



the PIPER

CMU'S NEWS SOURCE FOR FACULTY & STAFF 3/16 ISSUE

Carnegie Mellon University

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Powerful Lineup

Scott Institute Hosts Inaugural Energy Week, March 14-18

■ Leigh Kish

With great power comes great responsibility.

Such is the case with Carnegie Mellon's Wilton E. Scott Institute for Energy Innovation, home to a powerhouse of energy experts who are working to tackle energy in the 21st century, one of the biggest challenges in the world today.

The 100 experts in the Scott Institute, under the direction of President Emeritus Jared Cohon, are working to create new solutions, new products and new ways of doing things in a variety of areas, to make energy more efficient, affordable and sustainable. These areas

CONTINUED ON PAGE EIGHT

"Birdman" Lands at ETC



Award-winning actor, director and Pittsburgh native Michael Keaton (left), made his first trip to the Entertainment Technology Center as a Visiting Scholar. Keaton is a longtime friend of ETC faculty member Ralph Vituccio (right). Read the story on page nine.

PHOTO BY TIM KAULEN

Patent Lawsuit Settled

Carnegie Mellon has settled its patent infringement lawsuit against Marvell Technology Group Ltd. and Marvell Semiconductor, Inc.

A substantial share of the proceeds will go to the inventors, José Moura, a professor in Carnegie Mellon's Department of Electrical and Computer Engineering, and Aleksandar Kavcic, a former doctoral student of Moura who is now a professor of electrical and computer engineering at the University of Hawaii.

Their scientific research and technological innovations had a powerful impact on the ability to

CONTINUED ON PAGE TWO

Rockin' the Ph.D.

Roth Goes Nuclear, Eyes Pop's Profession

■ Kelly Saavedra

The bridge from Newell-Simon Hall to Wean Hall is more than a physical connection for Ph.D. candidate Mike Roth.

For him, the popular walkway is a bridge to his past and memories he shared with his late father, Steven F. Roth, who was a research professor at Carnegie Mellon until he passed away in 2005.

"I remember coming to Wean a lot throughout my whole childhood. My dad had an office there. I'd come in to work with him whenever I didn't have school. They had all these awesome supercomputers, and I got to play video games on them, which was really fun," Roth said.

"And though I didn't fully understand it at the time, my dad

showed me some of the earliest data visualization and human-computer interaction research, carried out by SAGE — System for Automated Graphics and Explanation — his research group in the Robotics Institute."

They sat through Tartan football games together, and never missed a

Spring Carnival.

"I loved the food and the rides and running through the booths, especially the ones that were multi-level," he recalled. "We'd watch them build the booths, and we'd watch them tear them down. I remember seeing a guy break

CONTINUED ON PAGE ELEVEN

detect more accurately the data stored in the disk drives of computers sold worldwide in the last decade and a half, from large servers to small laptops.

The data storage industry experienced tremendous progress recording larger and larger amounts of data in continuously shrinking domains. As disk drives decreased in size and the amount of data being stored increased exponentially, researchers became concerned about the ability to accurately recover and successfully read the stored bits of data.

In the early 1990s, Moura and Kavcic set out to find an innovative way to accurately recover bits from the ever-shrinking storage disk drives of the future. Kavcic and Moura invented and patented a detector that could safely and accurately extract recorded data from disk drives. When the early 2000s recording technology changed to perpendicular recording, their detector algorithm invention became a must-have technology.

“A key part of Carnegie Mellon’s mission is making discoveries that have global impact,” said CMU President Subra Suresh. “We are pleased to honor the work of José and Alek, two inventors who provided a major step forward in computing technology, at a time when computing was transforming our world.”

“José Moura is a pioneer in using advanced signal processing techniques to solve a wide variety of challenging problems,” said College of Engineering Dean James Garrett. “He is an excellent example of the world-class professors



José Moura (center) and Aleksandar Kavcic invented and patented a detector that could safely and accurately extract recorded data from disk drives.

and researchers this university is built upon.”

Moura and Kavcic made a conscious decision to forego incremental improvements, and focus instead on challenges they expected would arise in years to come, as magnetic recording devices pushed toward their physical limitations.


“When the industry faced the inevitability of its own success, it needed a fundamentally new approach,” Moura said. “Our solution could read back, with few errors, the enormous amount of data industry was packing in very small spaces. The rest is history.”

Today, Moura’s work extends beyond data storage and into signal, image processing and data science in many application domains, ranging from data analytics to urban science. Moura co-founded SpiralGen, a company commercializing SPIRAL technology, under license from Carnegie Mellon.

After legal fees and related expenses, the inventors and the university will share remaining proceeds from the settlement.

“There is broad consensus across the university that we should dedicate a substantial majority of this resource to helping qualified students afford a

Carnegie Mellon education, helping all students succeed while they are here, and enhancing the student experience,” Suresh wrote in an email to the global Carnegie Mellon community. “I have charged a committee to provide me recommendations on how best to allocate these proceeds to achieve these goals, both now and in the university’s long-term future. That committee consists of Provost Farnam Jahanian; James Garrett, dean of the College of Engineering; and David Coulter, a member of the Executive Committee of the Board of Trustees.”



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Carnegie Mellon University publishes an annual campus security and fire safety report describing the university's security, alcohol and drug, sexual assault, and fire safety policies and containing statistics about the number and type of crimes committed on the campus and the number and cause of fires in campus residence facilities during the preceding three years. You can obtain a copy by contacting the Carnegie Mellon Police Department at 412-268-2323. The annual security and fire safety report is also available online at www.cmu.edu/police/annualreports.

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Faces of Conflict

CMU's International Film Festival Runs March 17-April 3

■ Shilo Rea, Emily Stimmel

Focusing on topics ranging from terrorism and propaganda to war and civil rights, the 2016 Carnegie Mellon International Film Festival, “Faces of Conflict,” will run March 17 – April 3 at various locations around Pittsburgh.

The festival — celebrating its 10th anniversary — will screen 16 award-winning films from 15 countries, including Denmark, Mexico and Poland. Following the festival’s tradition, each screening also will feature a special event, such as appearances by the director or someone else associated with the film, panel discussions, presentations and culinary displays relevant to the film’s themes.

“We’re exploring complex conflicts the mainstream media typically portrays with very hard lines — left wing versus right, right versus wrong,” said Jolanta Lion, director of the film festival and assistant director of the Humanities Center in the Dietrich College of

Humanities and Social Sciences. “The festival offers more perspectives and a chance to discuss these issues. In this way, our goal is for audience members to understand the world and each other better.”

Opening night will feature “A War” at 7 p.m., March 17 in CMU’s McConomy Auditorium. Nominated for an Academy Award for Best Foreign Language Film, the movie, screening for the first time in Pittsburgh, tells the story of a Danish military company in Afghanistan that is fighting the Taliban. The soldiers are caught in heavy crossfire during what was supposed to be a routine mission, and in order to save his men, the commander makes a decision that leads to him being charged with a war crime.

“‘A War’ provides the traditional stages for conflict — Afghanistan, a courtroom and even a marriage — but what distinguishes this film from its action-heavy counterparts is that it thrives on empathy, subtlety and internal

conflict. It’s a war film for people who don’t like war films,” Lion said.

In honor of the festival’s 10th anniversary, opening night will feature posters from the festival’s archives. CMU artists and high school students from Pittsburgh CAPA 6-12 have manipulated and altered the posters’ designs and the custom artwork will be part of a silent auction.

Also to mark a decade of bringing films from around the world to Pittsburgh, the festival offers two educational components. Middle and high school students at CAPA and Pittsburgh’s Kentucky Avenue School will participate in the festival’s Youth Outreach Program, which will screen films appropriate for younger audiences.

