COMPUTERBYTES

2016

NMSU COMPUTER SCIENCE

Demonstration of what NMSU's mixed reality Icehouse Challenge software looks like through the lens of Sony Smart Eyeglasses. NMSU students developed this software as part of an international competition sponsored by the Massachusetts Institute of Technology's Lincoln Laboratory, tying for first place. See page 5 for more info.

Courtesy Photo

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Bachelor of Science Degree Achieves ABET Accreditation!

By Jonathan Cook

On August 26, 2016, we received the notice that the Bachelor of Science in Computer Science degree program received ABET accreditation, under the ABET-CAC Computer Science criteria. This is great news! The accreditation was granted retroactively back to October 1, 2014, and is good through September 30, 2022 (when we will reapply).

Degree accreditation in computer science has not historically been extremely important, as it is in engineering. For example, in most states you cannot even apply to take the Professional Engineer exam to become licensed unless you have a degree from an accredited program. CS does not face that issue, but recently it is becoming more and more valuable to employers that CS degree programs be accredited, and we felt that at NMSU we needed to pursue accreditation for our BS degree in order to keep it competitive and to ensure our students, their employers, and our university that our degree program meets high international standards.

Up until the mid-1990's, the NMSU Computer Science BS degree was accredited under the CSAB (Computer Science Accreditation Board). Back then, the CSAB had very prescriptive accreditation guidelines, and in the mid-90's the CS faculty wanted to take the curriculum in some directions that did not follow the CSAB model, and so voluntarily dropped accreditation.

Today, accreditation of CS programs is done under ABET, the Accreditation Board of Engineering and Technology, under their Computing Accreditation Commission (CAC). The CAC was formed when CSAB agreed to be subsumed under ABET. Modern accreditation guidelines are much different than the old ones, and while they do prescribe a fundamental core and some required credit hours in areas, the guidelines allow much more flexibility in programs. Apart from meeting the minimum core and hour requirements, the fundamental assessment metric is continuous improvement: does the program have a data-driven process for improvement, and is there evidence that it is working? Note that ABET accredits degree programs, not departments, and our BS degree program is the only one we applied and received accreditation for.

The NMSU CS faculty started discussing ABET accreditation for the BS degree back around 2011, and began investigating what it would take. We made some curricular changes where we didn't think we had a strong case for meeting the requirements: e.g., we reintroduced the 1-credit ethics course, and we modified one science requirement to be limited to "core" science courses (physics, chemistry, or biology). We began defining a data collection and improvement process, and started implementing it. This was all being done in the background as we also struggled with some faculty turnover and other challenges. In 2013 we started a serious implementation of our improvement process, which was defined to have a two-year cycle through our curriculum.

In Fall of 2013 we registered with ABET and submitted a pre-request for consideration of a new program accreditation, hoping to submit for accreditation in Summer 2014. The result of that was that ABET strongly recommended that we wait one year in order to demonstrate a full two-year cycle of our improvement process. We did this, submitting our self-study report in Summer 2015, and having our site visit in October 2015.

In the site visit, the accreditation team found three weaknesses, which would not preclude accreditation but might shorten the accreditation term that we would receive. ABET allows a follow-up submission, and so in May 2016 we submitted a follow-up report that demonstrated our addressing of the weaknesses. When we received final accreditation notice in August, all of the weaknesses were deemed resolved.

Looking forward, our department certainly still has work to do to fully establish the improvement process as part of our culture. We're doing it, but we have room for improvement. In the long term, achieving and then keeping ABET accreditation will help our department stay focused on providing the best possible programs we can for our students and for all who depend on them.

NSF Funding Successes

Congratulations! Go Aggies!

By William Yeoh

The CS department achieved exceptional success at getting funded by the National Science Foundation (NSF) in the last 2015–2016 academic year! Professor Tran, Associate Professors Cao and Misra, and Assistant Professors Toups, Yeoh, and Zheng were awarded a combined total of 5 grants from NSF.

Dr. Zheng received a grant titled "Towards Pinpointing the Root Causes of Failures in Flash-based Storage Systems" under the CISE Research Initiation Initiative (CRII) program, whose goal is to initiate the course of a researcher's independent research and establishing their independence early in their career.

