Lake theme park in Buffalo to see the American band Linkin Park and more ambitious journeys to New York City, Philadelphia, Washington, D.C., Las Vegas and Los Angeles.

Gessner acknowledged that his view of the United States changed as a result of the time spent living and studying here. “One perception I had in Brazil was that every American was selfish. I completely changed my mind; most of the people here are friendly and always willing to help,” he said. “I would be very happy to have the chance to come to the United States again. I would, maybe, choose a warmer place, but I’d like to return,” added Gessner, who plans to work as a web developer and ultimately earn a master’s degree.

Jessiel Hacke has a girlfriend in the United States, so he says he definitely plans to return. “I want to work in Brazil and get more experience and then come back here to find a job and live here.” At the end of the fall semester, the students were treated to a farewell reception by the Computer and Information Sciences. At that informal gathering, John Kijinski, dean of the College of Liberal Arts and Sciences, shared his thoughts on language assimilation with the students. All agreed that immersion greatly facilitates acquisition of new language skills.

New Course Teaches Foundations in Ethical Hacking

by Amanda Dedie (reprinted with permission from *The Leader*)

Among various new classes seen floating around this semester, a name has been catching everyone's eye: Ethical Hacking. When people hear the word "hacking," they almost instantly think of a sci-fi movie, where a man wearing big, geeky glasses types frantically on a keyboard while two big guys, too technologically inept to do it themselves, wait behind him in anticipation, before the hacker turns around with a gleam in his eye and a smirk on his face, going, "we're in."

Professor Robert Olson
Certified Ethical Hacker

Interested, you look it up on Fredonia's Fast Class Search, where you read, "Introduction to penetration testing; Introduction to Linux; C programming in Linux; Introduction to Kali; Sandboxes and Virtual Machines; network attacks; port scanning; packet sniffing; wireless encryption attacks; denial of service attacks and stress testing; operating systems attacks; buffer overflow attacks; chroot; Metasploit and Armitage; web application attacks; XSS; CSRF; SQLi; cookie poisoning; ClickJacking; Applied Cryptography; PGP/GPG; TrueCrypt; Bitlocker; Plausible Deniability; other topics (eg: Violent Python) as time permits. This course will have a strong emphasis on lab components."

Confused? Don't be! Professor Robert Olson, visiting instructor in the Computer Information Sciences department, Certified Ethical Hacker and only current professor of Ethical Hacking, explains:

"It's a class where we teach people how to hack," Olson laughs. "'Ethical Hacking' is defined as something called 'penetration testing.' The goal of a penetration tester is to break into a system, to see if he can do it. They've been hired to do it by the company, and the goal is to produce a report on whether it was successful, how they went about the hacking process, provide recommendations to fix the problems," said Olson. "In some cases, penetration testers are required by companies such as credit card companies to make sure customer data is safe."

Cyber security is a very important topic these days. It's up in the top spots of the news, with headlines floating around about the Sony hack, the Apple iCloud security breach and more. Ethical Hacking as a class goes more in-depth. It answers the question, "how does someone hack something," in order to create software that prevents it.

It requires a very high skill set, and a very high level of dedication. The class itself requires labs, homework assignments, a research paper and a final. It sounds like a normal class, except that students work can't even be done on the campus servers — it has to be done in the Ethical Hacking lab, or off campus. Otherwise, the Fredonia servers will end up thinking they're being hacked, and it'll be interesting to have to explain to officials that you weren't really hacking the school system — it was just for your homework assignment.

Ethical Hacking

(continued from Page 4)

"It's a heavy workload, and there's a lot of things the students have to be very careful about," Olsen said. "Students can never do their homework on the campus network. To do so would violate the computer use policy, which would result in a lot of negative consequences, like loss of network access, to expulsion or criminal charges. The first two days of lecture were all, 'don't do this!'"

This new class has excited the entire Computer Science Department, and Dr. Reneta Barneva, head of the department, thinks Olson is a good fit to teach such a new type of class.

"Professor Olson is an excellent instructor and the students greatly appreciate his teaching. He graduated from the Computer and Information Sciences Department about a decade ago and then got an interdisciplinary master's degree from Fredonia in computer science and philosophy, which corresponded to his interests in artificial intelligence," said Barneva.

