



# July 21, 2016

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## 2016 High School Educator of the Year



### **Rich Schultz, Cheyenne Mountain High School**

Rich Schultz recently retired from teaching at Cheyenne Mountain High School. He has coached students to countless victories at the NSPE Region 2 and the NSPE-CO state Bridge Building contests. Rich has also led students in architecture competitions and Rube Goldberg contests. In addition to these activities Rich taught Autocad, Architecture, and Problem Solving. Prior to his time at Cheyenne Mountain High, Rich taught woodshop at Cheyenne Mountain Junior High. He has encouraged students to enter into math, science, and engineering related careers.

## 2016 College Educator of the Year



### **Ray Littlejohn, PhD - University of Colorado Engineering Management Program**

Dr. Ray Littlejohn is the W. E. Deming Professor of Management at the University of Colorado's Engineering Management graduate program. He received his PhD in Applied Statistics from the University of Oklahoma in 1977. In teaching graduate level applied statistics courses and Six Sigma methods, he equips his students with the skills necessary to make statistically-informed decisions about complicated engineering, industrial, and business problems. He has trained hundreds of engineers in skills that empower them to translate statistics-based technical solutions into business reality.

## 2016 Student of the Year



### **Maito Okamoto, Colorado School of Mines**

Maito Okamoto has been an active member of SASE (Society of Asian Scientists and Engineers) since his freshman year, taking up the role of treasurer for the group his sophomore year. During the beginning of his junior year he was elected to be the Webmaster for ASCE (American Society of Civil Engineers) as well as taking on the position of club president for AGC, (Associated General Contractors). He has experience surveying as well as drafting from the Colorado School of Mines Civil engineering field session where he also served as a tutor.

He has a wide variety of experience ranging from office work as well as in field experience and manual labor. This experience has allowed him to understand the importance of both being in field and in the office when it comes to designing or constructing in the civil engineering industry.



### **Finalist:**

**Patrick Lee - Colorado School of Mines**

# 2016 Young Engineer of the Year



## **Kelly Rhoades, P.E. – Design Engineer, Zachry Engineering**

A graduate of Colorado School of Mines with a BSE and Masters in Engineering with an Emphasis on Power Systems, Kelly Rhoades has been with Zachry Engineering for nearly 10 years. In addition to being a dedicated Engineer, she is committed to her community. At Zachry, she instituted a mentoring program and co-chairs a team that organizes and executes community volunteer projects. She is also a “Connection Partner” in the Denver office, serving as an advocate for interns transitioning into the Zachry culture. She is a member of the Junior League of Denver and Advisor to the Colorado School of Mines Sigma Kappa Sorority, consisting mostly of Engineering Students. Kelly serves as state secretary for NSPE-CO.



## **Finalist:**

**Kelly Allegar - Martin+Martin Consulting Engineers  
Bachelors of Science in Civil Engineering Colorado State University**



## **Finalist:**

**Susan Tran - United Launch Alliance**

# 2016 Minority Engineer of the Year



## **Victor Sam, P.E. Stantec Consulting**

Victor Sam has earned a Bachelors of Science in Environmental Engineering (Certificate in Biomedical Engineering) and a Masters of Science in Civil Engineering (emphasis in Environmental Engineering and Toxicology) both from Colorado State University.

He started his engineering career in summer of 2012 at Tetra Tech as part of the oil & gas and mining water treatment team. He currently works as an Environmental Engineer working in the water/wastewater infrastructure team. Through the Society of Asian Scientists & Engineers, he has mentored students from both Colorado State University and Colorado School of Mines. He shares his experiences as a student and emerging Engineer to help give his mentees perspective and insight on the profession. Victor has also spearheaded collaboration between disciplines in his work and his involvement in organizations.

**Nominations for all categories were submitted by individual members, chapters and friends of NSPE-CO. Award finalists and honorees were selected by a panel of judges from among all entries received. Finalists were not designated in some categories. Three committees, each composed of 3-4 NSPE leaders, reviewed entries in assigned categories.**

**Our thanks to those who made nominations, the outstanding review teams and our sponsors.**

# 2016 Woman Engineer of the Year



## **Noelle Cochran, P.E., F-NSPE Vice President/Operations Manager AECOM Technical Services**

Noelle Cochran, P.E., F-NSPE, has been a member of NSPE for almost 30 years, served as NSPE-CO president, and has been recognized as an NSPE Fellow at the national level. This year marks the 30th year she has volunteered with the Colorado MathCounts program for middle school students. She currently is the state competition coordinator.