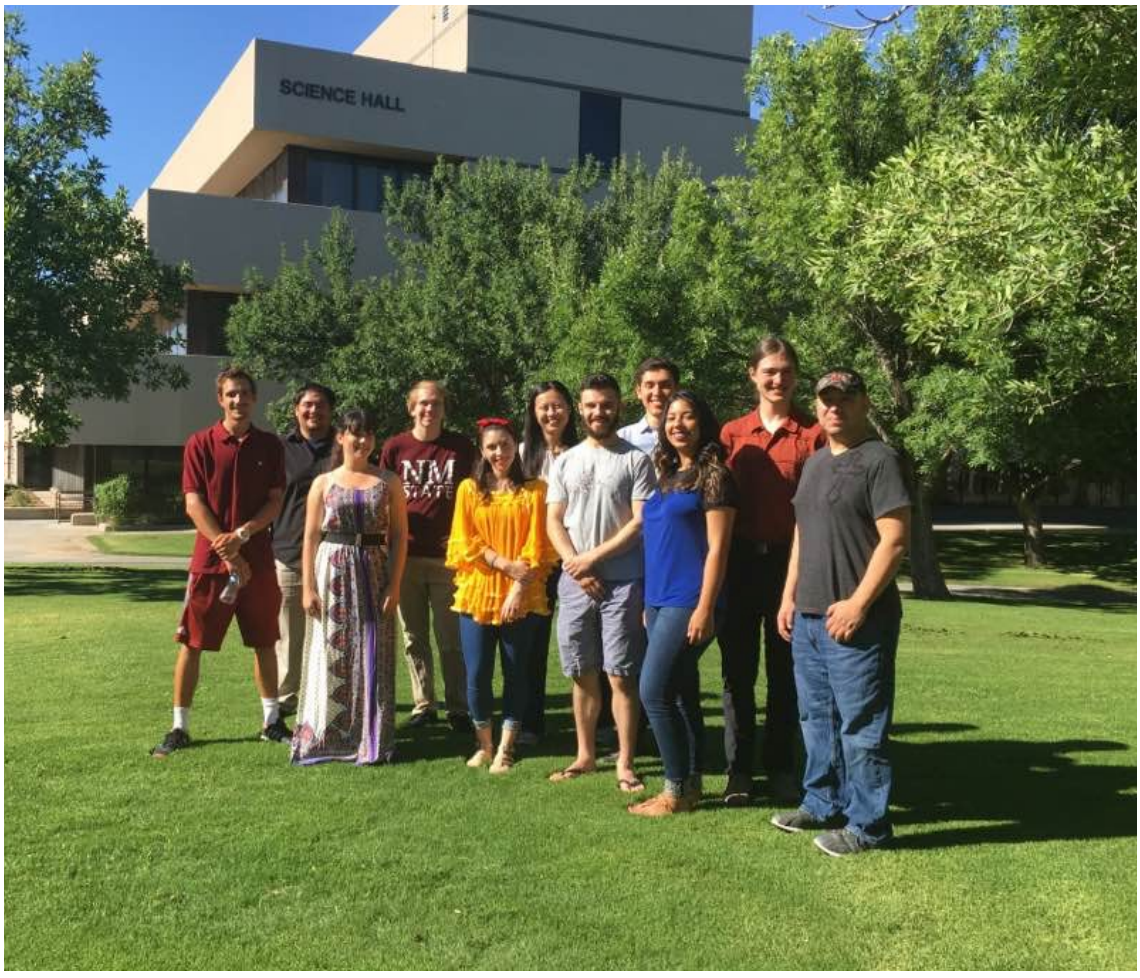
Drs. Cao and Misra received a grant titled "BIGDatA - Big Data Analytics for Cyber-Physical Systems" under the Research Experiences for Undergraduates (REU) Sites program. Through this grant, NMSU will host a number of undergraduate students for 10 weeks to conduct cutting edge research with NMSU faculty members.

Drs. Toups and Tran were awarded a grant titled "Wearable Interfaces to Direct Agent Teams with Adaptive Autonomy," where they will investigate the use of wearable interfaces to control a team of autonomous agents, such as mobile robots.

Dr. Yeoh received a CAREER award titled "Decentralized Constraint-Based Optimization for Multi-Agent Planning and Coordination," where he will further his research on distributed constraint optimization models and algorithms.

