Clint Boyd, Ph.D., of the South Dakota School of Mines & Technology, holds a slide displaying a histological thin section through the femur, or thigh bone, of the juvenile dinosaur.
A School of Mines assistant professor and his team have discovered a new species of herbivorous dinosaur and published the first fossil evidence of prehistoric crocodyliforms feeding on small dinosaurs.

Research by Clint Boyd, Ph.D., provides the first definitive evidence that plant-eating baby dinosaurs were a food of choice for the crocodyliform, an extinct relative of the crocodile family. While conducting their research, the team discovered that this dinosaur prey was a previously unrecognized small ornithopod dinosaur species, which has yet to be named.

The evidence found in what is now known as the Grand Staircase Escalante-National Monument in southern Utah dates back to the late Cretaceous period, toward the end of the age of dinosaurs, and was published Feb. 27 in the academic journal PLOS ONE (Public Library of Science ONE). The complete research findings of Boyd and Stephanie K. Drumheller, of the University of Iowa and the University of Tennessee, and Terry A. Gates, of North Carolina State University and the Natural History Museum of Utah, can be accessed at dx.plos.org/10.1371/journal.pone.0057605.

A large number of mostly tiny bits of dinosaur bones were recovered in groups at four locations within the Utah park – which paleontologists and geologists know as the Upper Cretaceous (Campanian) Kaiparowits Formation – leading paleontologists to believe the crocodyliforms were also diminutive in size, perhaps no more than 2 meters long. A larger species of crocodyliform would have been more likely to gulp down its prey without leaving behind traces of “busted up” bone fragments.

Scientists have reconstructed a newly discovered miniature dinosaur species based on recovered bone fragments from the Grand Staircase-Escalante National Monument in southern Utah. Parts of the skeleton highlighted in white are the bones that have been identified.

The findings are significant because historically dinosaurs have been depicted as the dominant species. “The traditional ideas you see in popular literature are that when little baby dinosaurs are either coming out of a nesting grounds or out somewhere on their own, they are normally having to worry about the theropod dinosaurs, the things like raptors or, on bigger scales, the T. rex. So this kind of adds a new dimension,” Boyd said. “You had your dominant riverine carnivores, the crocodyliforms, attacking these herbivores as well, so they kind of had it coming from all sides.”

Based on teeth marks left on bones and the large amounts of fragments left behind, it is believed the crocodyliforms were also diminutive in size, perhaps no more than 2 meters long. A larger species of crocodyliform would have been more likely to gulp down its prey without leaving behind traces of “busted up” bone fragments.

Continued on page 9

New website showcases university’s strengths in a modern design

The South Dakota School of Mines & Technology launched a new website, sdsmt.edu, on Feb. 28, bringing to fruition a long period of planning, development and content migration and expressing a vision that showcases the university’s prestige and unique capabilities.

The website provides a clean, modern look and a fresh new entry point to Mines information and resources. It is an important beginning and a brand new platform from which to grow online functionality for the Mines community and tell the university story in a more compelling way. This new electronic “front door” to the School of Mines will be a greater catalyst for achieving strategic priorities.

The launch of the site is a beginning, not a finale. Future phases will include training department publishers, bringing in adjunct SDSM&T sites into the new framework, and development of an internal portal for use by students, faculty and staff.

As the web team continues to work on the site, please report non-working links and other small changes to webmaster@sdsmt.edu for immediate attention. Larger issues should be reported through the University Relations job request form.
Summer rocks as Mines highlights its niche with new camps for teens

A refocused summer camp program at the School of Mines will offer high school students a more immersive experience in areas such as mining, metallurgy, geology, chemical and biological engineering, paleontology, robotics, power, and civil and environmental engineering.

The camps are already attracting exceptional students from coast to coast. In addition to the Black Hills region, students will travel from California and New Jersey and a number of states in between, including Michigan, Illinois, Wisconsin, Iowa, Nebraska, Texas, Wyoming and Montana. Registrations remain open.