Throughout her career, she has been focused on furthering the engineering profession through mentoring and supporting the technical growth of engineers, managing business operations in compliance with engineering rules and providing leadership on contractual and financial issues. At AECOM (previously URS), she is a Vice President/Senior Engineer/Senior Project Manager, leading multi-faceted and complex environmental investigation and remediation projects. As Operations Manager with AECOM, she provides guidance to staff regarding the Professional Engineering profession including obtaining the required experience for licensure and compliance with local engineering requirements.



### **Finalist:**

**Jane Aschermann - Martin+Martin Consulting Engineers  
Bachelors of Science in Civil Engineering University of Colorado**

# 2016 Public Sector Engineer of the Year



## **Kevin Houck, P.E., State of Colorado, Colorado Water Conservation Board**

In his current State leadership position, Kevin Houck, P.E. interacts directly or indirectly with hundreds of engineers and other water or environmental specialists throughout the State of Colorado. He is consistently advocating health, safety and welfare of the public as the primary decision making criteria in accomplishing his department's mission.

He works frequently with the Attorney General's Office, the Legislature and stakeholder groups to develop and implement new statutes, regulations, and policies that are pertinent to his agency's mission. His influence has resulted in prioritizing resources to accomplish adoption of resilient flood plain management decisions instead of continuing the status quo. He influences groups to implement science based decisions utilizing technical analysis instead of political expediency as their primary decision making tool.



## 2016 Project Manager of the Year

### **JR Whipple, P.E., Knott Laboratory, LLC**

JR Whipple worked in the structural design field prior to joining Knott Laboratory Forensics Engineering & Animation. He has worked to become an outstanding Engineer, project manager, client manager, and mentor to the team at Knott Laboratory. He constantly strives to help others understand the complex structural concepts and coordinate with all members of the design, investigation, and construction team. Clients and staff members respect his understanding, communication, and flexibility when it comes to complex situations involving insurance and legal cases.

He works to help young engineers and non-engineers understand the importance of having licensed professional engineers involved with developing solutions to civil and structural problems. By gaining additional certification as SE, he helps spread the word regarding the specialized training and study necessary to understand and analyze today's complex structural systems. He also works with clients, contractors, other engineers, architects and attorneys to understand the role of the Professional Engineer and the need for licensed professionals on each project.

## 2016 Manager of the Year

### **Charles H. Piersall III, P.E. – Deputy Director, Modeling & Simulation Operations, Missile Defense Agency**

Chuck Piersall earned a Bachelor of Science, Marine Engineering, from the US Naval Academy at Annapolis, MD in 1983. For the next 23 years, he operated nuclear powered submarines around the world. His work included operation of a nuclear reactor and the main propulsion and associated auxiliary equipment. In 2006, he joined Lockheed Martin as Systems Engineering Manager. In 2010, he joined the Missile Defense Agency where he is Deputy Director, Modeling & Simulation Operations. He has led a team of talented systems engineers that employ agile software development techniques to enhance the missile defense system to improve the defense of the United States from ballistic missile threats.

Chuck has served as president of both NSPE-CO and the Pikes Peak Chapter of NSPE-CO. He is an active member of the engineering community, promoting engineering and STEM Programs, and is a dedicated and generous mentor recognizing and encouraging young engineers in their pursuits. He has successfully helped many young engineers find jobs by reviewing their resumes, providing advice and contacting engineering firms on their behalf. One of his unique and excellent assets is his generosity in giving of his time to promote the engineering profession.



# 2016 NSPE-CO Special Recognition

## Michael E. Aitken, P.E., F.NSPE, LEED AP O+M, CxA

In June, NSPE-CO Past President Michael Aitken was elected NSPE vice president, to serve as national president in 2018-19.

Michael served on the NSPE-CO Board and Executive Committee since 2012. He was NSPE-CO President in 2013-14. He was a key member of our state Strategic Plan task force as we worked to bring the principals of NSPE focus “the Race for Relevance” to Colorado. Michael served as an NSPE-CO representative to QBS Colorado for multiple terms. He is a strong advocate for the profession and for STEM programs that are cultivating the next generation of Professional Engineers. He has advised First Robotics and has been a strong supporter of other youth programs.

In 2015-16, Michael served on the NSPE national board of directors as Southwest Region Director. He has made personal visits to all of the states in the Southwest region. From day one as regional director, he was committed to meeting with state leaders and members across the region. His commitment to the region demonstrates his leadership style, commitment to NSPE and dedication to serve.