Finally, Dr. Cao was awarded a BIGDATA grant titled "Discovering Context-Sensitive Impact in Complex Systems," where she will investigate the use of large-scale graph mining techniques to handle the deluge of data in big data systems.

Combined, these five grants total up to close to 2 million dollars in funding. Congratulations to all the winners on the success!



Courtesy Photo

The first cohort of REU students hosted by the new REU site in Summer 2016.

2016 Frank Harary Lecture

By Jonathan Cook

On Friday, April 15, 2016 the department rebooted the celebratory Frank Harary Lecture Series, with Dr. Wheeler Ruml from the University of New Hampshire giving a great technical and entertaining lecture.

Dr. Frank Harary was a distinguished mathematician and computer scientist who became known as "the father of graph theory." He literally wrote the book on Graph Theory! Dr. Harary spent most of his academic career at the University of Michigan, but he spent the last years here at New Mexico State University, and then passed away in Las Cruces in 2005. The Computer Science department remembers him with the Frank Harary Room, a quiet visitor's room containing a display of some of his books, library collection, and a few of his paintings. Shortly after his passing, the department held several annual Frank Harary lectures, but the practice died out until being revived this past spring.

For the 2016 Frank Harary Lecture, Dr. Ruml presented his talk "Planning: When Optimal is Just Not Good Enough" and discussed the issues regarding real-time planning of robot actions, where optimal planning is not usable because it often takes too long. He described his work on this problem and presented why algorithms that have their own execution time as a constraint can outperform other heuristic alternatives. Dr. Ruml is an expert in this area and showed some great video clips of path planning for various algorithmic choices. Dr. Ruml also spent time visiting faculty members, meeting graduate students, and seeing the wonders of southern New Mexico.

Courtesy Photo

Dr. Wheeler Ruml (left) with Department Head Dr. Cook (right).

NMSU Icehouse Challenge team members, from left, Cayden Wilson, Hitesh Nidhi Sharma, Sultan Alharthi, Assistant Professor of Computer Science Zach Toups, and Sachin Sunka.

Courtesy Photo

NMSU Wins Competition to Help Emergency Responders

By Dana Beasley
(reproduced from the NMSU News Center)

In an effort to improve the safety and efficiency of the country's more than 23 million emergency responders, a team from New Mexico State University recently tied for first place for its development of tactical communication software as part of an international competition sponsored by the Massachusetts Institute of Technology's Lincoln Laboratory.

Dubbed the "Icehouse Challenge," the goal of the competition was to enhance a responder's situation awareness during emergencies by using wearable communication devices, such as smart phones, smart bands and smart eyeglasses. After two rounds of elimination based on proposals and prototypes, the final round of the competition was in June during the 2016 IEEE Body Sensor Networks Conference in San Francisco. "We have millions of first responders who risk their lives every day, so any kind of technological support that we can provide is potentially beneficial," said Zach Toups, project adviser and assistant professor of computer science in the College of Arts and Sciences. "I've always seen it as a space where people are kind of underserved as far as technology goes, so it's a good opportunity to design things that are helpful." Icehouse is a six-room, virtual training environment where real first responders and special operators "play" the roles of workers entering a dangerous situation. The NMSU team and other developers were tasked with creating technologies to help the workers perform their duties while also minimizing exposure to various threats.

"The main idea of the challenge was to look at technology and see if it's ready for disaster responders or not," said Hitesh Nidhi Sharma, a computer science masters student who helped design the software. "They were trying to see if these kinds of new, wearable technology are actually useable in real contexts or not – that's why they set up this virtual game to simulate a real environment, and then see if the technology can be used in this semi simulated environment, and maybe in real life as well."

Using mixed reality, threats are electronically simulated and range from chemical hazards and explosions, to fires or injuries to team members. At the conference, members of the U.S. Coast Guard – equipped with an Android cellphone, a Sony Smart Band and Sony Smart Eyeglasses – tested out the final software designs by going to separate "rooms" in the Icehouse and checking in at computer stations to see what threat was in that location. To alleviate the problem, first responders had to conduct different activities that simulated the physical exertion needed in real-life rescue scenarios.

For example, "the way you would put a fire out is by getting your heart rate up, so they're jogging in place with fitness bands on," Toups said. "It's supposed to require this physical exertion, but also simulate the need to make choices about which room to tackle first – what order do you deal with things in." The equipment and software helped the emergency responders better communicate by providing decision support among team members, while also monitoring team members' physiology and relaying data through displays in the smart glasses.