College students who attend any of the schools represented by the Pittsburgh Council on Higher Education are invited to enroll in the “Faces of Conflict” course offered by CMU during the last week of

Faculty, Students Lauded for Technical, Lifetime and Revolutionary Achievements

THREE DRAMA SENIORS HONORED WITH U.S. THEATRE AWARDS

Three School of Drama seniors are among this year's winners of the U.S. Institute for Theatre Technology Young Designer & Technician awards.

Sophie Schneider is receiving the Zelma H. Weisfeld Costume Design and Technology Award. Almeda Beynon is receiving the Robert E. Cohen Sound Achievement Award. And Sharon Limpert is receiving the Barbara Matera Award in Costume Making.

"These awards are given to recognize and support young artists at the start of their careers," said Joe Pino, professor of Sound Design. "While we at CMU already know how great their work is, it's gratifying to see that our professional and educational peers from around the U.S. agree with us."

Schneider sees the honor as the perfect capstone to her achievements and experiences at CMU.

"It is such a privilege to have my hard work recognized not only by my wonderful faculty who have gotten to know me during my time as a student and felt I was wor-



Sophie Schneider

thy of this nomination, but to be acknowledged and praised by a committee of venerated professionals in my field is an enormous boon to my confidence," Schneider said.

Beynon feels grateful.

"Winning this award is incredibly special, as there are so few that are specifically for theatrical sound designers," Beynon said. "With this, I am able to take pride in my work, and join the ranks of some pretty spectacular sound designers."

Limpert is thrilled to be recognized with an award named after



Sharon Limpert

Barbara Matera, an industry giant.

"Barbara Matera continues to inspire costume makers like myself," Limpert said.

"This recognition in her name as reviewed by professionals in my



Almeda Beynon

chosen field helps affirm that the time I have invested in perfecting my craft at Carnegie Mellon will allow me to become a valuable asset to the industry," she said.

KRAUT AWARDED FOR LIFETIME OF INNOVATION



CMU's Robert Kraut has been named the recipient of the 2016 SIGCHI Lifetime Achievement in Research Award. Kraut is the Herbert A. Simon Professor of Human-Computer Interaction.

Presented annually by the Association for Computing Machinery's Special Interest Group on Computer-Human Interaction (SIGCHI), the award recognizes an individual for the very best, most fundamental and influential research contributions to the human-computer interaction field.

According to SIGCHI, "It is awarded for a lifetime of innovation and leadership."

A founding member of CMU's Human-Computer Interaction Institute, Kraut began his career as a traditional social psychologist and spent time at the University of Pennsylvania, Cornell, Bell Laboratories and Bell Communications Research.

He joined the Carnegie Mellon community in 1993, and his research has broadly focused on the design and impact of social computing.

Kraut will receive the award at the 2016 ACM Conference on Human Factors in Computing Systems (CHI2016), which will be held May 7-12 in San Jose, Calif.

ANDERSON'S WORK DEEMED REVOLUTIONARY

CMU's John R. Anderson has spent decades developing a unified theory of cognition and using it to create successful tutors that have revolutionized education.

For these accomplishments, the National Academy of Sciences will award Anderson with the 2016 Atkinson Prize in Psychological and Cognitive Sciences for his "foundational contributions to systematic theory and optimality analysis in cognitive and psychological science and for developing effective, theory-based cognitive tutors for education."

Anderson will receive the prize — a gold-plated bronze medal and \$100,000 — at the academy's annual meeting on Sunday, May 1, in Washington, D.C. The Atkinson Prize is awarded to two recipients biennially. Stanford University's Carol S. Dweck is this year's other winner.

"The fields of cognitive sciences and psychology have been fundamentally changed by John Anderson's incredible body of theoretical work. The impact of his research on cognitive tutors is now creating similar change in student learning. Scientists and society are indebted to John for his contributions, and I am gratified that the academy is honoring him with this award," said Michael J. Tarr, head of the Department of Psychology.

Anderson is the R.K. Mellon University Professor of Psychology and Computer Science and best known for creating the Adaptive Control of Thought (ACT) cognitive models. Using the models, Anderson led a team that built an intelligent computer tutor to teach algebra to high school students.

The program solved mathematical problems like students did and was so successful that a spinoff company, Carnegie Learning, developed computer tutors as a commercial product.

To date, hundreds of thousands of students have benefited from these interactive systems.



Faces of Conflict

CONTINUED FROM PAGE TWO

the festival. The weekend crash-course will offer workshops with filmmakers and, through readings and screenings, teach a foundation in film analysis.

“This is a great way to expose young students to stories that rarely make it into the mainstream media,” Lion said.

Other film highlights include the Polish documentary “Something Better to Come.” The film follows the life of Yula, a young girl who spent 14 years living in a Russian landfill, highlighting the harsh contrast between Yula’s extreme poverty and Moscow’s wealth and the abundance that exists just miles away.

Yula, who will leave Russia for the first time, and the film’s director, Hanna Polak, will attend and take part in a discussion after the screening at 1 p.m., March 31 at the Harris Theater, downtown.

“Watching ‘Something Better To Come’ is a truly humbling experience,” said Quelyc Kogel, a CMU alumna who majored in architecture, Spanish and international relations and took the film festival’s course in its first year, 2006.

The Oscar-nominated film “Cartel Land” (Mexico, USA) will screen at 7 p.m., April 1 in McConomy Auditorium. Directed by Matthew Heineman, the documentary offers a raw and brutal window into the Mexican drug war. Heineman embeds himself within two vigilante groups — one a citizen group led by a Mexican physician and the other a small U.S. paramilitary group — each working in their own ways to stop the cartels.

The festival will close at 3 p.m. on Sunday, April 3 with “Requiem for the American Dream” in McConomy Auditorium. The documentary features interviews with highly-regarded intellectual and activist Noam Chomsky, filmed over the course of four years. Throughout the film, Chomsky provides insight into wealth inequality and America’s diminishing middle class.

General admission tickets to the film and reception on opening night (March 17) are \$15 (\$10 for seniors and students). General admission tickets for all other screenings are \$10 (\$5 for seniors and students). A full-access festival pass can be purchased for \$50 (\$25 for seniors and students).

FILM SCHEDULE

THURSDAY, MARCH 17

A War (Denmark, 2015)
7 p.m., McConomy Auditorium
+ **Opening Night Reception**

FRIDAY, MARCH 18

Dreamcatcher (UK/USA, 2015)
7 p.m., McConomy Auditorium
Special appearance and Panel/
Q&A with **Brenda Myers-Powell**,
co-founder and executive director
of the Dreamcatcher Foundation
+Dessert reception

SUNDAY, MARCH 20

Tales (Iran, 2014)
Noon, Melwood Screening Room
+ Skype session with director
+ Reception

Karbala (Poland, 2015)
3 p.m., McConomy Auditorium
+Reception
+Panel/Q&A

MONDAY, MARCH 21

No More (Ireland, 2014, 16 min)
4:30 p.m., Porter Hall 100
+ Special appearance by
Mairead McClean, Filmmaker/
Artist, moderated by **John Carson**,
head of the School of Art

WEDNESDAY, MARCH 23

Magical Girl (Spain, 2014),
co-presented with CMU’s
International Student Union
7 p.m., McConomy Auditorium
+ Themed reception

THURSDAY, MARCH 24

The Propaganda Game
(Spain, France, 2014) co-
presented with Liberty in North
Korea, CMU and Pitt Chapter
7 p.m., McConomy Auditorium
+ Themed reception

FRIDAY, MARCH 25

Short Film Competition
6 p.m., George Rowland White
Theater, Point Park University
Center

Taj Mahal (France/Belgium, 2015)