Department heads and faculty members will guide participants through in-depth camps offering field trips and other hands-on opportunities, including team-building projects aimed at helping students shape their future professional successes.

Each week-long camp is capped at 16 students to help ensure quality one-on-one time with university professors who will shepherd teens through the pre-college experience. If a camp fills, a second session may be offered.

In previous years, camps were open to as many as 30 teens and were led by college students. “We limited the number because one of the things that we really do want to market is that they are getting that one-on-one time with the professor,” said Shawna Hall, Youth Programs program and curricula developer.

“Participants won’t have access to this in any other camp. We wanted to focus on our niche. I’ve never seen another mining camp or paleontology camp as extensive as ours, for example,” Hall said. “Campers are all going into the field. There will be no PowerPoints. We really want them to be able to get their hands dirty.” Mining camp students will travel to an active mine in Wyoming; geology students will camp in the Badlands and Black Hills; and paleontology students will dig in Wyoming.

The résumés of those who have already registered are impressive. Among them: one student who studied the Late Eocene ecosystem of the Green River formation during a week-long course offered by Chicago’s Field Museum; one student who spent several days in the field mapping Wyoming faults; and one who built a wind generator out of a treadmill motor.

But there are just as many who simply articulated a long-held interest in a particular topic. One parent wrote on the application that her son “for the past 11 years has expressed an interest in being a geologist; we are hopeful that this camp will give him the exposure to confirm his passion and encourage him.” One applicant wrote that he never outgrew his “dinosaur phase” and instead his interests “grew to include birds and extinct mammals, primitive sea plants and some extinct non-dinosaurian reptile and synapsid groups.” At least two are Eagle Scouts.

Academic and financial need scholarships are available.

2013 Summer Camps and Dates

June 9-14
Geology Rocks!
Youth Field Camp in the Black Hills

June 21-26
Robotics Camp: You Won’t Find Anywhere Else

June 23-28
Fossils: The path of the paleontologist

June 23-28
Mining & Explosives Engineering Institute

June 23-28
EARTHWISE: Civil & Environmental Engineers

July 7-12
Power Camp: Hands On

July 14-19
Metallurgy & Forensics Institute

July 21-26
Chemical & Biological Engineering Institute

Representatives from 84 employers attended the Spring 2013 Career Fair on Feb. 7, an increase from 70 a year ago, several of which were recruiting on campus for the first time. A third of the employers were South Dakota companies, reflecting the importance of SDSM&T to economic development workforce needs of the state. Mines graduates now command an average starting salary of $62,696, according to data recently released by the university’s Career and Professional Development Center.

Learn more about summer camps or register:

(605) 394-2693
youthprograms@sdsmt.edu
sdsmt.edu/learn
Qualifying for the Olympics of computer science is no small deed. Qualifying five times under the same set of coaches, almost unheard of.

That’s why this year the contest’s organizers will honor South Dakota School of Mines & Technology professors Edward Corwin, Ph.D., and Antonette Logar, Ph.D., at the opening ceremonies for coaching their fifth team to the World Finals of the Association for Computing Machinery (ACM) International Collegiate Programming Contest (ICPC). They will also be honored in the program and on the ICPC website. The team will be among 17 other United States teams competing in St. Petersburg, Russia, in July 2013, joined by about 90 international teams vying for the 37th annual world title.

The key to their success lies in their chemistry. Married for 35 years and coaching together for a number of them, Corwin and Logar have found a balance that packs a punch.

Corwin is the technical guru. He picks the practice problems, provides debugging help and is, according to Logar, the algorithms wizard. Logar is the chief recruiter and logistics virtuoso, selecting with uncanny intuition perfectly matched members, or in Corwin’s words, “a scary judge of talent.”

Corwin and Logar also attribute their success to their methodology and raw material – their students – along with the department’s faculty and staff who double as co-coaches and cheerleaders.