"The most important part of all of this is to find some way to help the disaster responders maintain situation awareness between the workers," said Sultan Alharthi, a team member and interdisciplinary doctoral student. "So four workers have to keep track of all of their teammates through their heart rates, through the vital data that we collect."

Programs were judged based on quality, user experience and quantitative metrics, including mission completion time, level of effort, length of exposure to hazards and threats neutralized. At the conference, NMSU competed against two other schools, ultimately tying for first place with a team from Friedrich Alexander University Erlangen Nuremberg in Bavaria, Germany. The teams plan to collaborate on a publication comparing their Icehouse programs for ACM Conference on Human Factors in Computing Systems.

Other NMSU students involved in the project were Cayden Wilson, an undergraduate in the Department of Engineering Technology and Surveying Engineering, and Sachin Sunka, a computer science graduate student who plans to use the Icehouse project as his master's thesis. Supporting faculty members include Rolfe Sassenfeld, assistant professor of electronics and computer engineering technology; Wei Tang, assistant professor in the Klipsch School of Electrical and Computer Engineering; and Igor Dolgov, associate professor of engineering psychology.

NMSU Professor Named Among Top Emerging AI Researchers

By Dana Beasley
(reproduced from the NMSU News Center)

William Yeoh, a New Mexico State University assistant professor of computer science in the College of Arts and Sciences, has been named to IEEE Intelligent Systems' 2015 list of "AI's 10 to Watch," which acknowledges 10 outstanding researchers in the field of artificial intelligence (AI).

The list features young scientists from all over the world, who have completed their doctoral work in the past five years and have made notable contributions to AI research. IEEE Intelligent Systems publishes the list every two years. Yeoh is featured in the magazine's January-February 2016 issue.

"I am tremendously honored to be selected to be part of the 2015 cohort," Yeoh said. "It is very humbling to be included together with all the other outstanding researchers."

The 2015 list recognizes scientists from institutions such as the University of New South Wales, the Indian Institute of Technology Bombay, the Technion-Israel Institute of Technology, as well as Johns Hopkins, Columbia and Purdue universities.

"NMSU has a long history of internationally recognized research in the field of AI, and William is the newest star," said Enrico Pontelli, an NMSU Regents Professor of computer science and interim associate dean in the College of Arts and Sciences. "Not only is his research work of the highest quality, but in just a short period he has contributed to reinvigorating the research atmosphere in the computer science department through his innovative ideas, his enthusiasm and his caring attitude toward students."

Photo by Darren Phillips

William Yeoh, an NMSU assistant professor of computer science, has been named to IEEE Intelligent Systems' list of "AI's 10 to Watch."

The focus of Yeoh's research at NMSU is on distributed constraint optimization (DCOP), which is used to model multiple "agents" in large, complex problems. Agents, Yeoh said, can range from humans, to hardware agents – like robots – and software agents, like the software in smart phones.

Yeoh's group is currently investigating the use of this DCOP framework to represent certain smart grid-related problems.

The traditional power grid, Yeoh explained, is a complex system that delivers energy from a power plant to our homes and offices. The smart grid is the next-generation power grid, where two-way communication between the power producers and consumers is used to improve the overall efficiency and reliability of the grid.

"For example, through the use of smart meters, which capture a variety of power-related information, power producers can better estimate the amount of power that will be consumed in the future, which will lead to more optimized and sustainable power generation," Yeoh said.

Yeoh's work is part of a larger smart grid research center at NMSU, called iCREDITS, which Pontelli is co-director of. The center houses an interdisciplinary group of researchers to work collectively to advance the current state of smart grids.

"I am very fortunate to have a very good group of collaborators, both students and faculty members," Yeoh said. "As such, I would like to thank and acknowledge all my research collaborators, especially those at NMSU. This recognition is as much, if not more, of a recognition of their effort as it is of mine."

Photo by Darren Phillips

Dr. Zachary O. Dugas Toups.

Electromagnetic Study May Aid WSMR Field Tests

By Linda Fresques
(reproduced from the Las Cruces Sun News)

Unseen by the human eye, yet everywhere within our environment, electromagnetic fields are largely ignored by most of us. But these constantly changing electrical fields are very important for the people at White Sands Missile Range (WSMR) who are responsible for field testing electronic hardware that may be crucial to our national defense.