"Currently, Professor Olson's scholarly interests are in social networks, computer security and ethics, and mobile programming. He offers courses in these fields and often involves undergraduates in his research activities."

Reconfigured 'Star Wars' Helps Fredonia Promote Computer Science to Kids

(Excerpt reprinted with permission from *Campus Report*)

Edward Blue
December 2014 CIS Graduate

Edward Blue, a December 2014 graduate who majored in Computer Information Systems (CIS) at Fredonia, introduced R2-PC, an Astromech R2-D2 **interactive droid** from toymaker Hasbro that he shrewdly reconfigured into a Windows-based personal computer.

"My goal was to take a toy that was considered non-functional and convert it into a fully operational desktop PC for my son (Brendan), who had started to show interest in Star Wars'," Mr. Blue explained, "and to see if it could be done. It's a way to look at things differently, to see what things can potentially become.

Mr. Blue picked up the used R2-D2 on eBay for a mere $22. After more than a year and a half in development, it's equipped with a "Star Wars"-themed Windows 7, 4 GB Crucial RAM 800 MHz, a 160 GB laptop hard drive and HDMI as well as digital/HD audio, Bluetooth and custom LED lighting. When hooked up to a keyboard, monitor and external DVD drive, it'll perform just like any PC, but in a case from – as they say – a galaxy far, far away. Blue acquired the assorted PC components, also on eBay, for under $100.

CIS Students Visit China

Mitchell Skorma, Mohamed Sadek, and Julian Anjorin
(Right to left - Daniel Sturniolo not pictured)

A notable recent opportunity for our students was participation in Summer School at Jiaotong University of Beijing, China, that was taught by Microsoft lecturers! Four of our students, Julian Anjorin, Mohamed Sadek, Mitchell Skomra, and Daniel Sturniolo, traveled on a **scholarship that covered their tuition, room, and board** (plus airfare for three of them). **Anjorin even won a *second-place prize* for his involvement**. Of this opportunity, he said, “my experience in China was amazing! I got to meet so many people and make many new friends along with exploring a completely new culture.”

Aside from exciting business visits to both Microsoft and Chinasoft during this trip abroad, the students came away with a **sense of inspiration** that stretched even beyond the realm of their chosen discipline. Anjorin went on to state, that this adventure helped him “to realize how much we have in America and to not take as much of it for granted as I may have in the past. I would definitely encourage anybody to study abroad weather it be for a short period like two weeks or an entire semester because to be mostly immersed in a different culture is a life changing experience and you make life long friendships. I was only there for two weeks so I couldn't even imagine how much insight on life values one would take out of an entire semester of being in a different country, but I definitely want to find out.”

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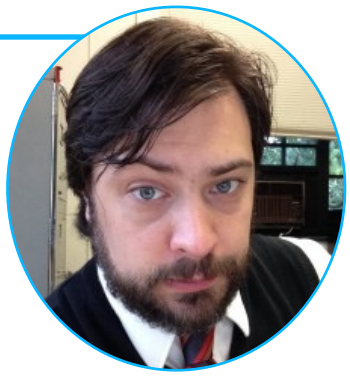
***- Julian Anjorin** (CIS Student)*

New Faces Around CIS Department

Full-Time Faculty



In Fall 2014, The department welcomed a **new tenure-track faculty, Dr. Michael J. Scialdone**. Dr. Scialdone received his Ph.D. degree in Information Science and Technology from Syracuse University in May 2014. His master's degree is in Information Design and Technology from SUNY Institute of Technology, and his B.A. is in Communication Arts from Utica College of Syracuse University.

Dr. Scialdone studies how specific characteristics of information computing technologies impact people's lives in business, higher education, and other contexts. As such technologies become increasingly ubiquitous, understanding their impact helps make better decisions about their use. Through his work, he hopes to be able to contribute actionable guidance to the design and development of computing technologies, as well as to help practitioners in organizations and education make informed decisions as to how to utilize the most appropriate tool for a given task.