Combining a rigorous curriculum that emphasizes hands-on learning, a team mentality and a winning record, their formula is nearly foolproof. And employers are beginning to take note. “Employers care – we get requests for the names of the students on the team every year – they are known to be the best of the best and employers want them,” explained Corwin.

But their biggest motivator is love of game. Simply put, “It’s lot of fun! And when we are having fun, the students get excited about it too,” said Logar.

Their latest World Finals team qualified in November, as Mines students competed in the ACM regionals against 239 teams from eight states and two Canadian provinces. In the regional contest, teams had five hours to solve nine problems.

The contest fosters creativity, teamwork and innovation in building algorithms and programs to solve difficult real-world problems, and it also enables students to test their ability to perform under pressure. It is the oldest, largest and most prestigious programming contest in the world.

The Hardrocker football program has accepted an invitation to become an affiliate member within the Great Northwest Athletic Conference (GNAC) beginning the 2014 and 2015 seasons.

Mines will become the seventh football-playing member of the GNAC, joining Central Washington, Simon Fraser (B.C.), Western Oregon, Dixie State (Utah), Humboldt State (Calif.) and Azusa Pacific (Calif.).

“The Great Northwest Athletic Conference is excited to add South Dakota School of the Mines as an affiliate member in football,” said GNAC Commissioner Dave Haglund. “We believe this strengthens not only football in our conference, but it also enhances NCAA Division II football in the West.”

Each of the seven institutions will play a six-game, single-round robin conference schedule. In addition, the six current members will also play three non-conference games against three other GNAC teams.

The School of Mines is currently in its third and final year of transition to full NCAA Division II membership and will be eligible for post-season play and academic and athletic awards starting in the fall of 2013.

“The South Dakota School of Mines & Technology is pleased to receive the opportunity to become an affiliate member of the GNAC for football,” said Acting President Duane Hrncir. “We would like to thank all the GNAC presidents and athletics directors for showing a positive vote of confidence toward our membership. Our strong emphasis on the scholar-athlete experience will be a good fit with the ideals and values the GNAC so proudly upholds.”

The football team will join the Mines soccer team in the GNAC.

The South Dakota School of Mines & Technology’s University Relations staff was recently honored with three Silver ADDY awards for its marketing pieces. The American Advertising Federation, Black Hills Chapter, recognized the university for its Admissions Campaign, Institutional Profile and holiday greeting card.

In addition, the designer retained by the Department of Mechanical Engineering to produce the “Women in Mechanical Engineering” brochure for SDSM&T also took home a Silver ADDY. The 2013 ADDY Awards presentation was held Feb. 22 at the Dahl.
Engineers feted during 36th annual E-Week

Engineers were celebrated on the School of Mines campus during the 36th annual national E-Week hosted Feb. 18-23.

Events held throughout Engineers Week honored the achievements and showcased the impressive abilities of School of Mines students, as well as exposed 400 middle school students to opportunities offered on campus and beyond in potential career fields.

Among the week’s highlights were the annual Rube Goldberg Machine Challenge, in which teams created a machine that could hammer a nail with at least 20 steps, and the initiation of 86 School of Mines students into the national Order of the Engineer society.

The middle school students traveled from Rapid City, Spearfish, Kadoka, Mission and Lusk, Wyo., toured campus and were treated to a magic chemistry show.
Artist showcases mathematical prowess and spellbinding spheres

Internationally-acclaimed artist Dick Termes discussed the mathematics behind his unique, spellbinding sphere art, which has been recognized from San Francisco to Paris, New York to Japan, during a public lecture at the School of Mines’ Devereaux Library.