7 p.m., McConomy Auditorium
+ Musical performance
+ Indian food and cultural
reception

SATURDAY, MARCH 26

Coffin in the Mountain
(China, 2015)
7 p.m., McConomy Auditorium
+ Skype with Director **Yukun Xin**
+ Chinese food reception

TUESDAY, MARCH 29

The Here After
(Sweden/France/Poland, 2015)
1 p.m., McConomy Auditorium
+ Special appearance by
Magnus von Horn via Skype

WEDNESDAY, MARCH 30

**The Dybbuk. A Tale of the
Wandering Souls** (Poland, 2015)
7 p.m., McConomy Auditorium
+ Special appearance by
Krzysztof Kopczynski,
producer, screenwriter, film
director, assistant professor
at Warsaw University

THURSDAY, MARCH 31

Something Better to Come
(Denmark/Russia/Poland)
1 p.m., Harris Theater
+ Special appearance by
Hanna Polak, film director

Viva Activa: The Spirit of Hannah Arendt

(Canada/Israel, 2015)
7 p.m., McConomy Auditorium
+ Academic panel and Q&A
featuring **Andreea Ritivoi**,
author of “Intimate Strangers”

FRIDAY, APRIL 1

Cartel Land (Mexico/USA, 2015)
7 p.m., McConomy Auditorium
+ Panel/Q&A with Roger Rouse,
professor of anthropology at the
University of Pittsburgh, and
Paul Eiss, professor of history
at CMU
+ Reception

SATURDAY, APRIL 2

Something Better to Come
(Denmark/Russia/Poland)
7 p.m., McConomy Auditorium
+ Special appearance and Q&A
with Director **Hanna Polak**
+ Reception

SUNDAY, APRIL 3

**Requiem For the American
Dream** (USA, 2015)
3 p.m., McConomy Auditorium
+Closing Night reception

Jillian Jaycox Wins International Scholarship

■ Abby Simmons

From her role as a student-athlete to her goal of becoming a physician-scientist, Jillian Jaycox’s varied interests and ability to embrace challenges have set her on a track for success.

The senior biological sciences major is one of 15 U.S. students selected to receive a 2016 Churchill Scholarship, one of the most prestigious awards for study abroad in the United Kingdom.

Throughout her undergraduate career, Jaycox has engaged in undergraduate research. She first worked with Subha R. Das, associate professor of chemistry, as part of the CMU-Howard Hughes Medical Institute Summer Research Program. Her project involved designing DNA nanoparticles made of backbone-branched DNAs. The long-term goal of this research is to design nanoparticles for biological applications such as drug delivery.

“Jill is an excellent researcher and skilled scientist. I remember she came back to school a week and half before the semester began so that she could



Jillian Jaycox

spend undivided time on her project before classes started. Though Jill moved on from my lab, we still use the DNA-based nanostructures that Jill designed in our ongoing research,” Das said.

Jaycox most recently worked as a member of the University of Pittsburgh research groups directed by the Department of Immunology’s Dr. Mark Shlomchik and the Department

of Rheumatology’s Sarah Gaffen (MCS 1988).

At Cambridge University, she will pursue a Master of Philosophy in Medical Science as a member of Dr. Ken Smith’s research group, which is investigating a new prognostic biomarker for autoimmune diseases like lupus.

Following her year in the United Kingdom, Jaycox plans to apply to Doctorate of Medicine and of Philosophy (M.D.-Ph.D.) programs and pursue a career as a physician-scientist in immunology.

The Churchill Scholarship is the second competitive award Jaycox won with the help of CMU’s Fellowships and Scholarships Office. In 2015, she received a Barry M. Goldwater Scholarship.

“When I began the Churchill application process last June, I did not really know where to start or what exactly the foundation was looking for. The expertise provided by Stephanie Wallach and Emily Mohn-Slate at the

Fellowships and Scholarships Office was very helpful in pointing my application in the right direction,” Jaycox said.

A four-year member of the cross-country and track and field teams, she inspires her teammates to make the most of their time at CMU.

“Jill is a great example for our team members. This is why I have had and will have Jill do a presentation to the underclassmen about utilizing the Fellowships and Scholarships Office and personnel here at Carnegie Mellon,” said Gary Aldrich, head track and field coach.

Although she has dealt with a number of injuries over her running career, Aldrich said Jaycox brings a determination and dedication to her rehab and recovery process that is a direct reflection on who she is.

“Jill is a true example of what a student-athlete is at Carnegie Mellon University. We are often asked by recruits, ‘Can I do athletics and the academics here?’ Jill has proven that you can and be successful,” Aldrich said.

THE GAME THEORIST'S GUIDE TO PARENTING

■ Emily Stimmel

For generations, parents have turned to experts for child-rearing advice. This spring, they can add game theorists to the list of parenting gurus.

On April 5, Carnegie Mellon's Kevin Zollman and co-author Paul Raeburn will release "The Game Theorist's Guide to Parenting: How the Science of Strategic Thinking Can Help You Deal with the Toughest Negotiators You Know — Your Kids."

"Game theory is exciting because it applies to almost all of our social lives," said Zollman, associate professor of philosophy in the Dietrich College of Humanities and Social Sciences. "It has been used to understand how animals search for food, how stores price their products and how people find their life partners. It's only natural that game theory should work for one of the toughest aspects of our lives — dealing with our children."

Zollman first presented game theory to the masses in 2013, when he wrote an advice column for the Pittsburgh Post-Gazette, applying game theory strategies to routine dilemmas and major conflicts alike.

The following year, writer Jennifer Breheny Wallace drew upon

Zollman's knowledge to examine classic parent-child power struggles through the lens of game theory. A week after Wallace's story ran in *The Wall Street Journal*, publisher Farrar, Straus and Giroux approached Zollman with an idea to expand the concept into a book. There was just one catch: he doesn't have children.

Enter Raeburn.

The father of five has written extensively on the intersection of science and parenting, most notably "Do Fathers Matter? What Science is Telling Us About the Parent We've Overlooked." Raeburn's firsthand experiences with parenthood complemented Zollman's game theory expertise and helped him devise realistic scenarios for applying the strategies.

In "The Game Theorist's Guide to Parenting," they demonstrate how parents can harness the science of strategic thinking to keep the peace with their kids. Through case studies, each chapter addresses specific issues that pop up at various developmental stages, starting at 5 years old and continuing through the teens.

For example, around age 7 or 8, children's sense of fairness solidifies. (According to Raeburn and Zollman, kids grasp "He got more than me" sooner than "I got more than him.")

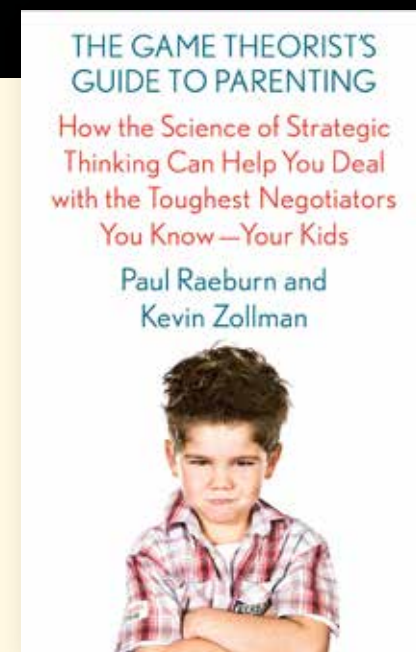
This conceptualization of fairness lies at the root of many sibling quarrels, particularly when it comes to indivisible resources — two kids want to be first to try out a new video game system or name the family pet, for instance.

Parents can divide time, but how can they fairly divide the "first time?" Coin tosses and simple games, like rock, paper, scissors, are often suggested, but they come with their own set of risks, like older kids taking advantage of their younger siblings. Instead, game theorists propose auctions.