New Mexico State University Electrical Engineering Associate Professors Muhammad Dawood and Sang-Yeon Cho, along with Assistant Professor of Computer Science Zachary O. Toups, are setting out to help improve the data accuracy of field tests conducted on electronic hardware at WSMR. The missile range is charged with providing the U.S. Department of Defense, our military forces and other customers with field and laboratory evaluation of systems, materiel and equipment. Throughout its history, White Sands has tested a wide variety of hardware, including air defense missile systems, surface-to-surface rocket/missile systems, and various unmanned aerial vehicles.

The NMSU researchers, who have received a three-year grant from WSMR, are tackling a two-pronged problem: First, the inability to acquire accurate field measurements, and second, the difficulty for the people scheduling tests to avoid conflicts. Electromagnetic fields are areas of energy emitted by natural and human-made sources. The Earth's own magnetic field is used by birds and fish for navigation. Thunderstorms cause a build-up of electric charges in the atmosphere. The electromagnetic spectrum also includes human-generated sources, such as power lines, electrical wiring, microwave ovens, computers and cell phones.

Add to that a number of White Sands' antennas radiating from 10 KHz to 40GHz, multiple real-time projects being tested, along with various buildings and desert topography, which cause interference. Electromagnetic fields can get muddled, making them difficult to measure accurately.

"WSMR has the responsibility to test instruments and equipment for the DoD before they purchase or deploy that equipment to our soldiers in the field," said Dawood. "For example, WSMR might be testing a hand-held communications device for Army troops to use in the field. A prototype would be tested for performance."

Current measurement technologies actually distort the distribution of the electromagnetic field of the nearby region. The first goal of this project, being investigated by Cho, is to develop an electro-optic probe capable of taking measurements without disturbing the field itself.

"Certain crystals can change the propagation direction of light when an electromagnetic field is applied. An optical circuit integrated with an electro-optic crystal will be developed to measure the distribution of the electromagnetic field," explained Cho. "Unlike existing electrical circuits, optical circuits are transparent to electromagnetic fields radiated by radio-frequency antennas and have also been demonstrated to be highly sensitive and reliable."

A second part of the project, led by Dawood, will focus on mathematically modeling the electromagnetic field. Ordinarily an easy task in free space, this becomes complicated when antennas are operated in close proximity to buildings and other man-made structures, as well as the varied geographic topology. Dawood will develop a method to generate electro--magnetic spectrum models that include the physical position of antennas, and their location in relation to buildings, hills and other diverse nearby topology on the range.

Dawood notes that there are some challenges to this project. "One is sparsity of existing data. There is no theoretical data available about modeling electromagnetic fields of some of the existing structures in this environment. Another is access to the facility and its personnel — this type of testing is restricted to civilians. A third challenge is weather and our harsh environment. We don't know how extreme summer heat or our monsoon season will affect the data."

Toups will then combine Cho's sensor data and Dawood's numeric models with a Geospatial Spectrum Visualization tool to generate a 3D map, ultimately to be displayed on a large computer monitor. Complex field data would be displayed with color and other visual cues, making it easier for schedulers to detect and predict potential conflicts for testing. This would provide schedulers with real-time awareness of the electromagnetic field and changes as they occur, optimizing use of the range for field testing.

"My understanding is that, as it turns out, much of the work of scheduling tests is done by hand with minimal technological support. Experts rely on experience to determine what tests might impact others. Using Professor Dawood's models, we should be able to more accurately inform human decision makers about what tests will conflict across space and time. The intent is to improve the density of tests at the range, so that more can be done in less time," said Toups.

"White Sands tests high-precision devices to replicate actual scenarios of how they would be used in the field," explained Dawood. "This requires exact measurements that show the stresses and durability of the instruments to assure that they are ready to be used by our soldiers in the field."

Enrico Pontelli has been named Interim Dean for the College of Arts and Sciences.

Photo by Darren Philips

Pontelli Named Interim Dean of NMSU's College of Arts and Sciences

By Minerva Baumann
(reproduced from the NMSU News Center)

New Mexico State University has named Enrico Pontelli as Interim Dean for the College of Arts and Sciences.

