Department of
CIVIL AND ENVIRONMENTAL ENGINEERING
V20
2016-
2017

# STRUCTURAL LAB FOCUSES ON RESILIENCE INFRASTRUCTURE

*Original story by Anne Manning*

The structural lab on Colorado State University's Foothills Campus, known in the past for looking at earthquake damage, has now expanded to focus on the resilience infrastructure of various buildings during other extreme natural disasters.

Dr. Hussam Mahmoud, the director of the structural lab, began his work at CSU six years ago. "We've been shifting our focus of the lab to extreme hazards such as earthquakes or fires; in addition, we are conducting various studies on evaluating and enhancing deteriorated infrastructure," Mahmoud said. The lab is able to test the infrastructure of buildings and bridges under service loads, tornadoes, and fires, as well as earthquakes.

In 2014, CSU was featured on Steelworks.com for its work focused on developing how to save money using advanced analysis for deteriorated steel. Mahmoud is leading a team that's devising innovative repairs for steel structures in canals and rivers – some dating back to the 1920s – that are showing their age due to corrosion, fatigue, and cracking.

In the lab, Mahmoud and his team are testing the structural integrity of large steel plates submerged in a churning water bath. The plates represent sections of a miter gate, which opens and closes in a river lock many times a day. A long, irregular crack is visible on the experimental plate's surface. The lab allows the team to analyze how cracks behave in various conditions, and how and when they lead to structural failure. In doing so, they are testing cost-effective retrofits, with the goal of slowing or stopping the effects of aging. "The presence of a crack is not a big deal, until that crack propagates, and then it becomes a big deal – to the point where the structure could collapse," Mahmoud said.

In 2017, the Structural Stability Research Council, which is the world's preeminent organization dedicated to advancing stability research for application to structures, featured Mahmoud's research on stability analysis under fire following earthquakes. "Historical earthquake events have demonstrated the destructive potential of post-earthquake fire and the vulnerability of structural systems to such multiple events. Our studies pertain to the assessment of structural performance and the potential for system collapse as influenced by post-earthquake fires. We are also developing code provisions that could be used by engineers for design and analysis."

In addition, Mahmoud and his team have been conducting research on wildfires as part of the CSU Center of Excellence for Community Resilience Planning. Their work comprises two components: (1) a model for propagation of fire in the wildlands (outside communities), and (2) a model for propagation of fire inside communities. The model allows users

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Fig. 1. Tested beam under fire


Fig. 2. Wildfire Propagation Model

## STRUCTURAL LAB *(continued from Page 1)*

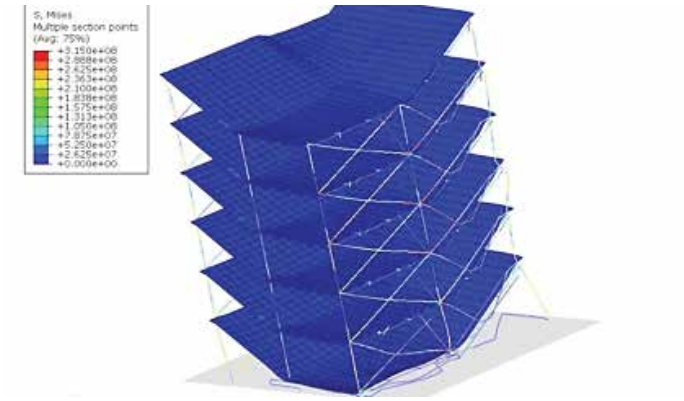


Fig. 3. Collapse of steel building under fire

to select ignition sources in the wildlands and gives the probabilistic propagation paths of fire in the forest and inside communities. “With increase in fire intensities in many states, the need for models that can predict the impact of wildfires is ever-pressing,” Mahmoud said.

Key parameters are included in these predictive models, including the effect of wind direction and speed, topography, ember generation, and attack. The preliminary model operates on various modes of heat transfer, including conduction, convection, and radiation.

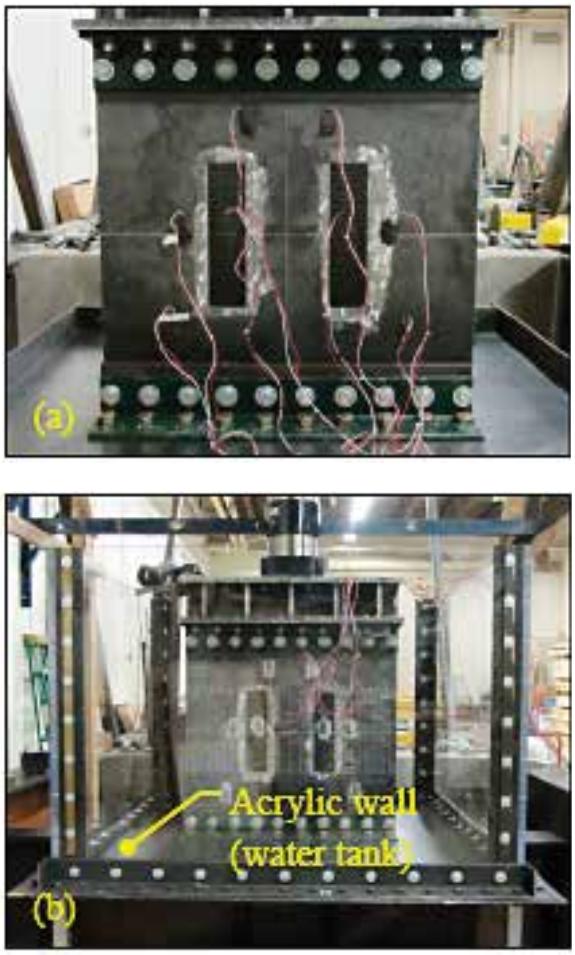



Fig. 4(a). Retrofitted specimen tested in dry condition and (b) specimen in acrylic tank tested in underwater corrosive condition

**DEPARTMENT HEAD**

**CHARLES D. SHACKELFORD**

## DEAR ALUMNI AND FRIENDS:

Welcome to the latest edition of our Department of Civil and Environmental Engineering newsletter. The department once again enjoyed considerable success over the past year. The department has seen significant growth in freshman/transfer students during the past two academic years. For example, there were 195 incoming freshman/transfer students during fall 2016, which was more than double the numbers over the past approximate 10 years, and 150 incoming freshman/transfer students during Fall 2017. Overall, our undergraduate program currently has 577 students (versus 452 students in the previous academic year), including 401 majoring in civil engineering and 176 majoring in environmental engineering.