Eighteen of his Termespheres, which draw their namesake from the artist and his medium, hung on display throughout the first floor of the library for several weeks. His Termespheres have been featured in books worldwide. Transcending the traditional bounds of art, a Termesphere is a revolving, three-dimensional exploration of an entirely closed universe, depicting an inside-out view of a physical world on the surface of a hanging sphere. Images on the spheres read correctly from any vantage point, handiwork made possible through a carefully-calculated and carefully-executed six point perspective. The result: a perfect encapsulation of a 360-degree environment.

Tailoring the experience to the Mines community, the collection of 18 Termespheres displayed on campus boasted geometric and scientific themes. The exhibit was sponsored by the Friends of the Devereaux Library in cooperation with the South Dakota Arts Council. The lecture was part of Engineers Week.

Mines students partner with schools for sustainable change

Pairing sustainable practice with public outreach, South Dakota School of Mines & Technology students have partnered with three local middle schools – Southwest, North and East – to foster a friendly competition, challenging students to use less and recycle more.

The March 4-15 contest cuts across disciplines, as student groups as diverse as Circle K International, a community service organization, the American Society of Civil Engineers and the American Institute of Chemical Engineers have offered their time and expertise to impart the importance of sustainable practices.

And to the victor go the spoils: The school which recycles the most per capita will take home a trophy. Jerilyn Roberts, director of Campus Environmental Health & Safety, hopes this contest will be the first of many, with the traveling trophy anointing next year’s recycling star.

The competition is part of a larger effort called RecycleMania, a nationwide campaign and benchmarking tool pitting more than 600 universities against each other to promote waste reduction activities to their campus communities – which Mines has participated in six years running.

Over an eight-week period, colleges across the United States and Canada report the amount of trash and recycling collected each week and are then ranked in various categories: which university recycles the most on a per capita basis, boasts the best recycling rate and generates the least amount of trash and recycling combined.

The most recent 2011 competition included 630 colleges from 49 states and four Canadian provinces. Over 7.5 million students, faculty and staff participated, collectively recycling 91 million pounds of recyclables and organic materials. This activity helped to prevent the release of 127,553 metric tons of carbon dioxide equivalent, commensurate to the greenhouse gas emissions of 25,000 passenger cars or the electricity use of more than 15,500 homes.
School of Mines student Adam Desenfants of Clear Lake stands with Rep. Dan Dryden of Rapid City and Board of Regents’ Executive Director & CEO Jack Warner at the 2013 Student Research Poster Session in Pierre on Feb. 27. His unmanned aerial vehicle research was prominently featured among the research work of a dozen students from colleges and universities in the State Capitol Rotunda. Desenfants is a leader on the Mines competitive UAV team.

Cultural Expo will celebrate diversity

International students from the South Dakota School of Mines & Technology and a variety of community groups will celebrate their diversity with food, entertainment and cultural displays during the annual expo Thursday, April 4, and Saturday, April 6. Approximately 20 countries will be represented.

The 2013 Cultural Expo will be from 9 a.m. to 3 p.m. Thursday, April 4, and 10:30 a.m. to 2:30 p.m. Saturday, April 6, in the Surbeck Center ballroom on campus. Admission is free.

Thursday activities will primarily target visitors from area schools, while Saturday events will be open to the campus and community.

On Saturday, food and entertainment will be available. Tickets for a variety of international food samplings prepared by students and community groups will be $7 for adults and $4 for children under 10. Food will be available from 11:30 a.m.-1:30 p.m.

Free entertainment will begin at approximately 11 a.m. on Saturday only and will feature a variety of traditional music, dancing and fashion shows from a wide range of cultures.

Organizers expect about 400 school children from throughout the Black Hills to attend Thursday’s events, which will include cultural activities, storytelling and traditional crafts.

Mines enrolls 140 international students from more than 35 countries this semester. They have been sharing their cultures through the annual expo for more than 40 years.

Sponsors are Ivanhoe International Center, the Student Association, International Students, Inc., Black Hills Power and Pepsi.