According to the authors, "If you have one item that can't be divided, you want to assign it to the person who desires it most."

By using an auction system, kids are expected to announce how much they'd be willing to "pay" for an item or experience — Raeburn and Zollman suggest that payment be in the form of chores.

Other case studies draw from game theory concepts like the prisoner's dilemma and the ultimatum game, and related disciplines like psychology and behavioral economics. Ultimately, they hope that parents will use the book's recommendations to distribute resources to their children in a manner that reduces envy. By setting limits and sticking to them, parents are likely to hear fewer cries of "It's not fair!"



Another bonus: game theory empowers children to take ownership of their decisions and begin to comprehend the consequences — to themselves and others.

Jessica Lahey applauded the strategies in her Amazon review.

"Paul Raeburn and Kevin Zollman achieve two incredible feats in 'The Game Theorist's Guide to Parenting': they helped me find a way to be fair and just in my parenting while teaching me the basics of game theory," she wrote.

Lahey, author of The New York Times' bestseller "The Gift of Failure: How the Best Parents Learn to Let Go So Their Children Can Succeed," added, "I absolutely loved this book, both as a parent, and as a nerd."

This book is available for pre-order on Amazon.

KICKING BUTT IN COMPUTER SCIENCE

■ Byron Spice, Shilo Rea

Fewer women than men pursue computer science, but correcting that imbalance won't be accomplished via quick fixes or by making coursework less strenuous. Rather, the culture of computer science departments must change, as outlined in a new book, "Kicking Butt in Computer Science: Women in Computing at Carnegie Mellon University."

A cultural makeover at Carnegie Mellon's School of Computer Science, a top-ranked computer science program, is one of the reasons why the school consistently attracts and graduates a higher percentage of female computer science students than the national average, according to authors Carol Frieze and Jeria Quesenberry.

Frieze, director of the school's Women@SCS faculty/student organization, and Quesenberry, associate teaching professor of information systems in the Dietrich College of Hu-



Carol Frieze (left) and Jeria Quesenberry detail the cultural makeover that took place in the School of Computer Science in their new book.

manities and Social Sciences, explain the rationale and methods of this approach in their book.

"We have encountered so many questions about this over the years — and so many misconceptions. It's why we became convinced we needed to

write this book," said Frieze, who has worked on diversity issues in the School of Computer Science for 15 years.

Their book includes many years of observations and several case studies, many told through the voices of students.

"There's a lot of thinking out there

that you need to change the curriculum to suit women — to make it female friendly — based on the idea that men and women relate to computer science differently," she said. "But that's just not true. Cultural factors play a more important role than gender differences. Indeed, here at CMU in a more balanced environment we've not seen the familiar, simplistic gender divide in computer science.

"Rather we've found men and women relate to computer science through a spectrum of attitudes and with more similarities than differences," Frieze said.

"Those similar attitudes even extend to identifying with the image of 'geek' — a word once shunned, but now embraced as a point of pride by both men and women," Quesenberry said.

"What's critical," Frieze said, "is that you don't marginalize women, that you integrate them into the school so that they receive the same opportunities,

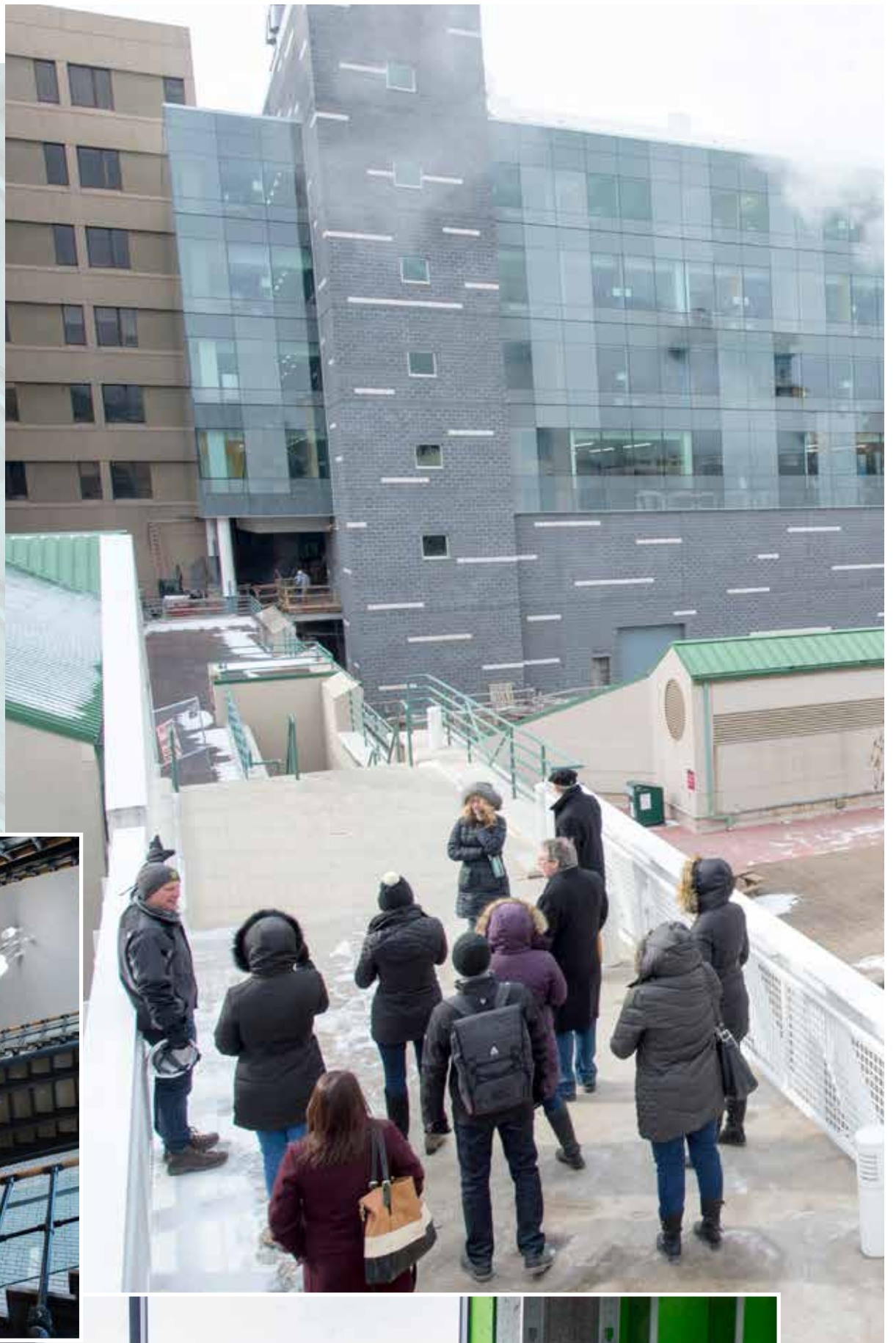
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Hard Hat Tour

The Piper caught up with Bob Reppe, director of design for Campus Design and Facility Development, to take a tour of several construction projects underway.

Reppe led several staff members on a tour of the Cohon University Center addition, Hamburg Hall renovations and Scott Hall, the new home of the Scott Institute for Energy Innovation, the Biomedical Engineering Department and the Institute for Complex Engineered Systems.

Join the tour ...



(Top right) Bob Reppe discusses the exterior components of Scott Hall, which will officially open this spring.

(Above) The staircase in Hamburg Hall was brought up to current building codes by adding onto the original Hornbostel railings and posts.

(Right) From the fitness area on the second floor of the Cohon Center addition, Reppe points to the structure that will mark the university's new front door on Forbes Avenue.