Our graduate programs also remain strong, with 266 total graduate students, including 96 Ph.D. students, which is the highest number of Ph.D. students in the Walter Scott, Jr. College of Engineering. Also, six new faculty have joined the department (Pages 3 and 4), resulting in a total of 37 faculty, which is the largest number of faculty in the department in more than a decade.

The department also had $12.8 million in research expenditures this past fiscal year (FY17), which represented a decrease from the $14.9 million in FY16. However, both numbers represented significant increases relative to $7.5 million to $9.5 million over the previous 12 fiscal years (FY04-FY15). Finally, as documented herein, our faculty emeriti (Page 7) and alumni (Pages 9 and 10) continue to make significant contributions in their professional activities and careers. As always, we appreciate all of your support and encourage you to stay connected with your department.

# CEE WELCOMES NEW FACULTY

**Aditi Bhaskar** specializes in changes to hydrologic systems from urban development, with a focus on interactions between groundwater, surface water, and engineered stormwater and water distribution systems. Bhaskar received an Sc.B. in geology-physics/math from Brown University in Providence, R.I., and a Ph.D. in environmental engineering from the University of Maryland, Baltimore County. She was a graduate trainee of the National Science Foundation Integrative Graduate Education and Research Traineeship in "Water in the Urban Environment" at UMBC. Bhaskar was then awarded a National Science Foundation Earth Sciences Postdoctoral Fellowship, which took her to the Eastern Geographic Science Center at the U.S. Geological Survey in Reston, Va., before joining CSU.

**Ellison Carter** joined the Department of Civil and Environmental Engineering as an assistant professor last January. She earned a B.S. in biology and a B.A. in Spanish, in addition to a minor certification in chemistry, from Indiana University. After working with forest and marine ecologists in Costa Rica, she went on to complete her M.S. and Ph.D. degrees in civil engineering (Environmental and Water Resources program) from the University of Texas at Austin, focusing on indoor air quality and interventions, particularly in low-income housing. Carter then moved to a postdoctoral position at the Institute on the Environment at the University of Minnesota, where she carried out field-based studies in China concerning air quality, climate, energy, and health. Her current research combines interests and expertise in air quality, exposure science, and chemistry, and aims to answer questions relevant to energy policy and housing and transportation planning and their impacts on air pollution exposure and human health.

**Gaofeng Jia** specializes in natural hazard risk assessment/mitigation, robust analysis/design of complex engineering systems and high-performance structures, risk-informed decision-making, modeling of aging and deterioration of infrastructure, as well as automated condition assessment of civil infrastructure with the ultimate goal of enhancing infrastructure resilience. His research brings together the versatility of generalized simulation-based approaches and the efficiency of soft computing and high-performance computing to address the challenges associated with solving complex engineering problems. Jia earned his bachelor's degree in civil engineering (2007) and master's degree in disaster prevention and mitigation (2009) from Beijing Jiaotong University, China. He obtained his Ph.D. in civil engineering from the University of Notre Dame (2014). Prior to joining CSU, he worked as a postdoctoral research associate at the University of Notre Dame (2014-2015) and at the University of Illinois at Urbana-Champaign (2015-2016).

**Robert (Bob) Johnson** received his B.S. from Illinois Institute of Technology in Chicago in May 1980. During his time at IIT, he worked as an engineering intern at the firm of Wilson Andros Roberts and Noll in Chicago. Later he was employed by Sargent and Lundy Engineers in Chicago, where he worked in the fossil fuel section, inspecting power plant elements such as electrostatic precipitators, boilers, support framing, smokestacks, and chimneys, and designed repairs for same all over the U.S. Johnson then started his own firm, where, over 20 years, they designed buildings in all states, except Alaska, and in the countries of Chile, Colombia, Canada, and Germany; in total, he was responsible for approximately 11,000 projects. During his time at that firm, he earned his master's from the University of Illinois/Chicago and also taught structures to architecture students at Harper College and Judson University in the Chicago area. Johnson then came to CSU and completed his Ph.D. in 2015. During that time, he taught classes in Statics, Dynamics, Introduction to Civil Engineering, and Mechanics of Solids. In January 2017, he was selected to be a Professor of Practice by the Department of Civil and Environmental Engineering.

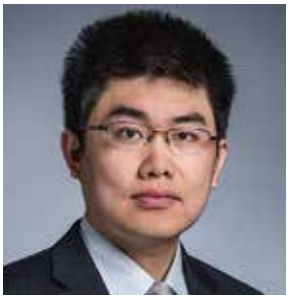
**Ryan Morrison's** research focuses on environmental flows and riverscape modifications. Specifically, his research has been centered on sustainably integrating ecological and human needs into water resource management, both from engineering and social science perspectives. His work emphasizes the impacts of river management on aquatic ecosystems while exploring new methods for mitigating management effects. Morrison earned his B.S. (2005) and M.S. (2006) in civil engineering from Washington State

*(continued on Page 4)*

## NEW FACULTY *(continued from Page 3)*

University, and his Ph.D. (2014) in civil engineering from the University of New Mexico.

Prior to joining CSU, he was a research engineer at the U.S. Geological Survey and also worked as a water resources engineer in Portland, Ore. Morrison is currently an associate editor for the *Journal of the American Water Resources Association* and a licensed professional engineer. He is looking forward to contributing to CSU's tradition of excellent research in water resource engineering.



**Tiezheng Tong** joined the Department of Civil and Environmental Engineering as an assistant professor in August 2017. He received his Ph.D. in civil and environmental engineering from Northwestern University in 2015. Before joining CSU, he worked as a postdoc research associate in the Department of Chemical and Environmental Engineering at Yale University. He graduated from Beijing Normal University (with the highest honor) and Tsinghua University with a B.S. and an M.S., respectively, both of which are in environmental engineering.

Tong aims to use interdisciplinary research approaches to promote environmental sustainability at the water-energy-health nexus. His current research areas include developing novel membrane materials and processes for sustainable water supply, as well as understanding ecological and health impacts of engineered nanomaterials.

## ON A PERSONAL NOTE

**Dan Baker** and his wife, Season, welcomed twins River Adeline (left in photo) and Maple Mae (right) to our world on Nov. 12, 2016.

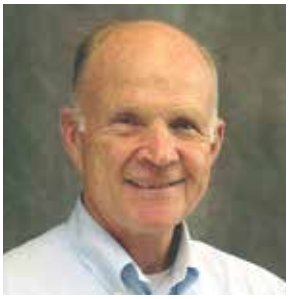
**Joseph and Niki Scalia** welcomed their first, Lillian, on Friday, Jan. 26 – five weeks early! All are doing just fine.