Executive Vice President and Provost Dan Howard announced the appointment to the Las Cruces campus on Thursday, Feb. 18. Pontelli will fill the position vacated by Christa Slaton, who was reassigned to the position of senior administrator.

Pontelli is an NMSU Regents Professor with nearly two decades of service to the university. He has been Interim Associate Dean for Planning and Academic Resources in the College of Arts and Sciences since 2014. He is also an alumnus, earning his Ph.D. in computer science from NMSU in 1997.

"We are fortunate to have such an accomplished academic, and highly talented administrator, available to serve as Interim Dean of the university's largest college," Howard said. "I am confident that he will work effectively with the team of associate deans in the College of Arts and Sciences to serve the needs of our students and faculty and further the growth and positive development of the college."

Pontelli agreed that a college as large as arts and sciences requires close collaboration with the associate deans.

"I know I have a good team," Pontelli said. "I accepted this position because the other associate deans and the entire staff in the dean's office are really strong and I know they will continue to work very hard for the College of Arts and Sciences in serving our very diverse student population."

"We serve every single student in the university and we plan to keep moving forward. A strong Arts and Sciences college is the bedrock of the university. We need to keep doing what we have been doing, making students our priority. The field is changing, the university is changing and we have to be dynamic and continue meeting the needs of our students."

In the coming months, Howard will meet with the faculty and staff of the College of Arts and Sciences to discuss the search for a permanent dean, which will begin in the fall of 2016.

CS Adventures summer camp participants post for a group picture.

Courtesy Photo

GK–12 DISSECT

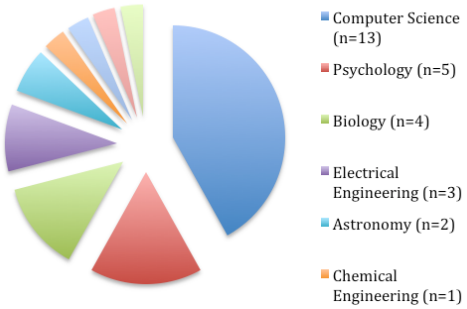
By Raena Cota

The overarching concept behind the DISSECT (**DIS**cover **S**ci**E**nce through **C**omputational **T**hinking) project is scientific computational thinking. Computational methods are central to virtually any scientific discipline ("All Science is Computer Science"), yet this perspective is lacking in the training provided to the new generation of computer scientists and in the way STEM subjects are taught in K–12 curricula.

DISSECT addressed these issues by pairing Computer Science and other STEM graduate students, designated as 'GK–12 fellows', with middle and high school teachers in the Las Cruces Public School and Gadsden Independent School districts. This approach enabled the fellows to investigate the relevance of their research in the broader scientific arena, and to develop communication, leadership, and team building skills to operate out of their specific CS discipline. The goals of the project were: (*i*) Train the next generation of CS graduate students to become more effective scientists; (*ii*) Enhance the learning of STEM subjects in K–12 schools through the infusion of computational thinking and methods drawn from CS research, especially targeting minority students; (*iii*) Provide K–12 instructors with professional development and pedagogical tools for bringing computational thinking into their classrooms.

The GK–12 DISSECT program was initiated in the Spring 2010, with a small pilot program of four fellow/teacher pairings. The full cohort of pairings began in the 2011–2012 school year. The program ended June 2016, with the 2015–2016 being the last school year with graduate fellow/teacher pairings. Over the course of the program DISSECT supported 31 graduate students. The fellows were working on degrees in: Computer Science, Psychology, Biology, Electrical Engineering, Astronomy, Chemical Engineering, Horticulture, Molecular Biology, and Physics (see Figure 1). The fellows were pursuing 18 Masters degrees and 13 PhDs. Twelve of the fellows were female and 19 were male.

Figure 1. Fellows by Major



The total number of teachers who participated over the course of the program was 18. The teachers taught a variety of classes including Biology, Physics, Chemistry, General Science, Life Science, Physical Science, Forensics, History, English, Sports Medicine, Medical Interventions, Psychology, and Zoology. The teachers taught across 6th to 12th grade, with the number of teachers in each type of school being equal (MS=9, HS=9).