PHOTOS BY COOPER KOSTELIC





(Left) Hamburg Hall 1000, formerly known as “the rotunda,” is being transformed into a grand entrance and lobby area.

(Below) The Mall walkway has been extended to give pedestrians easy access to Scott Hall.



(Above) Reppe noted that landscaping in front of the Cohon Center will include a new sidewalk, planting beds and a vehicle pull-off in front of the building.

(Middle left) The glass-enclosed Cohon Center lobby will face Forbes Avenue.

(Left) The Cohon Center Black Box Theater will be used by student performance groups.

PHOTOS BY COOPER KOSTELIC



Powerful Lineup

CONTINUED FROM PAGE ONE

include energy storage and distribution, shale gas development, smart buildings and cities, electric energy systems, systems design optimization and technology and policy assessment.

To discuss its work and the energy industry, the Scott Institute is hosting its first Energy Week, March 14-18 in the Cohon University Center. CMU researchers and energy leaders will share their work and engage in discussions to swap ideas and perspectives through roundtables on energy entrepreneurship and innovation, industry energy efficiency, southwest Pennsylvania's energy workforce, and energy education and research.

Participants will include industry and business professionals, policymakers, entrepreneurs, foundation leaders and students, as well as the general public.

"In the Pittsburgh area, energy is often assumed by outsiders to be limited

posters, policy films, dramatic monologues, an energy technology challenge and an energy innovation jam, are scheduled throughout the week. A sixth competition, the Allegheny Region Cleantech University Prize, sponsored by the Department of Energy with a \$50,000 prize, is open to college students in Pennsylvania, Ohio, Maryland and West Virginia. Competitors range from undergraduate to Ph.D. students, with the potential to win cash prizes.

Friday is a day of field trips to regional power producers, utility companies, energy-related nonprofits and green buildings. More than 10 choices are available for participants to select from.

"Field trip day is a good opportunity to see energy activities that you may have only heard about on TV or video," Stine said. "Seeing a wind turbine

FIND OUT MORE: www.cmuenergyweek.org/

REGISTER ONLINE:

<https://tools.eventpower.com/reg/index/Qlmy3mGAQP>

SEE THE FULL SCHEDULE:

www.cmuenergyweek.org/Agenda

to coal and shale gas. In reality, there are all sorts of exciting things going on in energy regionally, and I don't think even the Pittsburgh public is aware of the diversity of activity within an hour's drive of the city, including innovative work coming out of CMU," said Deborah Stine, associate director of the Scott Institute.

"While some other universities have hosted similar weeklong forums, the CMU iteration is different in that it isn't based on a panel discussion model between researchers. We are combining research, tech, policy, student competitions and even the arts for what we hope will be a lively event," Stine said.

Each day has a theme, so participants can select what topics are most interesting to them. Themes include research, innovation, education policy, and the Pittsburgh region's energy workforce, industry, and business activities.

The energy policy-minded will want to consider attending Policy Day on Tuesday. Presidential candidate surrogates and Pennsylvania candidates for the U.S. Senate will be discussing energy policy and their positions on energy issues. The day concludes with a Deliberative Democracy discussion on a realistic energy mix for Pennsylvania.

Five CMU student competitions, including energy-focused research

in action, for example, can help you understand so much more than a picture or a calculation."

In the lineup of keynote presentations is Bunker Roy, founder and director of Barefoot College, TED speaker and one of Time magazine's 100 most influential people of 2010.

Barefoot College trains impoverished, rural poor and many illiterate women to construct and operate technologies in their communities. For example, women trained in India as solar engineers returned to their villages in sub-Saharan Africa and used their newfound skills to install solar panels and provide electricity to homes, something that many believed to be out of reach.

Other highlights include Under Secretary for Science and Energy Franklin "Lynn" Orr and Deputy Secretary Elizabeth Sherwood-Randall from the U.S. Department of Energy; Pittsburgh Mayor Bill Peduto; visits to CMU's energy research labs and centers; and an Energy Tech Expo, in which students will have the opportunity to network with industry professionals.

CMU students (and those from any institution), faculty and staff may register for free. Lunch is not included, but can be purchased for an additional fee during registration.

Carnegie Mellon University
energyweek

March 14-18, 2016



CMUenergyweek.org

ENERGY WEEK LINEUP

Monday – Research Day

- Keynote Speaker Franklin "Lynn" Orr, Under Secretary for Science and Energy, U.S. Department of Energy, 1:30-2 p.m.
- "Andy" Talks — 20-minute TED Talk-style presentations of innovative research, 2:30-5 p.m.

Tuesday – Policy Day

- Energy Policy Forum with U.S. Presidential Candidate Surrogates, 9:45-11:45 a.m.
- Fireside Chats with U.S. Senate Pennsylvania Candidates, 1:45-3:30 p.m.
- What Should be Pennsylvania's Electricity Mix Now and in the Future? Deliberative Democracy Event, 6:30-8:30 p.m.

Wednesday – Innovation Day

- Energy Innovation and Entrepreneurship Roundtable, 9-11:45 a.m.
- Visits to CMU's energy research labs and centers, including General Motors-CMU Connected Autonomous Collaborate Research Lab and the Solar Fuels Lab, 1:15-3:15 p.m.
- Allegheny CleanTech Collegiate University Prize Competition Presentations and Awards ceremony, 3-5:50 p.m. (final rounds)

Thursday – Education Day

- Energy Tech Expo featuring regional energy-related industries and businesses, 10 a.m.-noon and 1-4:30 p.m.
- Keynote Presentation by Bunker Roy, founder and director, and Meagan Fallone, CEO, of Barefoot College, 4:45-5:45 p.m.

Friday – Field Trip Day

- More than 10 choices for a morning field trip, including visits to Shale Gas sites, green buildings in the city and utility companies, 9:15 a.m.-1:30 p.m.
- Southwestern Pennsylvania Energy Workforce Roundtable, 1:30-4:30 p.m.

“Birdman” Lands at ETC

Michael Keaton Immerses Himself In Student Projects

■ Kelly Saavedra

A familiar ‘ping’ announced the arrival of the elevator onto the second floor of CMU’s Entertainment Technology Center. But on this day, the door opened to release a special visitor — award-winning actor, director and Pittsburgh native Michael Keaton, who was, as usual, ready to get to work.

Best known for his starring roles in “Batman,” “Beetlejuice” and last year’s multiple Oscar-winner “Birdman,” Keaton — making his first trip to the ETC as a Visiting Scholar — strode down the hall to the office of Ralph Vituccio, an ETC professor and Keaton’s lifelong buddy since they were 14 years old. There, he greeted a handful of guests, donned a virtual reality headset and, against the backdrop of the Monongahela River outside the windows, stepped into the role of a witness to a racially motivated police brutality.

“This is tremendous,” Keaton said.

He was referring to the virtual reality project “Injustice” being developed by a team of ETC students including Tiffa (Xu) Cheng, Jahee Cho, Martin (Zixu) Ding, Atit Kothari, Elizabeth (Yeongmin) Won and Stephanie Fawaz. “Injustice” uses 10 GoPro cameras on a rig that capture every angle to give users a completely immersive 360-degree live video experience.

“That’s what they did in ‘Birdman,’” said Keaton, who has worked steadily in film and television since 1977.

“Potentially, if done right, this has more impact, the immersive quality, as opposed to watching a documentary,” he said. “You feel like you’re there, especially when someone walks up close to you. And it’s great that you’re doing that with social issues.”

Keaton moved on to several more project demos, including “Decisions That Matter,” in which he played the role of a bystander who weighs how to respond to a potential sexual assault. Kirsten Rispin and Fawaz produced the project along with a team of artists and programmers.