## FACULTY AWARDS

**Mazdak Arabi,** Borland Professor of Water Resources in the Department of Civil and Environmental Engineering, was the recipient of the 2016 Walter Scott, Jr. College of Engineering's George T. Abell Outstanding Mid-Career Faculty Award. Arabi was recognized for his exceptional ability and propensity to procure large, multidisciplinary and multi-institutional center-based research funding, such as the Water Sustainability and Climate Center sponsored jointly by the National Science Foundation and U.S. Department of Agriculture (2012-2017; $1.5 million); the Center for Comprehensive, Optimal, and Effective Abatement of Nutrients, sponsored by the Environmental Protection Agency (2013-17; $2.99 million); and the Urban Water Innovation Network: Transitioning Toward Sustainable Urban Water Systems, sponsored by the NSF (2015-20; $12 million).

**Bruce Ellingwood** was awarded the 2016 Alfred M. Freudenthal Medal from the Engineering Mechanics Institute of ASCE "for the unique role that he has played in introducing concepts of probability, statistics, and structural reliability to structural engineering, and for transforming structural reliability from academic research specialty into a mainstream of structural engineering practice."

In addition, Ellingwood received the very prestigious ASCE 2017 OPAL Award, which is for professors and deans whose careers are marked by achievements that direct or change the course of engineering education. Ellingwood was also appointed as a College of Engineering Eminent Scholar by the Walter Scott, Jr. College of Engineering. This appointment, the first of its kind, was in recognition of his many accomplishments and honors throughout his career, and for his significant leadership contributions advancing the reputation of the WSCOE at CSU.



**Neil Grigg** was awarded the EWRI Lifetime Achievement Award in May 2016, which is presented to members who are judged to have advanced the profession, exhibited technical competence, and significantly contributed to public service, research, or practice in the environmental and water resources profession.

**John Labadie** was one of two recipients to receive the Warren A. Hall Medal which recognizes "exceptional accomplishments and distinction of an individual in the water resources field." The Hall Medal is considered the University Council on Water Resources' most prestigious award and is presented to those who have demonstrated a career-long commitment to exemplary interdisciplinary scholarship and academic excellence in water resources.

In March 2017, **Hussam Mahmoud** received the very prestigious AISC's Early Career Faculty Award. This award is to provide recognition to individuals who demonstrate promise in the areas of structural steel research, teaching, and other contributions to the structural steel industry.

In March 2016, **Jorge Ramirez** was recognized by Online Engineering Programs as one of the top 20 professors across the U.S. for online education in civil engineering.

**John van de Lindt** received the ASCE 2017 Ernest E. Howard Award for his influential work to advance the understanding of the performance of wood buildings under extreme hazard loading. The awarding committee recognized van de Lindt's contributions that have advanced seismic design of cross laminated timber systems.

## DEPARTMENTAL AWARDS

**Staff Award for Excellence:** Linda Hinshaw and Laurie Alburn

**Faculty Award for Excellence in Teaching:** Daniel Baker

**Outstanding Faculty Performance:** John van de Lindt

**Faculty Award for Excellence in Service:** Timothy Gates

**Faculty Award for Excellence in Research:** Thomas C. Sale

**Outstanding Research Scientist/Instructor:** Jens Blotevogel

**Outstanding Academic Partner:** Greg Black

**Outstanding Grad Student:** Matthew Peacock

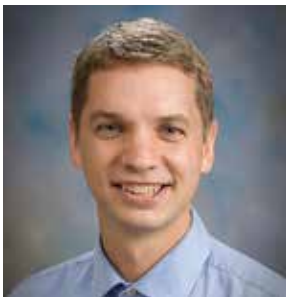
## DEPARTMENT HEAD TRAVELS

Although being department head and teaching keep **Charles Shackelford** extremely busy, he continues to present his research at various international conferences, having been the invited speaker for the International Workshop in Villars-sur-Ollan, Switzerland, January 2017; the GeoVancouver Conference 2016 in Vancouver, British Columbia, Canada, in October 2016; and the Geo-Chicago 2016 Conference in August 2016, and he presented an invited seminar at the Hong Kong University of Science and Technology in August 2016. In addition, he has represented the department internationally at various conferences and alumni events. Shackelford and several faculty participated at the international hydraulic/water conference in Lima, Peru, in September 2016. Pierre Julien and Neil Grigg were two of five keynote speakers; Rob Ettema presented a paper; and Jorge Ramirez and Shackelford participated in three sessions focused on Water Resources Education, Leadership, and Research. In addition, the department sponsored a very successful alumni reception, pictured below.

# FACULTY NEWS

**Rebecca Atadero** received a grant totaling $1.9 million over five years from the National Science Foundation for a collaborative project with about $752,000 going to West Virginia University and $313,000 to University of Denver. The NSF's funding comes through its Improving Undergraduate STEM Education program. This project will expand on a 2014 grant that was aimed to integrate diversity and inclusion concepts into first-year classes. This effort will expand beyond the CSU campus to a total of four universities (the fourth partner school will be selected sometime in 2018). The first project surveyed students over the course of only one semester.

Rather than adding additional courses to the curriculum, Atadero and colleagues at the partner institutions plan to incorporate technical examples and case studies that highlight diversity and inclusion into existing course material. For the first year of the grant, Atadero and the research team will work to implement first-year activities at CSU, West Virginia University, and University of Denver, while also working with course instructors to develop new activities for sophomore-level courses. By Fall 2019, course material will be introduced into first-year and sophomore-level classes, with junior-level classes following in Fall 2020. Information will be collected and interpreted from data collected from participating students throughout the study.
*Original story by Jessica Cox*



**Ryan Bailey** received a $488,000 award from the USDA for the project "Improved Modeling Framework for Assessing Phosphorus and Nitrogen Transport in Tile-Drained Watersheds." The project focuses on developing and testing numerical models to simulate the transport of nutrients (phosphorus and nitrogen) in watersheds that contain subsurface drain networks. Subsurface drains help lower water tables and achieve higher crop yield, but also act as pathways for nutrient loading to nearby streams. The developed model will be applied and tested in watersheds in Colorado, Iowa, and Indiana, and then used to assess management strategies and ecosystem service provisioning in these watersheds. Co-PIs on the project include Jordan Suter from the Department of Agricultural and Resource Economics at CSU, and Katrin Bieger and Jaehak Jeong from the Texas A&M AgriLife Research and Extension Center.

**Susan De Long** heads up a four-member multidisciplinary team working to remove certain contaminants from water supplies for a project funded by the CSU Water Center.