Annual 5K Dublin Dash set for March 16

Sporting St. Patty’s Day fare and the luck of the Irish, runners will go for the (pot of) gold at the 7th annual South Dakota School of Mines American Institute of Chemical Engineers (AIChE) Dublin Dash on Saturday, March 16.

Beginning at 9 a.m. on the School of Mines campus quad, runners will complete a 5K course ending with a post-race ceremony at Dublin Square in Downtown Rapid City. Prizes will be awarded to individuals and groups with the most original costumes.

Entry is open to the public and runners may preregister at The Runner’s Shop, the School of Mines Department of Chemical Engineering or online at Aiche.sdsmt.edu/Dublin-dash.htm for $15 per person, with a $5 discount for students. Race-day registration begins at 8 a.m. and is $20. Race entry fees will also earn participants a t-shirt and enter them for door prizes.

The main fundraiser for the School of Mines AIChE, the Dublin Dash designates proceeds to Mines students attending the national and regional conferences for the American Institute of Chemical Engineers, community outreach efforts and student scholarships.

For details, contact Willie Hinker at william.hinker@mines.sdsmt.edu or (605) 999-7540.

Facing nature’s fury: Storm chaser to speak at Mines

The public is invited to glimpse into the harrowing, heart-pounding experiences of well-known storm chaser Tim Samaras as he speaks at 5:30 p.m. Thursday, March 14, in room 204 of the Classroom Building on the South Dakota School of Mines & Technology campus.

Hosted by the Mines Weather Association, this event is open to the public. Admittance is a can of food or other nonperishable or personal care item with proceeds going to Feeding South Dakota.

A Tornado Alley veteran, Samaras spends his days careening across the country with a singular purpose: find a cyclone and place a probe directly in its raging path. Samaras measures pressure drops, the condition that triggers a tornado’s extreme wind speeds, while using high-speed photography to capture lightning patterns and stepped leaders. Data from his engineered probes lend invaluable insight into tornado dynamics and how they form, translating into precious extra seconds of warning for residents facing a twister’s fury.

In order to secure that potentially life-saving data, a storm chaser must have impeccable timing. A single traffic jam or detour and all is lost, meaning Samaras’ predictions of a tornado’s coordinates must be exact – at times, terrifyingly so.

Samaras will detail how, on a languid summer day in 2003, he traveled along a sleepy country road in rural South Dakota beneath nothing but a great expanse of blue, when suddenly a twister ripped through the sky, barreling across the landscape. Samaras deployed three probes from merely hundreds of yards ahead of the approaching cyclone. Debris whipped overhead, telephone poles snapped and were flung through the air as the town of Manchester was seemingly lifted into the sky. His probe survived the tornado’s direct hit, recording a barometric pressure drop that holds the world record to this day.

Samaras’ incredible exploits have been featured in National Geographic magazine and the Discovery Channel’s “Storm Chasers.”

Sponsors of the event are Modrick Bursch Travel, Malone Engineering, Black Hills Federal Credit Union, Black Hills Chapter of the American Meteorological Society, Simpsons Printing, Chamberline Architects and Aramark.
Veteran war correspondent visits campus

Veteran war correspondent, book author and Peabody Award winner Reese Erlich visited the School of Mines on Feb. 27, speaking about his decades of experiences in the Middle East and discussing the importance of mining professionals understanding the politics and conflicts in the mineral-rich region.

Erlich, whose stop at the Christensen Hall of Fame was part of a national speaking tour, attracted about 70 campus and community members. He engaged in an hour long question-and-answer session with the audience after his presentation, which also covered the Arab Spring in Syria, Egypt, Libya and nearby countries.

Erlich, whose history in journalism goes back 45 years, works as a full-time print and broadcast freelance journalist. He has reported from Iraq four times and has made numerous trips to Syria on assignment for National Public Radio, CBC (Canada) Radio, the Daily Beast, Global Post and others. He contributes regularly for NPR, CBC, ABC (Australia), Radio Deutsche Welle and Market Place Radio. His articles appear in the Global Post and Christian Science Monitor. His television documentaries have aired on PBS stations nationwide.