“We definitely got to show him things we’re excited about and proud

about,” Fawaz said. “He asked insightful questions about how you would watch this in the future. Would you need to do this at home? Could you see it in a big theater? Would one person drive this and others be spectating on a screen? What would happen on a big screen? We might not be able to definitively solve or answer those questions this semester.”

Jun Wang’s team showed him their project sponsored by Legendary Entertainment, in which the user, playing King Kong, reaches down to pick up a variety of small creatures, all of which react differently. And Ding discussed his Electronic Arts project through which family members can use a tablet or their mobile phones to connect with each other for a virtual snowball fight. Both projects aim to demonstrate how virtual reality can enhance storytelling and better engage audiences through an interactive experience.

“I was thrilled to meet Michael,” Ding said. “I have long known him as a brilliant actor. After meeting him, I found him a charming, friendly and humorous person. While trying the demo, he was genuinely interested in the technology and asked us several in-depth questions about virtual reality and its potential applications. I felt he is not only an actor, but a man who is constantly learning and has a vision of the entire entertainment industry.”

Keaton described CMU’s ETC students as “extraordinary” and “mind-blowing.”

“They are the future,” he said.

“This is an incredible opportunity for our students to get feedback from one of the most creative and influential talents of our time,” Vituccio said. “I’ve wanted to get Michael involved with the ETC for some years now. Every time we would get together I would always talk about the exciting projects I was working on with the students. He was always interested in hearing more and asking questions. One night when we were out together, I asked him to become a Visiting Scholar, and he agreed.”

Vituccio said, “What’s truly a wonderful and unique story is that we’ve remained close friends ever since 9th



Keaton discusses a virtual reality project with students.

PHOTOS BY TIM KAULEN

grade. Every time Michael would come back to the ‘Burgh, he would often make the effort to get family and a small group of friends together. He really didn’t have to do it, but he always makes the effort. That is a rare thing in this day and age and says something about enduring friendships that last a lifetime.

“Michael’s roots are Irish-Catholic and mine are Italian-Catholic, and coming from such strong ethnic backgrounds you grow up with certain values like being loyal and honest with the people around you. And if you’re not grounded or ‘real,’ believe me, family or friends would not allow you to get away with it.”

After a short break for lunch, Keaton and Vituccio wrapped up the day with an entertaining and insightful Q&A session with students. Vituccio prodded his childhood pal, telling tales of their shared history.

“I always thought Mike would do well, but I never ever thought he would become the star that he is,” Vituccio told the audience. “Not that I thought he couldn’t do it. It’s just the chances of that happening are like winning the lottery. Such a tiny percent in Hollywood get the good roles, and the rest are still waiting tables.”

Keaton said it’s about timing.

“Certain things happen in the world, and you’re in the right place at the right time. And all you gotta do is just be locked in, and know that — or sense that — it’s the right thing. And keep moving forward, stay focused and don’t back down,” he said.

Keaton shared anecdotes from the set of Batman, explanations for why he did and didn’t accept a variety of different work, and offered career advice and his philosophy on life.

“The universal question for everyone is what do I want? Always drop back to that question,” he said. “The problem is, in the creative world it ain’t easy. And it changes and shifts so fast now. You gotta just keep asking, what’s going to make me happy? And on a practical level, what’s going to keep food on the table? And as a creative person, am I going to be fed by this? Is it going to keep me

inspired?”

Then, Keaton told students, look for the opportunities. And when they open, go.

“It’s like when the offensive line opens, run through it and just keep on going. Don’t let people back you down. Don’t let circumstances wear you down,” he said, “because they’re gonna.”

“In his talk,” Vituccio said, “Michael also mentioned that, in this phase of his career, he wanted to start giving back.

“This is an incredible opportunity for our students to get feedback from one of the most creative and influential talents of our time.”

— Ralph Vituccio

And I know he would agree this is exactly what he had in mind. In future visits, I would love to get Michael onto main campus to visit with my IDEATe students and with the drama students as well. Mike loves Pittsburgh and CMU. In fact, his late wife, Carolyn McWilliams, was a graduate of the School of Drama and an accomplished actress in her own right.”

Drew Davidson, director of the ETC and a teaching professor, summed up the enthusiasm over Keaton’s visit.

“We’re just really excited. One, because he’s a Pittsburgher and it’s nice to have him come back home. But what’s really valuable for us is having people like Michael come in and share their expertise and their experiences with our students, who hope to shape the next generation to do the next big thing,” Davidson said. “It’s that type of inspiration and challenge, in a way. He’s told them, ‘You can do better. You can do more.’ That’s what we’re excited about.”

Keaton’s latest film, “Spotlight,” won this year’s Oscar for Best Picture.



Vituccio and Keaton hold a Q&A session with students.

Hacking Into Gun Safety

■ Chuck Finder

The challenge is intricate yet extensive. How can technology, robotics and innovation bring new ideas to public safety and, more precisely, gun safety?

Liza Tresser, who will earn her MBA this May, is organizing an event to host such a challenge — one accepted by the City of Pittsburgh Police Bureau, the University of Pittsburgh, the Tepper School of Business, Carnegie Mellon and others around the community.

“Last year was the first year of an event called CMU Idea Space; it was a hackathon competition focused on social impact issues,” said Tresser, who is heading the committee planning “Innovative Solutions for Gun Safety and Gun Violence,” March 18-20 at the Posner Center.

“Incredibly innovative ideas were designed around recycling, education and even public safety at last year’s event. This year, we are narrowing the lens and focusing solely on gun violence, gun safety and public safety issues, and how tech or robotics might be used to help. We want as many people as possible to have a voice in this,” she said.

Some 120 graduate and undergraduate students from Carnegie Mellon and Pitt are expected to enter the competitions on each day of the event.



CMU Police Chief Tom Ogden says he’s excited to see what the students will present in the upcoming hackathon.

There also are spots open for members of the community to participate as well; the Urban League of Young Professionals and other organizations are working with Tresser and the committee to find additional participants.

Already, an incubator called Zero Six Eight has agreed to work with a winning team’s idea, and officials from the City of Pittsburgh Police’s Initiative to Reduce Crime wrote a challenge for event competitors to try to tackle, Tresser said.

Program Coordinator Chris Millard of Alphalab Gear, Director Greg Cottichia of the Blast Furnace at Pitt’s Innovation Institute, and Renee Clark, former dean of student development at Community College of Allegheny County’s South campus, are among the people who will serve as coaches.

Among the judges for the competition will be attorney Khadija Diggs, deputy director of Pennsylvania Gov. Tom Wolf’s Southwest Regional Office, and Carnegie Mellon Police Chief Tom Ogden.

“It’s admirable that our students are trying to put Carnegie Mellon creativity and innovation to use for what I believe to be one of the most important public safety issues today. I’m excited to see what they present and most appreciative of their efforts,” Ogden said.

Because college and school campuses have been the scene of such tragedies around the globe, Tresser hopes that other business schools and universities take up this type of challenge.

“It is a constant effort for universities to truly contribute to and take a vital role in the communities around them,” Tresser added. “This type of competition, bringing together bright minds and new ideas, would be a great way to start.

“The months I’ve spent working on this initiative demonstrate the passion and interest that exist over these issues, and such an event allows people to have a say. The concept — that a non-political platform can bring people of opposing beliefs together to work more constructively — has struck a chord with so many around Pittsburgh. By bringing together people from all walks of life and different disciplines, new ideas may emerge,” Tresser said.

To register for the event, go to <http://cmu-idea-space.eventbrite.com>.