"Pharmaceutical and personal care product chemicals are now routinely being detected in lakes, rivers, and even drinking water, because conventional wastewater treatment plants do not effectively remove these chemicals from our water," De Long said. "Some of these chemicals have also been found in foods that were irrigated with water containing very low levels of these contaminants. Our research is focused on developing low-cost, environmentally sustainable technologies to remove these contaminants from our waters, using naturally occurring, safe types of bacteria."

In addition, De Long received a joint faculty appointment with the chemical and biological engineering department at CSU. De Long's research interests cross over with this department well. Her research is, by nature, interdisciplinary, leveraging approaches and laboratory methods from the fields of environmental engineering and molecular biology, and she advises a CBE master's student on a project focused on bioelectrochemical production of graphene oxide.

Peter Nelson looks on at a field exercise.

**Peter Nelson's** five-year National Science Foundation CAREER grant had its second highly successful summer outreach program this year at CSU. The program's aim is introducing underrepresented populations to science and engineering. The students participated in a full week of activities.

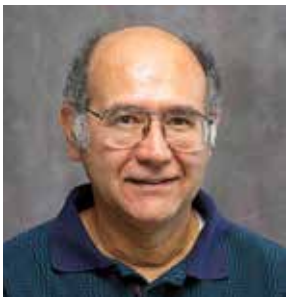
One project for the students involved learning about the health of a water ecosystem by analyzing the diversity of fish and insect species found in it. Ten high school students waded through Spring Creek, sampling fish and insects. Along with leading the stream ecology activity, Nelson guided the students through several other activities, including surveying the creek behind the Lory Student Center, taking a tour of Water Works, and discussing the Colorado-Big Thompson Project while exploring Horsetooth Reservoir. He also introduced students to his work studying the effects of the 2012 High Park Fire on flooding and sedimentation at Skin Gulch, and facilitated experiments using a stream table at the Engineering Research Center.
*Original story by Jessica Cox*

# FACULTY EMERITI

**Steven Abt** was presented the ASCE 2016 Hydraulics Structure Medal at the annual EWRI Congress in West Palm Beach, Fla., last May. The award recognized his research contributions in the areas of riprap design, quantifying erosion at culvert outlets, and adjusting Parshall Flume discharge measurements due to settlement. Abt retired from CSU in June 2016 after a 47-year association, having served in many capacities as faculty and administrator. Since 1973, he served in the U.S. Army Reserve, Corps of Engineers, and was promoted to major general in 2006.

The Colorado Distance Learning Association presented **Darrell Fontane** with the 2016 Distance Learning Teacher of the Year Award at their conference in Denver. Fontane officially retired from the department in May 2016, after 33 years of dedicated service, having served in the capacities of professor, associate department head, and director of the International School for Water Resources. As director of the International School for Water Resources, he was responsible for organizing and administering special, non-degree training for international engineers in various aspects of water resources engineering. Fontane personally conducted water resources training in more than 12 countries. A beloved faculty member of students, Fontane was appointed as a University Distinguished Teaching Scholar, Colorado State University, 2013; and received the 2012 Jack E. Cermak Advising Award, Colorado State University; the 2010 Faculty Award for Excellence in Teaching from the Department of Civil and Environmental Engineering; and, in 2008, the BOG Excellence in Undergraduate Teaching Award given by the CSU Board of Governors.

**Ramchand Oad** retired in May 2016. His professional career focused on promoting economic welfare through sustainable development and management of water resources for agriculture. In addition to teaching and research at CSU, Oad has worked with the office of the State Engineer, cities of Colorado Springs and Denver, and North Colorado and Central Colorado Conservancy Districts on several issues related to water management. His most recent ongoing work was with the Interstate Stream Commission in New Mexico, where he supervised research on options to improve irrigation water use efficiency in the Middle Rio Grande Valley. Oad had extensive work experience in many developing countries, where he has worked as consultant for the World Bank, Asian Development Bank, and the USAID. He has long-term resident work experience in the Middle East and several Asian countries, including Egypt, Pakistan, and Indonesia.



**Jose Salas** and Jayantha Obeysekera, Ph.D., civil, ’82, were honored by receiving the esteemed Norman Medal for their paper, “Revisiting the Concepts of Return Period and Risk for Nonstationary Hydrologic Extreme Events,” published in the ASCE’s *Journal of Hydrologic Engineering* and its specialty organization, the Environmental and Water Resources Institute. This is the highest honor granted by ASCE for a technical paper that “recognizes a paper that makes a contribution to either practical or research aspects of engineering disciplines.”

In addition, the International Association of Hydrological Sciences conferred on Salas and his former student the 2016 STAHY best paper award for the same paper.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Please send alumni news, article suggestions, comments, questions, corrections, and address updates to: linda.hinshaw@colostate.edu or call (970) 491-5049.

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## LEADERSHIP SEMINARS STARTED IN 2017

The department began a leadership seminar series where various leaders, i.e., department heads and deans from other engineering colleges and civil engineering departments, come to visit as an opportunity to exchange information on the activities of each college/department and to present to faculty at CSU the strategic plans for their colleges and departments.

The department is pleased to have brought Samuel W. Easterling, department head of the Civil and Environmental Engineering Department at Virginia Tech; M. Katherine Banks, vice chancellor and dean of Texas A&M Engineering; Jerome F. Hajjar, CDM Smith Professor and chair of the Department of Civil and Environmental Engineering, Northeastern University; and Craig H. Benson, dean of the School of Engineering and Applied Science at the University of Virginia.

Samuel W. Easterling

M. Katherine Banks

Jerome F. Hajjar

Craig H. Benson

# TWO INTERNATIONAL EXCHANGE PROGRAMS NOW RUNNING IN THE DEPARTMENT

### US-PAKISTAN CENTER FOR ADVANCED STUDIES IN WATER

This project is sponsored by the United States Agency for International Development. The department is the major subcontracting partner with the University of Utah, which leads the project. Other partners include the Stockholm Environment Institute, the City University of New York, and the UNESCO-IHE Institute for Water Education. The purpose of the project is to build a state-of-the-art applied research center in water resources at Mehran University of Engineering and Technology in Pakistan to (1) improve private sector innovation and modernization, (2) strengthen government policy to stimulate economic growth, and (3) contribute solutions to Pakistan's development challenges in the water sector. The major activities include curriculum development, exchanges and scholarships, and applied research. CSU focuses on the areas of irrigation and drainage, hydraulics, and integrated water resources management.

*(From left to right)* Dr. Munir Babar, Tim Gates, Wali Daudpota, Allan Andales, and Jose Chavez. Babar and Daudpota were faculty at the US-Pakistan Center for Advanced Studies in Water at Mehran University of Engineering and Technology and were exchange scholars here last year.