In 2003 he co-authored “Target Iraq: What the News Media Didn’t Tell You.” He has published three other books and is the recipient of numerous awards, including a shared Peabody Award in 2006 as a segment producer for “Crossing East,” a radio documentary on three other books and is the recipient of numerous awards, including a shared Peabody Award in 2006 as a segment producer for “Crossing East,” a radio documentary on the history of Asians in the U.S. In 2004 Erlich’s radio special “Children of War: Fighting, Dying, Surviving” won a Clarion Award.

Professor featured in eBook as inspiration to future female engineers

Avid Star Trek fan, law school alumna, and mathematics and computer science whiz, School of Mines professor Antonette Logar, Ph.D., can now add another impressive feat to her list: featured engineer in the first ever IEEE Women in Engineering (WIE) eBook – a publication aimed at making the field as diverse as Logar’s portfolio.

With a two-pronged goal of inspiring and empowering young women to become engineers and celebrating the achievements of IEEE women worldwide, the eBook profiles professionals in a breadth of fields, unearthing their stories and inspirations, exploring their environments and offering advice to young women. Logar’s photo is featured on the cover, as well as in the computer science section on pages 102-103 with a Q&A.

Logar boasts an impressive résumé: a bachelor’s in geology, a bachelor’s, master’s and doctorate in computer science and a law degree; a professorship in mathematics and computer science and a stint as the former interim dean of graduate education; and when she’s not in the classroom, a member of the Advanced Materials Processing research team.

With such a remarkable background, Logar may pose an intimidating figure, that is, until IEEE WIE asked for her impetus. “The honest answer is Star Trek. While most of the technical leading roles (Scotty, Spock, Sulu etc.) were male, there was the brilliant and beautiful Uhuru and a host of transient female characters who were just as technical as the main characters. I wanted to . . . save the ship with my great scientific insight,” she responded.

Though far from deep space, Logar’s mix of motivation and moxie is making a difference here at home. She has led many undergraduate research teams, including Team Blob, an all-female team that placed third in the Microsoft ImagineCup in 2010, taken a senior design team to India and is working with student researchers to create new approaches to supply-chain security and new techniques for finding defects in friction-stir welds. This summer her team will compete in Russia.

When asked for her advice to young women, Logar told the IEEE WIE: “Embrace the difficulty and appreciate that your grain of sand will eventually be part of the mountain of work that defines the solution.”

Continued from page 1

Until now, paleontologists had direct evidence only of “very large crocodyliforms” interacting with “very large dinosaurs.”

“It’s not often that you get events from the fossil record that are action-related,” Boyd explained. “While you generally assume there was probably a lot more interaction going on, we didn’t have any of that preserved in the fossil record yet. This is the first time that we have definitive evidence that you had this kind of partitioning, of your smaller crocodyliforms attacking the smaller herbivorous dinosaurs,” he said, adding that this is only the second published instance of a crocodyliform tooth embedded in any prey animal in the fossil record.

“A lot of times you find material in close association or you can find some feeding marks or traces on the outside of the bone and you can hypothesize that maybe it was a certain animal doing this, but this was only the second time we have really good definitive evidence of a crocodyliform feeding on a prey animal and in this case an ornithischian dinosaur,” Boyd said.

The high concentrations of tiny dinosaur bones led researchers to conclude a type of selection occurred, that crocodyliforms were preferentially feeding on these miniature dinosaurs. “Maybe it was closer to a nesting ground where baby dinosaurs would have been more abundant, and so the smaller crocodyliforms were hanging out there getting a lunch,” Boyd added.