Art That Rocks

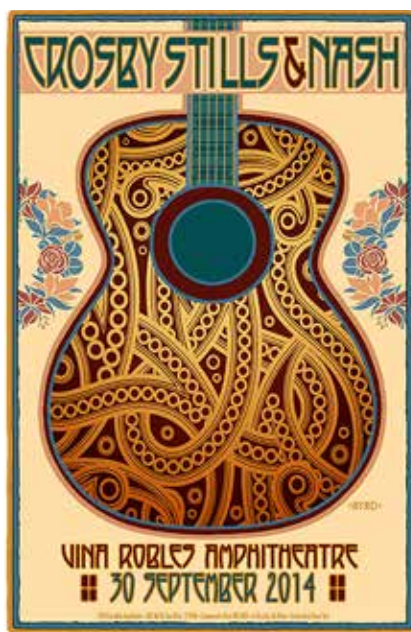
■ Jennie Dorris

The friends David Edward Byrd made at Carnegie Mellon ushered him into a world that would make him famous. Byrd moved to New York after graduating in 1966 and was part of an art commune when he received a call from a CMU friend, Joshua White.

White had just received a residency for a creative lighting and projection project at a new rock venue called the Fillmore East. White would be performing behind Frank Zappa, the Grateful Dead and Janis Joplin, among others. The venue — which would draw some of the biggest names during its run from 1968 to 1971 — needed posters. They gave Byrd his big break.

Byrd wasn’t sure — he had been trained as a painter and hadn’t experimented with graphic design. But he found freedom in designing rock posters.

“When you created a rock poster, the subject matter was neither here nor there. It had to be wild, it had to be mysterious, it had to have fantastic colors, and it had to be difficult to read. I wanted to establish a look that really punched you in the face,” Byrd said.



Byrd’s third poster, for Jimi Hendrix, would become one of his best known. He also designed posters for Jefferson Airplane, the Grateful Dead and the original Woodstock Festival.

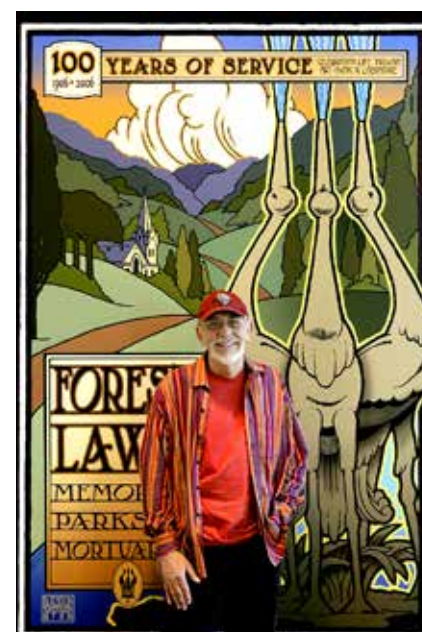
Byrd also began designing posters for Broadway. His design work for “Follies” led to his poster being displayed prominently on the theater’s marquee. Edgar Lansbury, the producer of a musical about to open on Broadway, called Byrd into his office and pointed to the enlarged image on the building.



“I’m doing a musical about Jesus,” Byrd recalled Lansbury saying. “I want that poster (Follies), but I want the image to be Jesus.”

That musical was “Godspell.” Stephen Schwartz, who attended CMU at the same time as Byrd, was writing its music and lyrics.

Lansbury offered Byrd \$100 to create the “Godspell” poster, which was a fraction of Byrd’s usual fee. Byrd figured he’d take a chance on the musical, and bargained with Lansbury — if the



musical turned out to be successful, Lansbury would pay him \$50 a week for the run of the show.

The show ran for eight years.

At first, Schwartz wasn’t sure about the art Byrd created.

“While I thought it was a great and memorable image, I thought it didn’t capture sufficiently the humor and joyousness of the show. But obviously I was mistaken, and I came to love the poster,” Schwartz said.

The rock and musical worlds collided

Rockin' the Ph.D.

CONTINUED FROM PAGE ONE

his hammer once and saying to my dad, 'Wow! He must be the strongest man in the world!'"

Roth is a second-year doctoral student in CMU's Engineering and Public Policy Department. He recently finished his qualifying exams and has been working on research that centers on how preserving nuclear power plants may be a good strategy to avoid carbon dioxide emissions.

during his undergraduate years at Oberlin College, where he balanced his studies with his other passion — music.

"I had two friends who needed a bass player, so I bought a bass, taught myself how to play it, and we started a band called Cobalt and the Hired Guns. We recorded four studio albums," he said.

He toured with them for a total of nine years based out of Chicago, leaving the band only because he wanted to go

"I'm not an engineer, so traditional engineering departments at other universities wouldn't have been a good fit for me. CMU is very interdisciplinary and focused on exactly what I'm interested in."

— Mike Roth

"This is really important work," said his adviser, Paulina Jaramillo. "Nuclear power, a carbon free source of electricity, currently accounts for about 20 percent of generation in the U.S. The plants are being undercut by low electricity prices and may be at risk of retiring. If this happens, they would likely be replaced with carbon-emitting power plants."

Roth became passionate about energy

to graduate school.

Twice.

He enrolled in Duke University for a master's degree in environmental management focusing in energy. Then, he moved back to Chicago to get another master's degree, this time in public policy.

"Being in a band was a great experience for me for a lot of reasons,"



PHOTO BY ELLIE PRITTS

Mike Roth balances a music career with nuclear power plant research.

he said. "I learned how to talk about and manage feelings and disagreements and egos, and you know, the group dynamics involved in working with people. It really helped me learn to work with lots of different types of people despite us having very different backgrounds and personalities. You're living in a van with people on tour for a month. You get to know them very well, and that can be very challenging."

Roth released his first solo album, "Slow Down," this winter. He filmed the music video for the single in Haifa, Israel, after he conducted research on electric vehicle policy at Tel Aviv University.

"What's cool about Haifa is it's a city on a mountain. They have an incline, just like Pittsburgh, but it's a subway incline, so it's underground. So, we started at the top and over the course of two days worked our way down to the beach," he said.

"We didn't plan any of it. We didn't know whom we'd meet. We didn't know what was going to be in it. The culture is a bit different from the U.S., in that the country was founded with Kibbutzim and many socialist ideals, and so there is still an element of things being more communal there than they are here in the U.S. Some people didn't even speak English, but for example, we went to a Haifa fire station and they let us stand on all the trucks and capture video of that. It was really fun."

The video can be found on YouTube and at www.mikerothmusic.com. The rest of the album is on Spotify, iTunes

and can be downloaded on Band Camp for free.

Roth has toured extensively throughout the U.S., opening for artists such as Josh Ritter, State Radio, Pete Francis of Dispatch and the Clarks.

A couple of summer internships with CMU's Scott Matthews are what led him back to Pittsburgh — where he now plays guitar for local act Rachel B — and to the university he refers to as "the best place on Earth" for him to be doing his work.

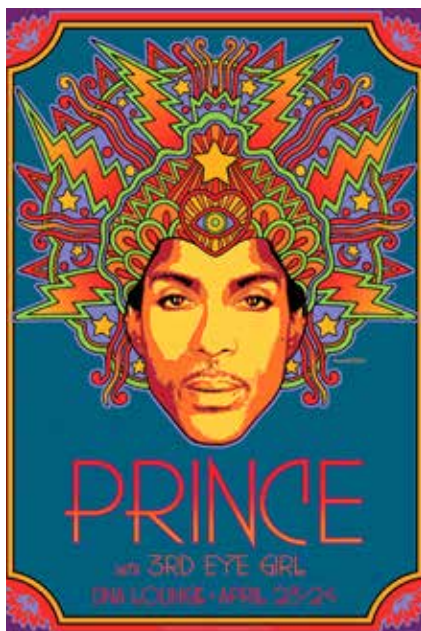
"I'm not an engineer, so traditional engineering departments at other universities wouldn't have been a good fit for me," he said. "CMU is very interdisciplinary and focused on exactly what I'm interested in, which is energy and environmental issues where there's an intersection of social science and engineering."