Part-Time Instructors

Andrew Cavaretta graduated with *Magna cum Laude* in Computer Information Systems from the Department of Computer and Information Sciences at Fredonia. He is a recipient of Maythum Scholarship for Excellence and a member of Golden Key International Honour Society. Andrew has over 7 years of support experience in media/news IT industry. Currently he is pursuing a master's degree.

Mark Mackey graduated with bachelor degree in computer science and a minor in web programming from Fredonia. He has over twenty years experience in the US Army, 17 of which in management. He currently holds two part-time positions at Fredonia - Veterans Affairs Coordinator and Project Manager at ITS. Mark is pursuing master's degree in information management at Syracuse University.

More Exciting CIS Events

Start of 2014-2015 Year

On September 12, the Student-Faculty Lunch and 2014 Student Expo Kick-off Party were held, organized by Prof. Szocki. **AT&T was the exclusive sponsor of this event**.

Prof. Olson presented the Department Student Expo which was then held in December (see below) and encouraged the students to work on projects to be presented there. Dr. Barneva introduced the forthcoming contest **Hack Upstate offering $18,000 in prizes** for apps that benefit Western New York community and is also sponsored by AT&T.

The President of the CS Club Collin Preston spoke about it and invited all students to join. Prof. Decker was conferred the **Best Teacher of the Year Award** based on student evaluations.

CIS Student Expo

The Fifth Department of Computer and Information Sciences Student Expo was held on Wednesday, December 10, 2014. Students presented their work from the past year, including research, as well as other types of projects done both in and out of the classroom. There were 11 presentations from different areas given by 19 student-presenters.

The expo was attended by by Provost Brown, VP Kearns, Dean Kijinski, CDO Director Ms. Collingwood, and Internship Coordinator Ms. Wilkins. We also were thankful that AT&T representatives Mr. Ben Roberts and Mr. Kevin Hanna came all the way from Buffalo to attend the event. They shared that they are very impressed by the projects.

Fenton Hall
Home of the CIS Department

This event was organized by Professor Robert Olson of the Department of Computer and Information Sciences and is sponsored by **AT&T Inc.** and Dean of Liberal Arts and Sciences John Kijinski's office.

More Exciting CIS Events

Hour of Code

The department joined the national mission to introduce 100 million students to computer science through **the largest code-learning event in history: The Hour of Code.** It took place on the week of December 8th. First held in 2013, the Hour of Code is a major initiative of **Code.org**, a non-profit entity dedicated to expanding participation in computer science by making it available in more schools, and increasing participation by women and underrepresented students of color.

The organization's vision is that every student in every school should have the opportunity to learn computer science. Its organizers believe computer science and computer programming should be part of the core curriculum in education, alongside other science, technology, engineering, and mathematics (STEM) courses.

Prof. Szocki, Dr. Tsetse, and President Horvath
(Left to right front at the annual High School Contest)

In one week last year, 15 million students tried computer science. The field was featured on the homepages of Google, MSN, Yahoo! and Disney. President Obama, pop music icon Shakira, and actor Ashton Kutcher all kicked off the 2013 Hour of Code with videos. Over 100 partners came together to support the movement.

"Computers are everywhere, but fewer schools teach computer science than 10 years ago," said Fredonia faculty member **Gregory Cole**. "Women and minorities are severely underrepresented as well. The good news is, events like this can play a big role in changing that."

In addition to its own students, Fredonia's Computer and Information Sciences faculty invited interested area K-12 schools and civic groups to contact the department, visit the campus, and join in the Hour of Code event. Our **CS Club President, Collin Preston,** taught participants how to write simple programs.

Annual High School Contest

The Annual High School Contest organized by Prof. Szocki was held on May 19, 2014. Prof. Olson gave an inspirational talk why everyone should be educated about contemporary technology. Dr. Tsetse conducted the Web Programming Contest, Dr. Singh — the Spreadsheet Contest, Prof. Olson — the Programming Contest, and Prof. Decker and Dr. Singh — the Scavenger Hunt. The Quiz Show, conducted by Prof. Szocki with the help of Dr. Tsetse and Prof. Decker, was (as usual) a lot of fun.

President Horvath visited all contests and gave stimulating talks to the students. The Dean's Office provided the delicious breakfast and lunch.

The High School Contest is a wonderful annual event which helps us make computer and information sciences popular among high school students.