“When we started looking at all the other bones, we starting finding marks that are known to be diagnostic for crocodyliform feeding traces, so all that evidence coming together suddenly started to make sense as to why we were not finding good complete specimens of these little ornithischian dinosaurs,” Boyd explained. “Most of the bites marks are concentrated around the joints, which is where the crocodyliform would tend to bite, and then, when they do their pulling or the death roll that they tend to do, the ends of the bones tend to snap off more often than not in those actions. That’s why we were finding these fragmentary bones.”

In the process of their research, the team discovered through diagnostic cranial material that these baby prey are a new, as yet-to-be-named dinosaur species. Details on this new species will soon be published in another paper.

View our video interview with Boyd
http://youtu.be/UHP6BVasmwU
New Conference Services Department tasked with expanded outreach efforts

A new Conference Services Department at the School of Mines will play a proactive role in soliciting and managing professional meetings and conferences for faculty and staff and assist in securing opportunities for campus outreach to professional organizations across the country.

Gretchen Kirchmann, previously public relations officer at the School of Mines, will manage the new department, which falls under the Office of University Relations. Kirchmann has an extensive background in event planning and management.

Conference Services will be responsible for planning, promotion, coordination and logistical support, and execution of educational, cultural and programmatic science, technology, engineering and mathematics (STEM)-related meetings, conferences and events to increase exposure of the School of Mines and its faculty and staff to a broader regional and national audience.

Conference Services will maintain offices in the University Relations studio, corner of University Loop and Technology Court, and work collaboratively with Mines departments, Surbeck Center, athletics, Downtown Campus, Aramark staff and area convention and visitor bureaus.

“The School of Mines is a tremendous resource for hosting professional conferences and symposiums. I am very excited for the opportunity to work with the Rapid City business community and my colleagues across the region to bring exposure to the gem that is the South Dakota School of Mines & Technology and the high level of STEM education we offer, which is helping our graduates attract top dollar in the marketplace,” said Kirchmann.

Students cook up something sweet during math contest

A team of South Dakota School of Mines & Technology students are waiting to hear if the recipe they cooked up during the recent 29th annual Mathematical Contest in Modeling (MCM) will bring home a prize.

Students Erica Daniels, senior, Christopher Cody, senior, and Anthony Morast, junior, all applied & computational mathematics majors, represented the School of the Mines against thousands of teams from hundreds of schools, colleges and universities throughout the world.

Teams of three undergraduate students are given open-ended complex problems where they are required to research the topic, develop a mathematical model, use a computer to simulate the model and then write a technical report. Each team had just one weekend, the weekend of Feb. 2, to complete their work.

The Mines team was presented the problem of how to model the design of the ultimate brownie pan that could be used in a standard oven with two evenly spaced oven racks. Traditional rectangular brownie pans tend to cook brownies from around the edges while dough in the middle of the pan is sometimes undercooked. One could opt to use circular cake pans, but this often wastes oven space that could be used for baking more brownies.

Mathematically modeling the flow of heat is a complicated task, one which is sensitive to the size and shape of the pan. Moreover, the property of the materials involved can also greatly influence results. The Mines modeling team was able to use sophisticated computer modeling tools from upper-level math classes to assist with its design.

Contest results should be available by April 29. To find out more about contest, visit http://www.comap.com/undergraduate/contests/mcm/.

Biometrics news takes university to new heights

It may take just one swipe of the finger to buy a bag of chips at the Miner’s Shack, but an infinite number of clicks, likes, tweets and shares propelled the university’s biometrics pilot program into a galaxy all its own.

Topping the busy fall semester filled with a number of School of Mines news stories gone viral seemed an impossible lightning-in-a-bottle game of catch. To accomplish the feat again was simply unthinkable.

But practically overnight after the Feb. 22 Associated Press feature story highlighted the South Dakota School of Mines & Technology biometrics program, the article had been published by 450 recognized news organizations worldwide. Those stories were then retweeted, commented upon, and shared by an untold number of individuals and bloggers.