A two-year stint teaching elementary school ignited a spark in him for teaching, meaning he hasn't ruled out following in his father's footsteps and the idea of becoming a professor.

"I think about my dad a lot. I feel his presence here," he said. "It's reassuring when things get difficult, like when I was taking my qualifying exams. I could feel him reassuring me, patting me on the shoulder, reminding me I can do this. I'm meant to be here."

Now, the bridge from Newell-Simon Hall to Wean Hall, which leads to his past, also may lead to his future.

"Maybe I'll have an office here myself someday," he said. "If I'm lucky."



when Byrd created a poster for The Who when they brought their rock opera "Tommy" to the Metropolitan Opera. He received a Grammy in 1973 for his work on "Tommy."

Byrd went on to work as an illustrator and designer for Warner Brothers, where he would help design the Bugs Bunny stamp and help create the style guides for the first three Harry Potter movies, among many other projects.

Byrd continues to do posters — he has done recent work for Prince and Crosby, Stills & Nash. His work is sold

online — originals of his Jimi Hendrix posters run from \$8,000-\$10,000.

While Byrd started out in the world of fine arts, the world of graphic design embraced his work. For a time, he was conflicted that he was "selling out" by leaving the world of painting.

"I had very sentimental notions about painting and suffering and being a great artist — which is part of being young — but now I am in a lot of museums all over the world, and I don't know if I would be there if I had remained a painter," Byrd said.

Composer Speed Dating

Collaboration is Music to Their Ears

■ Bruce Gerson

Playwrights came looking for a score. Artists were in search of music to complement their visual creations. Roboticists were hunting for the right techno-vibe. And some attended out of curiosity.

Whatever their reason, all came lending an ear, hoping to collaborate with just the right composer.

The first “Composer Speed Dating” event in the Frank-Ratchye STUDIO for Creative Inquiry was a coming out party, of sorts, for 18 undergraduate and graduate students in the School of Music’s Composers Forum. Each composer was on hand to talk to fellow students from across campus about their work, the type of music they like to write and to hear about projects in which they may be able to help.

Soosan Lolavar, a native of the U.K. who is working toward her third master’s degree in music, came up with the idea.

“During my studies in the U.K. everyone was encouraged to work with everyone in interesting ways. And I thought that would be a really cool thing to do here,” said Lolavar, who is specializing in Iranian music.

“Composers are quite isolated people. We spend a lot of time alone and a lot of people really don’t know what we do. CMU is the only place in the U.S. and Europe where you can study Iranian music and nobody knows that. And that’s a shame,” she said.

Samir Gangwani, a junior composer from North Carolina who specializes in sound installation art and hybrid instruments, met Lauren Valley, a junior art major from nearby Fox Chapel, Pa. The two plan to work together on Valley’s unusual project that features a singer and her skirt.



Students in the Composers Forum held the first “speed dating” event seeking to meet and collaborate with fellow students on interdisciplinary projects. Soosan Lolavar (front row, third from left) came up with the idea. Rodrigo Castro (second from right) is the course teaching assistant.

PHOTO BY TOM HUGHES

“I’m looking for someone to compose music that will showcase a dynamic range,” Valley said. “When the singer hits higher notes that will make the skirt move certain ways. Lower notes will make the skirt move other ways.”

Alexander Panos, a sophomore composer from Chicago who calls himself a “multi-genre artist,” met a computer science and art major in the BXA program. This duo will be putting their heads together around an installation piece focusing on the solar system. A drama student also approached him about writing music for a movie.

Andrew Abrahamsen, an undergrad composer of jazz, contemporary and classical music, is engaging with a fellow student on an art project, putting music behind animation. He also spoke to a playwright interested in musical theater.

“This has been really effective,” Abrahamsen said about the event. “A lot of people actually do need music to go along with whatever they do, but they don’t necessarily know how to find us.”

Danny English, a second-year

master’s degree student, spoke to a roboticist who is pioneering technology that would enable a robot to not only play music, but also to create music on its own.

“Composing is a solitary venture at times, so it’s great to get out and meet other people in different disciplines to open up new avenues. It also gives us a platform to show other departments what we do,” English said.

Theodore Teichman, a double major in music composition and neurobiology, spoke to playwrights and visual artists.

“It’s not necessarily how art can respond to or inspire music, but about how visual art can be an element of the musical experience,” he said.

Some attendees, like Whitney Rowland and Paul Welle, came to talk to composers without a specific project in mind.

“I wanted to come and listen to all the composers’ styles to see if I was inspired by anything,” said Rowland, a playwright and graduate student in the School of Drama who plans to write a

musical. “I met some really fantastic people. There’s a lot of talent here,” she said.

Welle, a Ph.D. candidate in the Engineering and Public Policy Department, works on agricultural systems.

“I came mostly because I was curious. It’s interesting to try to meet composers and I’m hoping they have ideas on how to collaborate with me,” he said.

As the event came to a close, all participants, composers and collaborators alike, gave it a resounding thumbs-up.

“I think Soosan had an amazing idea. We can’t thank her enough for being so innovative,” said Teaching Assistant Rodrigo Castro, who leads the Composers Forum.

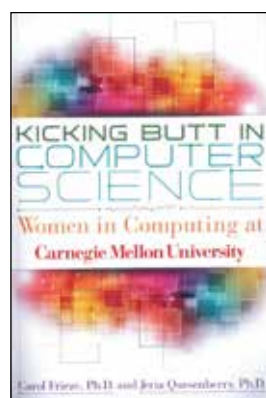
“As composers we are always seeking collaborative efforts, but perhaps given our introspective nature and how busy we are working in close quarters we sometimes lack in knowing the right approach to meet others. Soosan seems to have the right ideas for that,” he said.

Kicking Butt CONTINUED FROM PAGE FIVE

visibility and networking that have worked well for most men. Integration means women can help shape the culture and environment.”

As Frieze and Quesenberry note in their book, CMU’s approach began to change in 1999, when Lenore Blum, a longtime advocate for women in science and mathematics, joined the computer science faculty. She worked with graduate students to form Women@SCS, providing a way to connect women across the departments within the school. A year later, Blum recruited Frieze, who had a background in gender and cultural studies, to help guide their efforts.

Frieze said she was fascinated by studies showing that the gender



imbalance in computer science varied from country to country and culture to culture. In Israel, for instance, some studies of high school students

found that computer science enrollments in Jewish sectors were just 28 percent female, while enrollments in Arab sectors were 61 percent female.

“So, how could it be that an Arab-Israeli schoolgirl, or a young woman from Mauritius, could study computer science

in high school or a university as if it was no big deal, while in Denmark, or the United States, young women are feeling out of place in computer science?” Frieze and Quesenberry wrote.

With leadership from students, Women@SCS developed programs that helped women make connections that men took for granted, such as discussing homework with roommates late at night, or receiving job and course recommendations from fraternity files and upperclassmen. The organization developed activities to help all students — not just women — meet socially and help develop each other’s professional skills. Women@SCS events and activities often draw equal numbers of male and female participants.

“This was not a small intervention that occurred in a few months, but a sustained effort to make a change in the culture,” said Quesenberry, who joined CMU in 2007 and whose research focuses on societal, cultural and organizational influences on technology and tech professionals.

“Lots of people have documented the problem of low female enrollment in computer science, but you don’t see a lot of sharing of success stories,” she added.

Carnegie Mellon’s approach may not work for every computer science program, Quesenberry acknowledged, but she and Frieze hope that their book will provide insights that will help more programs — and ultimately the profession — become more inclusive.