### GERENS PROGRAM

The department has an agreement for water authority training with GERENs, a private school in Lima, Peru. The program is managed through the department's International School for Water Resources. Major activities include curriculum, training, certification, and field visits. As a member of the CONSORCIO, CSU will organize and develop internships aimed at participants who obtain the top places in merit order at the completion of the Diploma Program in Integrated Management of Hydrological Resources in each of the three locations, in accordance with the technical proposal presented by the CONSORCIO. The objective of this activity is to contribute to the strengthening of the knowledge and the experience of the participants relative to water resources management out of the country.

As part of the Diploma Program, the top three Diplomats will visit the Department of Civil and Environmental Engineering for a one-week training internship. The first three to attend were William Salas, agricultural engineer from Chiciayo, Peru; Lourdes Guadalupe Escobar, chemical engineer from Arequipa, Peru; and Abner Zavala, agricultural engineer from Lima, Peru; pictured with Dr. Neil Grigg and Dr. Charles Shackelford.

# ALUMNI NEWS

**Lloyd Gronning** (M.S., civil, ’76) is president and owner of Capital Program Management Services LLC, which provides management services to water development organizations undertaking large capital programs. Serving as program adviser, the company’s services have included capital program planning, project delivery alternatives analysis, assistance with selection of consultants, and staffing of the programs to maximize owner control. This work follows Gronning’s prior work as a program manager for the Southern Nevada Water Authority water program. Earlier in his career, he was the utilities director for the city of Thornton, Colo., and provided engineering services to cities in Colorado through his own consulting firm.

**Tissa Illangasekare** (Ph.D., civil, ’78) was awarded a Prince Sultan Bin Abdulaziz International Prize for Water for his work to improve the fundamental understanding of fluid flow and chemical transport in porous media through innovative multi-scale experimentation and modeling, leading to the reliable prediction of the long-term fate of pollutants in groundwater systems and the behavior of multiple phase fluids in shallow and deep geologic formation.

**Peter McCornick** (M.S., ag, ’86; Ph.D., ag, ’89) was appointed the executive director of the Robert B. Daugherty Water for Food Institute in April 2016. McCornick has led research and development efforts on water, agriculture, and the environment in Africa, Asia, the Middle East, and the United States, and has interests in water and food security, the water-food-energy nexus, water reuse, irrigation management, and water and climate adaptation. He served as deputy director-general for research at the International Water Management Institute in Colombo, Sri Lanka.

**Cindy Paulson** (M.S. civil, ’87) has been working with Brown and Caldwell since she graduated from CSU in ’87 and is now their chief technical officer, overseeing the company’s range of technical services and solutions. She also serves as the executive director for the California Urban Water Agencies.

**Frank Rijsberman** (Ph.D., civil, ’87) the former CEO of the Consultative Group for International Agricultural Research Consortium, was appointed as the director-general of the Global Green Growth Institute. Rijsberman began a four-year term leading the organization on Oct. 1, 2016, succeeding Yvo de Boer.

**Thomas Tan** (M.S., civil, ’88), a longtime P.E. and S.E. in the state of California, started a love affair with running in 2015. So far, he has finished six half-marathons and one full marathon, all in Southern California. He is looking forward to running a lot more full marathons outside the Southern California area.

**Gye Woon Choi** (Ph.D., civil, ’91) received CSU’s 2016 Distinguished International Alumni Award in October 2016. Choi is a proud alumnus of Colorado State University, with exemplary experiences in water resources management. His outstanding leadership is highlighted through his past appointments as the 13th president and chief executive officer of K-water, secretary-general of the World City Water Forum, secretary-general of the International Conference on Hydro-Science and Engineering 2000, vice president of the Korea Water Forum, chairman of the Korea National Committee on Large Dams, vice president of the Korean Civil Engineering Association, and founder and first president of the Asia Water Council.

## ALUMNI NEWS *(continued from Page 9)*

**Sediqa Hassani** (M.S., civil, ’15) and **Laurel Saito** (M.S., civil, ’92; Ph.D., civil, ’99) had a chance meeting in Almaty, Khazakhstan, while attending a conference on “Empowering Women in Water Resources Management in Central Asia and Afghanistan.” Saito was a professor with the Department of Natural Resources and Environmental Science at the University of Reno and has now accepted the position as the Nevada Water Program director for The Nature Conservancy of Nevada.

Hassani is currently at Avicenna University in Afghanistan and is busy with her project addressing, for the first time, Afghanistan’s challenges in managing its water resources through an integrated approach.

(photo courtesy of ACEC)

**Mary Andre** (B.S., civil, ’93; M.S., civil, ’99) was awarded the 2016 American Council of Engineering Companies of Colorado Outstanding Colorado Woman in Engineering. She was acknowledged for her ability to develop and maintain strong professional relationships among clients, project team members, associates, regulators, and contractors by promoting genuine understanding and trust. Andre is a principal and project manager of Civil Design Consultants in Steamboat Springs, Colo.

**Howard Perko** (M.S., civil, ’96; Ph.D., civil, ’02) of Magnum Piering was voted to the Deep Foundation Institute’s board of directors in December 2016. Perko is also instructor for the department, co-teaching a project management course for our undergraduates and graduate students.

**Kristoph Kinzli** (B.S., civil, ’03; M.S., civil, ’05; Ph.D. civil, ’10) accepted a position at Colorado School of Mines. As our Ph.D. with a second M.S. in fisheries he is highly qualified in hydraulics and ecological engineering. Prior to Mines, Kinzli was at Florida Gulf Coast University.

**Steve Middlekauff** (B.S., civil, ’09; M.S., civil, ’11) is a civil engineer with the Eastern Colorado Area Office of USBR (since March 2016). He recently worked on managing operations of the Colorado-Big Thompson Project and will also take on stream and reservoir gaging for the Fryingpan-Arkansas Project.

**Nathan Alburn** (B.S., civil, ’10; M.S., civil, ’14) was inaugurated as president of the ASCE Northern Colorado branch in October 2016. In addition, **Sean Franklin** (B.S., civil, ’13) was named president of the Colorado section of the American Society of Civil Engineers on Oct. 20, 2016. Franklin is currently a civil design engineer at Galloway & Company Inc.

**Pasamon Pechrasuwan** (M.E., civil, ’13) worked at Black & Veatch in Thailand on a nuclear power plant project. He is now a consulting analyst at Frost & Sullivan in Thailand.