While some conspiracy-theorists foretold of doom associated with the Nexus USA technology, others commented with pride on the innovative spirit of the university; and one parent even clipped the article from his hometown Indonesian newspaper, scanned and emailed it to Mines as if it were a refrigerator clipping of a child’s game-winning homerun.

The AP story was picked up by some of the biggest media outlets in the world: The Huffington Post, New York Times, Washington Post, U.S. News & World Report, Chicago Tribune and Yahoo News, to name a few. Most published the full suite of seven photos from the Mines campus; some published the link to an AP video. In addition to Indonesia, the story was published by international media organizations in other countries such as Ireland, New Zealand, Turkey, Singapore and Canada.

The advertising dollar value from the exposure of this single story may be unparalleled for the university, with coverage valued at more than $100,000.

View our digital story http://youtu.be/nqG7i5dkO0o
More than 100 professionals attend 49th annual Concrete Conference

The School of Mines hosted the 49th annual Concrete Conference on March 1, attracting more than 100 professionals in all phases of the concrete industry. During the conference the university was presented two pieces of state-of-the art testing equipment from GCC of America, Inc. valued at $135,000.

GCC, which produces cement, concrete and coal products, donated an X-Ray Florescence Spectrometer and an X-Ray Diffractometer, which students and faculty members in the Department of Civil and Environmental Engineering will use in research and development and in identifying and characterizing substances in concrete, cement and other materials.

Recent equipment upgrades in the Quality Control Laboratory at GCC’s Rapid City cement plant made the equipment available for donation to the School of Mines.

“We’re very pleased to continue our support of the South Dakota School of Mines & Technology with this donation. It will help the university continue to be a leader with respect to education and research,” said Mark Lukkarila, technical services director for GCC of America, headquartered in Denver.

It was Lukkarila’s fifth year at the conference. He was among contractors, concrete suppliers and representatives from testing firms and government agencies who traveled from throughout South Dakota and nearby states to attend the conference, “Concrete Project Management: Performance, Schedule and Cost.”

Anne Ellis, vice president of American Concrete Institute (ACI) and vice president of AECOM, delivered the luncheon address. Ellis, who has more than 32 years of experience in the architecture, engineering and construction industries, is co-author of the “Concrete Design and Construction” section of the Standard Handbook for Civil Engineers, 5th Edition.

Two Mines alumni – Cliff MacDonald, director of engineering at FORTA Corp., and Lars Anderson, manager of the quality control staff and concrete materials laboratory at Cemstone in the Minneapolis/St. Paul area – were among the featured speakers, which also included Tom Greene, regional technical services manager for Grace Construction Products, based in Houston; John Schemmel, Valparaiso University civil engineering professor; and Tony Kouindic, a founding board member of the Silica Fume Association and business manager for Elkem Materials in Pittsburgh.

ME’s efforts to support female students featured in industry magazine

The School of Mines’ efforts to boost female mechanical engineering students are featured prominently in the latest issue of PE magazine, the flagship publication of the National Society of Professional Engineers.

In a story entitled, “Women’s Work: Schools launch efforts to help boost the numbers of female mechanical engineers,” Mines’ own Lisa Carlson, mechanical engineering director of recruitment and graduate programs, is quoted often discussing her department’s statistics and a new mentoring program launched last fall to help support female students. Female Mines students are also shown working on their low-emission snowmobile design in the CAMP lab.

PE magazine is published 10 times per year and covers news and commentary on licensing, engineering ethics, employment, legislative and regulatory issues, education and other issues that have a direct impact on professional engineers.

About Legacy News

Legacy News is produced by the Office of University Relations the first Wednesday of each month. The newsletter is largely a compilation of news releases, photos and Web articles.

To submit news or story ideas or to subscribe to the email distribution list, please contact Fran LeFort, communications manager, at (605) 394-6082 or at fran.lefort@sdsmt.edu. For more South Dakota School of Mines & Technology news, visit news.sdsmt.edu.