More Exciting CIS Events

Savings and Trainings

Department faculty are staying current with the new software and instructional techniques. On March 26, 2014 **Dr. Barneva, Nazarenko, Singh, Tsetse, and Prof. Decker** participated in a Workshop offered by Centage Learning about Skills Assessment Manager (SAM), "an interactive online learning environment that helps students master Microsoft Office skills and computer concepts that are essential to academic and career success. SAM engages students in self-paced learning of Microsoft Office applications – including Word, Excel, Access, PowerPoint, Windows, Internet Explorer, and Outlook, as well as technology concepts and issues."

It is meant to reduce student's expenses for hard copy textbooks and provide a simulated Microsoft Office environment, through which "the computer novices and experienced users are able to practice Microsoft Office tasks at the skill level that is most appropriate for them – from an observation mode that allows students to watch the task being completed before tackling it on their own, to an apply mode that allows students to complete the task without guidance and receive feedback. With SAM Projects, students apply their skills to creating real-world projects, such as flyers, budgets, and presentations."

"A student study guide report provides personalized remediation, linking students back to simulated practice of skills they have not yet mastered and to the related section of the e-book for additional information."

Dr. Wenliang (Kevin) Du Visits

Dr. Du
EECS Department at Syracuse U.

On March 26, 2014, Dr. Wenliang (Kevin) Du from the **Electrical Engineering and Computer Sciences (EECS) Department at Syracuse University** visited the department and gave a talk entitled "Enhancing the Security of Android Phones," a topic that is very important in light of the pervasive use of Android smartphones.

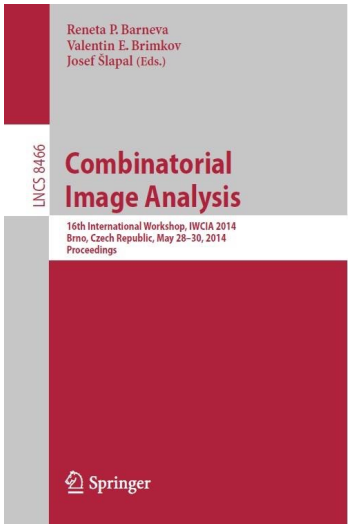
In his talk, Dr. Du first gave a brief tutorial on smartphone security, covering some of the key security features in iOS and Android, as well as how they can be attacked. Then he focused on the research problems that he is trying to solve with his graduate students. Dr. Du also gave information and distributed materials about the graduate programs at Syracuse University. **Dean Kijinski** introduced the speaker, whose lecture was very well attended by students and faculty from CIS Department and all campus.

After the talk, there was mingling over pizza and drinks arranged by **Prof. Olson** and plenty of lively conversation. Many students were inspired by Dr. Du's talk to pursue a career in computer security or to continue their studies at graduate level.

Accomplishments & Achievements

Faculty in Print

Dr. Barneva published a book by Springer in co-authorship with Valentin Brimkov and Josef Slapal. The volume entitled "Combinatorial Image Analysis" constitutes the refereed proceedings of the 16th International Workshop on Combinatorial Image Analysis, IWCIA 2014, held in Brno, Czech Republic, in May 2014. The 20 revised full papers and 3 invited papers presented were carefully reviewed and selected from numerous submissions. The topics covered include discrete geometry and topology in imaging science, new results in image representation, segmentation, grouping, and reconstruction, medical image processing.



Combinatorial Image Analysis
by Barneva, Brimkov, & Slapal

Dr. Gurmukh Singh
Visiting Assistant Professor of CIS

Dr. Singh published the following papers and abstract:

• Mali, P., A. Mukhopadhyay, S. Sarkar, and G. Singh (2014). "Azimuthal structure of charged particle emission in 28Si-Ag/Br interaction at 14.5A GeV and 32S-Ag/Br interaction at 200A GeV." *International Journal of Modern Physics E*, Vol. 23 Issue 05.

• Singh, G. (2014). "Engaging and Educating Information Systems and Computer Science Learners in Virtual World." *8th Annual Teaching and Learning Conference: Framing the Future: Teaching, Learning, Advancing.* Conference held at The State University of New York at Fredonia (Fredonia, NY): August 18.