In addition to the in class pairings, fellows also assisted teachers with extracurricular activities including GUTS, MESA, Science Olympiad, Innoventure, and 'Lunch with a Scientist.' In the summer of 2014, 2015, 2016, the fellows ran summer camps for high school students, and professional development workshops for local teachers. In 2014 the HS summer camp and PD workshop were designed to introduce computational thinking to students and teachers. In 2015 the DISSECT program, in collaboration with the iCREDITS program, hosted the inaugural CS ADVENTURES summer camp for HS students (both genders). For the 2015 camp the fellows created activities using BoeBots, Solar Cars, and Arduinos. For the professional development workshop, local CS teachers specifically asked for a weeklong training on Java programming. For the 2016 CS Adventures, fellows designed activities using Ozobots, Arduinos, and Raspberry Pis. The 2016 PD workshop involved training with Python programming.

Graduate students who participated in the GK–12 program went on to careers at Google, Los Alamos National Labs, Santa Fe Institute, NASA and other research institutions. Many of the fellows who graduated with Master's degrees applied for PhDs programs and are pursuing PhDs in a variety of fields including astronomy, computer science, plant pathology & science education.

Tasha Nesiba (left) receiving the award from Dr. Elizabeth Eschenbach, FIE Steering Committee Chair (right) on behalf of Time Staley and Enrico Pontelli

Courtesy Photo

GK-12 Fellow and Teacher Collaboration Wins Award at FIE Conference

By Raena Cota

In the Spring 2015 semester the 10 GK–12 fellows in collaboration with local K–12 teachers, submitted 5 abstracts to the Frontiers in Education (FIE) Conference hosted by the IEEE Education Society. The FIE conference is held annually and is a well-respected international forum focused on engineering and computer science education. There is a two-stage review process that includes a peer-review short abstract. All 5 of the GK–12 abstracts were accepted and invited to submit full papers. After the peer review of the full papers, 4 papers were selected to present at the annual conference being held at the Camino Real Hotel in El Paso, TX, from October 21–24, 2015.

At each FIE conference a single paper/presentation combination is selected to receive the Benjamin J. Dasher Award. Benjamin Dasher organized the first FIE Conference in 1971. This award recognizes his contributions as the founder of the FIE conference. During the original review process, reviewers were asked to identify papers to be considered for the award. A committee is formed to review the nominations and attend the presentations. The committee makes final recommendations to the FIE Planning Committee based on the overall quality of both the paper and the presentation. The winners are announced the following summer and invited to attend the annual conference and participate in an awards ceremony. In 2015, 396 papers were accepted and presented at the FIE conference. Thirty-nine papers were nominated for the Dasher award.

The winner of the 2015 Benjamin J. Dasher Award was the paper titled, 'DISSECT: Exploring the Relationship Between Computational Thinking and English Literature in the K–12 Curricula.' This paper was co-authored by Natasha Nesiba, a GK–12 fellow (Spring 2014–Fall 2015) and CS graduate student, Timothy Staley, a local high school English teacher at Oñate HS, and Dr. Enrico Pontelli, and was based on the collaboration aimed at incorporating computational thinking into 12th grade English courses. Tasha presented the paper at the conference on Thurs, October 22 during the 2:30–4:00pm session. Her session was well attended with approximately 25 conference participants.

The three authors were invited to attend the 2016 FIE conference in Eerie, Pennsylvania, to accept the award. Tasha attended and accepted the award for herself and on behalf of Tim Staley and Dr. Pontelli.

Courtesy Photo

Recent Ph.D. Graduates

Onwards to Make a Difference in the World!

By William Yeoh

Please join us in congratulating Drs. Abdullah Alqaddoumi (left in photo above), Ahmad A. Al-Jarrah (right in photo above), and Ferdinando Fioretto, who successfully defended their Ph.D. dissertations in the previous 2015-2016 academic year.

Dr. Alqaddoumi's dissertation is on "Parallel Virtual Machine for Functional Logic Programming" and he is advised by Dr. Enrico Pontelli. He is currently an assistant professor at the University of Bahrain.

Dr. Al-Jarrah's dissertation is on "Collaborative Virtual Environments for Introductory Programming (CVEIP)." He is also advised by Dr. Enrico Pontelli and is currently an assistant professor of applied science at the Al-Balqa' Applied University, Jordan.

Finally, Dr. Fioretto's dissertation is on "Exploiting the Structure of Distributed Constraint Optimization Problems with Applications in Smart Grids." He is co-advised by Drs. Enrico Pontelli and Agostina Dovier at University of Udine. He is now a research fellow at University of Michigan.