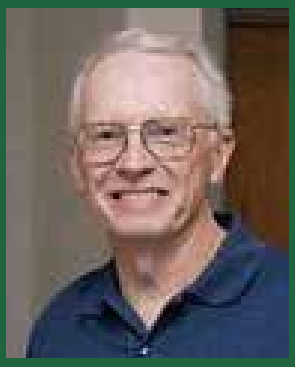
**Wenyun Tang** (B.S., civil, ’14) is currently employed with AECOM in the Oakland office as a civil engineer. After completing his bachelor’s degree at CSU, he received an advanced degree from Stanford’s Environmental Fluid Mechanics and Hydrology program.

**Jake Christensen** (B.S., civil, ’15) is currently attending Chicago Kent Law School with a major in intellectual property. Congratulations are in order, as he made the dean’s list in 2016.

**Kayla Whitehead,** now Zowada, (B.S., environmental, ’15) is currently employed with CVL Consultants in south Denver. Whitehead was married July 8, 2017, to **Michael Zowada**, seen here paddling off into the sunset on their wedding day.

# IN MEMORIAM

**Forrest M. Holly Jr.,** Ph.D., civil, ’75, passed away May 22, 2017. In the course of attaining his formal education, Holly worked short periods with the U.S. Army Corps of Engineers in Vicksburg, Miss., and with Northwest Hydraulics Consultants in Edmonton, Alberta. In 1968, his thesis adviser at CSU was noted hydraulician Daryl Simons. Holly’s special expertise was in computational hydraulics, particularly the modeling of dispersion and water-quality processes and flows in alluvial rivers. Upon graduating with the Ph.D., Holly worked for a year with the consulting firm Dames and Moore in Washington, D.C., then moved overseas to Grenoble, France, where he spent the next five years (1976-81) at SOGREAH (Société Grenobloise d’Etudes et d’Applications Hydrauliques). SOGREAH, an engineering firm initially associated with the hydraulics laboratory at the University of Grenoble, was renowned for its work in civil engineering hydraulics. While at SOGREAH, Holly worked with leading computational hydraulicians Alexandre Priessmann and Jean Cunge, developing numerical models for hydraulics applications. Holly became a visiting engineer in the Mathematics Department at the University of Reading, England. There, he pursued the development of numerical methods for modeling pollutant dispersion in two-dimensional situations of unsteady flow in rivers.



**Douglas Whitt** passed away July 7, 2017, in his hometown of Radford, Va. Whitt retired from Colorado State University after 25 years as lab manager of the Ag Engineering Department, where he earned the honor of being awarded the first patent assigned to a state classified employee in the 100 years of the school’s existence for a Soil Moisture Probe Extraction Device he designed.

**Paul Lewis Irvin,** B.S., bioresource and agricultural engineering, 2004, passed away unexpectedly at the age of 35 on May 17, 2016. Irvin graduated from Lamar High School in 1999, and the CSU Department of Civil Engineering in Fort Collins. As a student, Irvin was an active member of the quarter-scale team. After graduating, Paul went on to work with the USDA/ARS Water Management Research group at CSU for a few years.

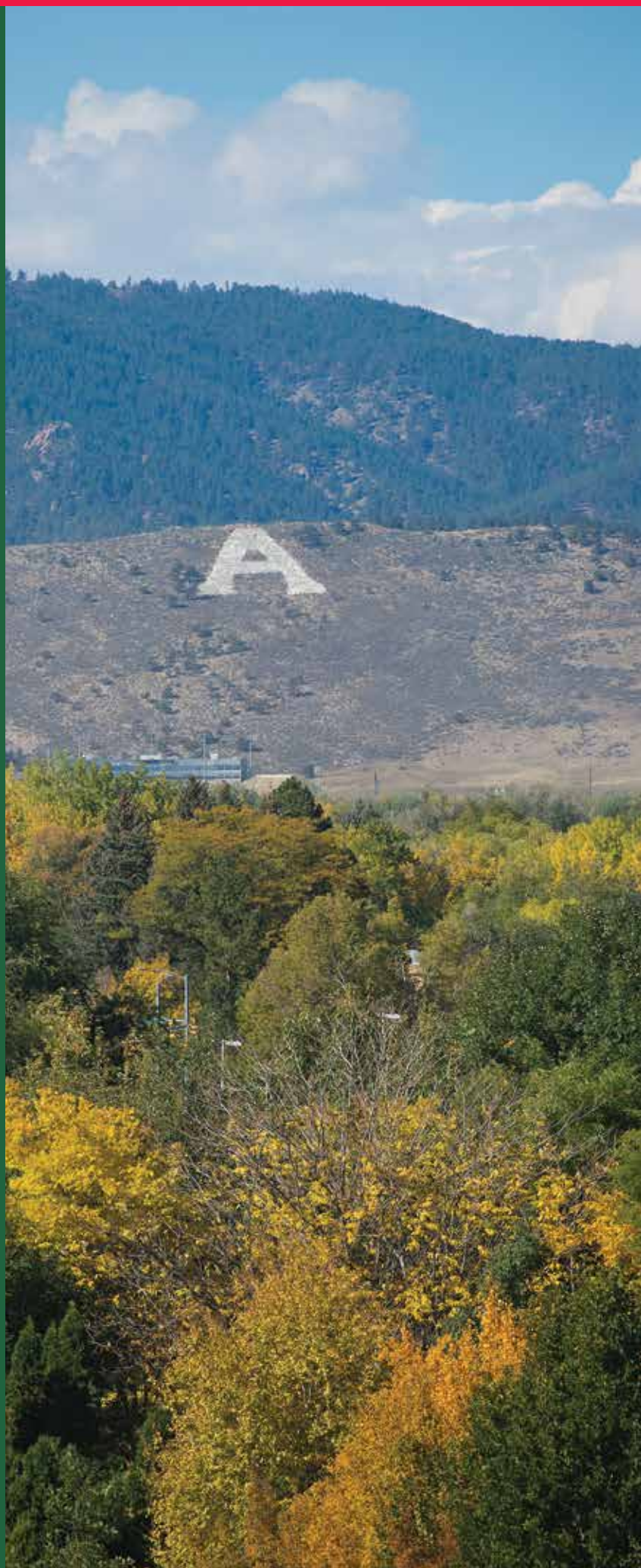
**Cody Oser,** B.S., civil, ’15, passed away on April 8, 2017, while working as a Peace Corps volunteer in Panama. Oser was known as a caring and giving individual, and had participated as a student member of CSU’s student chapter of Engineers without Borders during his undergraduate studies. As a student member of EWB, Oser worked closely with a broad range of students from across the University as well as with the faculty advisers of EWB, Dr. Christopher Bareither (Department of Civil and Environmental Engineering) and Dr. Andrea Purdy (Department of Languages, Literatures and Cultures), in assisting the village of La Criba, El Salvador, in enhancing their water supply and distribution system. Bareither remembers Oser’s participation in EWB well: “Cody was an invaluable member of EWB during his time at CSU; he was an excellent engineer and an outstanding person. Cody was willing to sacrifice everything to improve the lives of those less fortunate than ourselves. He will be missed dearly by the EWB family at CSU and by family and friends throughout the world.”