• Mali, P., A. Mukhopadhyay, S. Sarkar, and G. Singh (2015). "Azimuthal correlation and collective behavior in relativistic nucleus-nucleus collisions." *Physics of Atomic Nuclei,* Vol. 78 Issue 02: pp. 258-267.

- Mali, P., S. Sarkar, S. Ghosh, A. Mukhopadhyay, and G. Singh (2015) "Multifractal detrended fluctuation analysis of particle density fluctuations in high-energy nuclear collisions." *Physica A: Statistical Mechanics and its Applications,* Vol. 424: pp. 25-33.

Awards

- **Dr. Zubairi** received a grant from the **Seed Grant Funding Program of the American University of Ras Al Khaimah**, United Arab Emitrates, AED10,000 (about US$2,722) for his proposal "Load balancing for disaster recovering and management." He also was honored with two awards: $1,000 individual development award for participating in IEEE CTS conference held on May 20-23 in Minneapolis as publication chair, workshop chair, and author/presenter; and $1,000 **Faculty Creativity and Research Award** for summer research.
- Our student **Jason Davison** applied for the **Black Hat's Student Scholarship** Program and was awarded a scholarship for **over $2000** which allowed him to travel to Las Vegas in August and attend the conference. He came back with invaluable experience which he shared with his fellow students.

Honors

- **Dr. Arnavut** was invited to be a co-chair of the **11th International Conference HONET 2014** which was held on December 15-17, 2014 and hosted by UNC Charlotte with the co-Sponsorship of Charlotte Research Institute (CRI) and Technical Sponsorship of IEEE. HONET 2014's main theme was "Photonics for Energy (PfE)" along with its legacy scope spanning all communication technologies, networks, security and e-applications as well as emerging/enabling technologies.
- **Dr. Barneva served as co-advisor of the doctoral student** Bilyana Stoynova who successfully defended her thesis on May 22, 2014. Dr. Stoynova is currently an assistant professor at the Technical University, Gaborvo.
- **Paul Frey**, a 2010 alum, who graduated with a major in Computer Science and a minor in GIS has accepted a job offer with Google to handle their aerial imagery acquisitions. He will be moving to their headquarters in Mountain View, California. Currently, he is the Lead GIS Analyst for Rochester Gas and Electric. Prior to that, he was the director of GIS for Cattaraugus County. This is the second recent alumnus who works for Google after **Devin Grady** who graduated in 2008 from the department, and got a Ph.D. degree from Rice University in 2013.
- **Basar Koc,** a former student in the department, successfully defended his master's degree thesis at the University of Miami. **Dr. Arnavut** served on his master's thesis committee.

Honors Course Approval

Professor Robert Olson's course on ***Hacking, Surveillance, and Privacy*** was approved as an honors course. The course will examine the many of the societal issues and concerns related to the pervasive integration of computer technology into our everyday lives. Students will be taught basic principles of IT and networking which will be quickly expanded on through the presentation of open-source, freely available computer security tools. Through tightly controlled demonstrations, students will learn why hackers frequently say that computer security is a fiction. Once students have a foundation in the mechanisms used by hackers to circumvent security, discussions will shift to a focus on the societal questions surrounding computer security such as the relationship between computer security and free speech, technological surveillance, cyber war, and privacy.

Honors (continued)

- **The CS Team scored second among all SUNY schools** at the programming contest held at the Consortium of Computing Sciences in Colleges – North Eastern Region, on April 25 and 26 at Providence College, RI.
- **Collin Preston** was elected as the CS Club President and **William Cavaretta** as the Vice-President.

Scenes from Student-Faculty Lunch and 2014 Student Expo Kick-off Party
September 12, 2014

Computer and Information Sciences Endowment

The department thanks its many alumni and sponsors who have contributed to the endowment and scholarship accounts. As the support from the state is dwindling down every year, we need more of your support to provide that margin of excellence in our programs. Your support has helped us provide scholarships and awards to deserving students. Therefore, **THANK YOU** and please continue your support. You can send your donations to the Fredonia Foundation's office in the name of the department.

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DEPARTMENT OF COMPUTER AND INFORMATION SCIENCES