When asked for their advise to current and aspiring graduate students, Fioretto shared, "Don't forget that the main reason why you have chosen to do a doctorate is to conduct great research! Engage yourself to follow your interests and passion rather than stereotypes and job prospects." Alqaddoumi nicely summarized, "Stay focused on the big picture and enjoy the journey."

OUTSTANDING STUDENT AWARDS FOR 2015–16

Outstanding Teaching Assistant Awards

Sajal Kumar
(*Spring 2016*)

Travis Mick
(*Fall 2015*)

Support NMSU CS

We Need You!

If you are an alumnus or alumna, current student, or just a friend of the NMSU CS Department, and you would like to support our activities and mission – Thank You! There are many different ways to give back to the department.

The simplest way is to make a donation. Your donation will support the students pursuing their educational dreams, through scholarships, renovation of equipment and acquisition of materials and supplies. You have also the option of supporting our faculty members, enabling them to be more effective in their research and educational efforts. In particular, we are launching a new campaign at creating new opportunities to help young women interested in pursuing studies in Computer Science.

Your donation is tax deductible and even a small contribution will make a big difference! Donations can be made using the online NMSU donations system at fndforms.nmsu.edu/giving.php.

The following are some of the funds that you can contribute to:

- Young Women in Computing
  (*Supporting outreach efforts to attract women to computing*)
- Mark Nesiba Memorial Endowed Scholarship for Women in Computing
  (*Supporting a talented undergraduate woman in Computer Science)*
- Richard H. Stark Scholarship
  (*Supporting outstanding undergraduate CS students*)
- Founders' Endowment Fund
  (*Supporting faculty in the CS department*)
- General Scholarships Fund
  (*Supporting outstanding undergraduate and graduate CS students*)
- Equipment and Maintenance Fund
  (*Supporting the CS department in renovating its infrastructure*)
- Software and Educational Materials Fund
  (*Providing students with funds to acquire software and other educational materials*)
- J. Mack Adams Fund
  (*Supporting the establishment of an endowed professorship in CS*)

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Donors will be acknowledged
in the newsletter and on our website.

Recent Publications

What Your NMSU CS Students And Faculty Members Have Been Up To

F. Fioretto, **T. Le**, **E. Pontelli**, **W. Yeoh**, **T. C. Son**. *Exploiting GPUs in Solving (Distributed) Constraint Optimization Problems with Dynamic Programming*. International Conference on Principles and Practice of Constraint Programming, 2015.

C. Hu, **H. Cao**. *Discovering Time-evolving Influence from Dynamic Heterogeneous Graphs*. IEEE International Conference on Big Data, 2015.

Y. Jin. *Unifying Router Power Gating with Data Placement for Energy-Efficient NoC*. International Symposium on Computer Architecture and High Performance Computing, 2015.

S. T. To, **T. C. Son**, **E. Pontelli**. *A generic approach to planning in the presence of incomplete information: Theory and implementation*. Artificial Intelligence, 227, 2015.

O. Alsaedi, **Z. O. Toups**, **J. E. Cook**. *Can a Team Coordination Game Help Student Software Project Teams?* International Workshop on Cooperative and Human Aspects of Software Engineering, 2016.

Y. Hao, L. Wang, **M. Zheng**. *An Adaptive Algorithm for Scheduling Parallel Jobs in Meteorological Cloud*. Journal of Knowledge-Based Systems, 2016.

S. M. Hill, L. M. Heiser, Y. Zhang, H. Wang, **M. Song**, G. Stolovitzky, et al. *Inferring causal molecular networks: empirical assessment through a community-based effort*. Nature Methods, 13(4), 2016.

P. Hou, **W. Yeoh**, P. Varakantham. Solving *Risk-Sensitive POMDPs with and without Cost Observations*. AAAI Conference on Artificial Intelligence, 2016.

C. Hu, **H. Cao**. *Aspect-Level Influence Discovery from Graphs*. IEEE Transactions on Knowledge and Data Engineering, 28(7), 2016.

T. Mick, **R. Tourani**, **S. Misra**. *MuNCC: Multi-hop Neighborhood Collaborative Caching in Information Centric Networks*. ACM Conference on Information-Centric Networking, 2016.

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