# IN MEMORIAM

**Evangelos (Evan) Vlachos,** emeritus professor of sociology and civil and environmental engineering at Colorado State University passed away at age 81 in Boulder. Vlachos joined the faculty at CSU in 1967 and spent more than 40 years engaged in teaching, administration, applied research, faculty governance, and consulting. His work was interdisciplinary and included integrated water resources planning and management, urban planning, technology assessment, demography, and social forecasting. His projects were both in the U.S. and abroad, including projects in Europe, South America, and the Middle East.

Vlachos was instrumental in obtaining the first International UNESCO Water Center in North America in 2009, which was hosted by the International School for Water Resources in our department. Vlachos received the 2009-10 Office of International Programs Distinguished Service Award for having made a significant impact campuswide on the internationalization efforts of Colorado State University.

In July 2011, Aristotle University of Thessaloniki honored Vlachos with an honorary doctorate of civil engineering, pictured at right. CSU President Tony Frank noted "Evan has been a global ambassador for Colorado State University throughout his long and distinguished CSU career, embodying the land-grant commitment of putting academic research to work for the benefit of our planet and its people. We are enormously proud of all he has achieved and grateful for his influence on the advancement of water resources at CSU."



# STUDENT NEWS

In May 2016, notification came that a CIVE 439 project team, taught by Kimberly Catton, entered the national 2015 EPA Rainworks competition and placed in the top 16 entries in the country. The project goal was to create an innovative new solution to treat stormwater runoff from CSU's James L. Voss Veterinary Teaching Hospital. Their solution would replace an outdated drainage ditch with a more environmentally beneficial, sustainable, and aesthetically pleasing meandering bioswale.

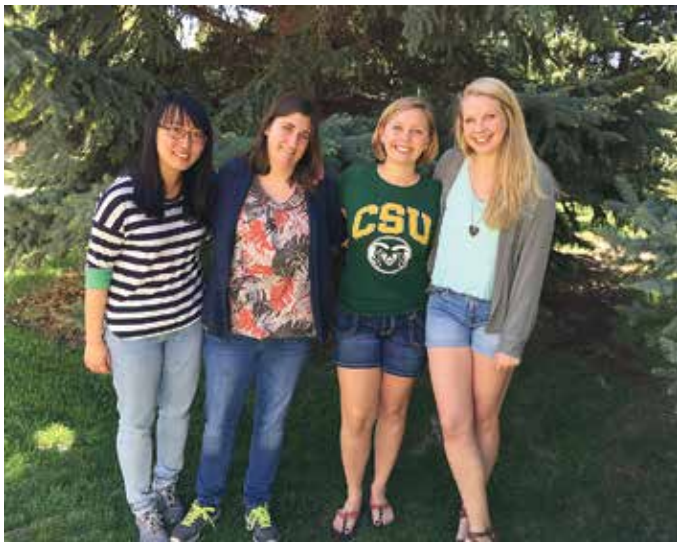
## E-DAYS AWARDS

Two students in the Department of Civil and Environmental Engineering were awarded Certificates of Merit for the prestigious Colorado Engineering Council Medal of Award in Silver (Silver Medal Award). The Silver Medal Award is presented annually to graduating senior engineering students in the several schools designated by the CEC. The recipient is selected from among three top students nominated by each school for consideration and interviewed by the Engineering Council Student Awards Committee. Emilie Abbott (environmental engineering) and Cayla Cappelo (civil engineering) were selected as two of the three recipients being nominated to the CEC from the Walter Scott, Jr. College of Engineering at CSU.

In addition, the department recognized Kole Van Treese with the Outstanding Civil Engineering Student Award, Lana Millard with the Civil Engineering Achievement Award, Abel Fuhrmann with the Civil Engineering Student Leadership Award, Emilie Abbott with the Outstanding Environmental Engineering Student Award, Daniel Stringer with the Environmental Engineering Achievement Award, Aaron Kolb with Environmental Engineering Student Leadership Award, and Taylor Hogan with the Ralph Parshall Award.

## ASCE STUDENT ORGANIZATION PLACES HIGH AT REGIONALS

This year, our student organization shined at the ASCE regional competitions in Salt Lake City, Utah. Our steel bridge team placed second overall out of 14 teams, earning themselves a spot at the national competition in Corvallis, Ore., on May 26-27, 2017. The bridge won first place for economy and display, second for construction speed, and third for stiffness and efficiency. The concrete canoe team placed third overall out of 11 teams. They won third for their design paper and final product, and second for oral presentation. Our team placed third in the co-ed sprint, and they braved very chilly, rainy weather for the races. We won third place with a technical paper by Jenna Howard and third place for the nontechnical paper by Micah Gibbons. CSU finished third overall for the entire conference.




CIVE 439 project team (left to right): Liting Tao, Caroline Michael, Natalie Thompson, Griffin Cullen

Our steel bridge team placed second overall out of 14 teams, earning themselves a spot at the national competition in Corvallis, Ore.

The concrete canoe team placed third overall out of 11 teams.

## STUDENT NEWS *(continued from Page 13)*

**Colin Geminden** had the privilege of working at DIA, which is now DEN. He found Denver International Airport to be a great place to work. He could shadow project managers and go to the construction sites on the airfield, whether it be runways, taxiways, or service roads. Geminden attended project update meetings conducted by the project managers. After going to these meetings for 10 weeks, Geminden said, "I have come to understand the importance of communication and coordination in engineering." He was also able to do some design work on a few in-house design projects, including a service road reconstruction project and a smaller one that he coined as the AOB Parking Assessment. This is one he hopes to see implemented at DEN by the end of the year.

**Jeffrey L. Mansfield,** online M.S. student, accepted a position as public works director/city engineer for the city of Pocatello, Idaho.

Ph.D. student **Molly McLaughlin** was awarded the 2016 Graduate Student Award in Environmental Chemistry from the American Chemical Society. This award recognizes graduate students who are working in areas related to environmental chemistry. The award is based on student transcripts and record of research productivity, and a letter of recommendation from the faculty adviser.

**Lana Millard** was selected for the Summer 2016 program with KaTO Design Inc., an architecture studio in Richmond, Va., that designs schools and community buildings in developing countries. For eight weeks, Millard worked with a team of eight students from around the country to design a community center for a low-income housing development near Monterrey, Mexico. The team traveled to Mexico for one week to meet the client firm, visit the site, study architecture precedence in the area, and identify the needs of the community. After returning to the U.S., the students worked closely with professional architects and engineers on the design and construction documents for the project. Millard graduated from CSU in May 2017 with a bachelor's in civil engineering.

**Nicolette Peerman** had an internship with Arrow Electronics in June 2017. Peerman worked with Arrow's S-Tech team, also known as Sustainable Technology Solutions Group. Through her internship, she was given four main projects: creating a U.S.-based donation program through S-Tech; creating a digital map of all S-Tech Arrow facilities and S-Tech partnered facilities; helping with the renaming and relaunching of Arrow Valley Recovery to S-Tech.Arrow; and competing in the internship project/competition. The project this year was creating a recycling program that Arrow can roll out across all Arrow facilities.

**Robert Queen** was awarded a prestigious research award from the Hydro Research Foundation, which leads the Hydro Research Awards Program, designed to stimulate new student research and academic interest in research and careers in conventional or pumped storage hydropower. The awards are made possible by a grant from the Energy Efficiency and Renewable Energy Program of the U.S. Department of Energy. The awards include a stipend, tuition, fees, University-provided health insurance, and travel costs to attend the Annual Hydro Fellows Roundtable. The student's adviser, Dr. Peter Nelson, received $2,000 annually for aiding in and supervising the research.

**Emily Valenzuela,** M.S. student, was selected by the ASCE Society Awards Committee as a recipient of the 2017 Arthur S. Tuttle Memorial Fellowship. Through the generosity of former ASCE President, Arthur S. Tuttle, a scholarship bequest was established in 1983. The Arthur S. Tuttle Fellowship may be presented annually to not more than four students, who will use the fellowship for their first year of graduate studies. The purpose of the fellowship is to further the education of worthy students in any civil engineering discipline.

## NEW GRADUATES – WHERE ARE THEY NOW?

**Derek Adams,** B.S. civil, ’16, is working as an assistant bridge engineer for Rocksol Consulting Group in Loveland, Colo.

**John Brustuen,** B.S., civil, ’16, is a civil design engineer for Jansen Strawn Consulting Engineers/ Ware Malcomb in Denver.

**Chandler Croneigh,** B.S., civil, ’16, is working for J.R. Engineering in Denver as a civil engineering I.

**Krystle Ervin,** B.S., civil, ’16, is employed with Bishop Brockman Associates in Denver as a water resource engineer.

**Trey Farrell,** B.S., civil, ’16, went on to Kimley-Horn as an engineer in training in Land Development.

**Jessica McCallum,** B.S., civil, ’16, obtained a position with Kimley-Horn in the Land Development office.

**Kayla Moden,** B.S., civil, ’16, has gone on to graduate school at CSU.

**Darren Peterson,** B.S., civil, ’16, is working for LPR Construction in Loveland as a pre-construction engineer 1.

**Natalie Thompson,** B.S., civil, ’16, has gone on to graduate school.

**Emilie Abbott,** B.S., civil, ’17, is a staff engineer working for Parker Water & Sanitation.

**Nicholas Contreras,** B.S., civil, ’17, is a civil engineering designer at Gannett Fleming in Colorado Springs, Colo.

**Abel Fuhrmann,** B.S., civil, ’17, is a project engineer at Neenan Archistruction in Berthoud, Colo.

**Ron Hickman,** B.S., civil, ’17, is a geotechnical engineer at Freeport-McMoran Copper & Gold Inc. in Phoenix, Ariz.

**Lauren Hudak,** B.S., civil, ’17, is getting her master’s degree at CSU.

**Matthew Kapp,** B.S., civil, ’17, is working for MWH, now part of Stantec, in Fort Collins, as a geotechnical engineer in training.

**Hillary Nicholas,** B.S., civil, ’17, plans to go on to graduate school.

**Erin Knibbe,** B.S., civil, ’17, is a water engineering intern at the city of Fort Collins Utilities.

**Matthew Pauly,** B.S., civil, ’17, stayed on at CSU for his master’s degree.

**Rose Sorenson,** B.S., civil, ’17, joined AECOM’s Dam Division in Denver as a water resources engineer.

**Jacob Sphatt,** B.S., civil, ’17, is an engineering associate with Rocksol Consulting Group.

**Jacob Stein,** B.S., civil, ’17, is a staff engineer at Manhard Consulting in Centennial, Colo.

**Trevor Kent,** B.S., civil, ’17, is getting his master’s degree at CSU.

**Yi Wang,** B.S., civil, ’17, went on to graduate school at the University of Texas at Austin.

**Jack Wiederecht,** B.S., civil, ’17, went on to AP Construction as a field engineer in Aurora, Colo.

# NEW GRADUATES

### FALL 2016

*Front row:* Shannon MacQueen, Noelle Fillo, Brianna Corsi
*2nd row:* Darren Peterson, Jessica McCallum, Tanner Smith
*3rd row:* Dawood Alameer, Vance Holzmann
*4th row:* Katelyn Smith, Brian Connell, Robert Parks, Caroline Michael
*5th row:* Forrest Shafer, Richard Greeley
*6th row:* Joseph Satriana

### SPRING 2017

*Front row:* Camille Wright, Austin Wand, Easton Archibald, Christina Ankrom, Emilie Abbott, Rose Sorenson, Yi Wang

*2nd row:* Kacy Williams, Matthew Kapp, Elias DeLaCruz-Arreola, Connor Seacrest, Jacob Eisenberg, Jenna Howard, Allison Kuhlman, Lauren Hudak, Erin Dunn, Daniela Gonzalez, Alexandra Corcoran, Kelsey Seibel, Kalli Wegren, Lana Millard, Cayla Cappello, Laurie Alburn, academic adviser; Dr. Daniel Sunada

*3rd row:* Sharon Seiler, Jonathan Cronin, Taylor Hogan, Jacob Stein, John Ahern, John Andrews, Rachel Acker, Daniel Stringer, Cody Alton, Trevor Kent, Nicholas Contreras, Daniel Egger, Dr. Charles Shackelford, Dr. Chris Thornton, Dr. Neil Grigg

*4th row:* Jacob Sphatt, James Waller, Zacary Fry, Ryan Ernst, Abel Fuhrmann, Ron Hickman, Kyle Seyedian, Daniel Campbell, Kole Van Treese, Matthew Pauly, Andrew West, Clay Mullins, Dr. Joseph Scalia

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