Michael is a self employed entrepreneur who started his own company, MEA Consulting Engineers, LLC. He is licensed as a Professional Engineer in 28 states across the country, in every region of NSPE. Upon his election to Vice President, Michael was honored with the status of NSPE Fellow (F-NSPE).

## NSPE Fellow Gene Burdick, P.E., F-NSPE, PLS

Gene Burdick joined NSPE in 1972, and he has been an active member ever since. For over 40 years he has served the association at the chapter, state and national level.

He was elected Chapter President of the former Jefferson Chapter within four years of joining NSPE. Eleven years after joining he was elected State President of what was then the Professional Engineers of Colorado (now NSPE-CO), followed by six years in service representing Colorado as Alternate National Director. He has actively participated in many regional and national meetings, including the national kickoff for MathCounts in Washington DC.

Gene has been on the Colorado State Board of Directors for many years, and served as a member or chair of numerous committees. Probably no other NSPE-CO member has participated in more board meetings, more committee meetings and more educational programs than Gene.

In 2008, he was awarded a “Director Emeritus” title, which could suggest that his service was wrapping up. It wasn’t. He continued to be very involved in impactful and significant ways to serve the needs of the association.

In 2013, the NSPE-CO Central Chapter experienced a sudden and serious leadership void. Unexpectedly, existing leaders stepped down, potential leaders stepped back. Gene Burdick stepped up. At 80, retired with 40 years of service to NSPE behind him, Gene volunteered to again serve as President of the Chapter. Upon his election by membership, he went to work immediately building a young and motivated leadership team around him. He worked effectively with emerging leaders less than half his age to strengthen the foundation of the chapter and ensure its long-term health. He actively worked to create a diverse leadership team, and welcomed views from people very different from himself. He was forward thinking and proactive as he led the state’s largest chapter.

Gene served as a very special president during that term. He used his wealth of leadership experience to the chapter’s advantage, but didn’t simply rest on what had been done before. He was forward thinking, motivating and willing to listen and learn from those around him. He was unwavering in his support for others and NSPE. He bridged the generations.

He continues to be one of the most dedicated and committed members of NSPE-CO, and is a mentor and role model to many including members, leadership and staff. We congratulate Gene on his much deserved selection as NSPE Fellow.

# 2016 Residential Project of the Year



## **RMG – Rocky Mountain Group “Tella Firma Foundation System”**

This project is a 2200 square foot, two-story, single family home built in the Rockrimmon area of Colorado Springs, CO. The foundation used for this structure utilized a unique and innovative system which addresses the problematic soils typical for this area of the city.

RMG-Rocky Mountain Group, the geotechnical engineer, encountered highly expansive claystone underlying the house footprint. Mitigation options were presented which included either a 5 foot over-excavation/removal of the clay soils and replacing with non-expansive soil or installing a deep foundation system that will support a structural floor.

Due to the cost of importing non-expansive fill and the difficult access for over-excavating the sloping site, the deep foundation option was chosen. Typical deep systems can also be expensive due to the structural floor and crawlspace clearance requirements. In addition, the garage was located at the basement level which would have required a structural framed floor. Instead, the engineering team chose a foundation system known as a Tella Firma™ Foundation. which consists of creating a level pad site and then installing a grid of deep 12" diameter piers at approximately 12' o.c. to support the structural loads. A 5.5" thick concrete slab is poured directly on the ground. After 3 days, the post-tensioning cables within the slab are tensioned to strengthen the slab. The slab is then mechanically raised 8" above the soils. The method used to raise the slab is provided by specially engineered lifting mechanisms previously embedded into the slab at each pier location. Once the slab is raised, the resulting void space between the slab and soil isolates the structure from the damaging effects of the expansive clay. This application was the first opportunity in Colorado to use this system for a basement foundation.

The 9' basement walls were constructed on top of the structural slab with reinforcement extending from the slab into the walls. The walls were designed as a cantilever system eliminating the need for periodic counterfort supports. This resulted in the entire basement structure acting as a “rigid box”, resistant to future deflections. Overall, the design solution was less expensive and resulted in a structurally sound foundation system.

### **Partners Included:**

**Dale Daugherty, Designer (Architect); General Contractor: S&R Construction, Colorado Springs, CO. Concrete Contractor: M&M Construction, Woodland Park, CO; Basement Wall Contractor: Rusin Concrete, Colorado Springs, CO; Local Distributor for Tella Firma™ Lifting Mechanisms: Colorado Foundation Solutions, Colorado Springs, CO; Technical Advisor for Tella Firma™ Foundation System: Mike Kelly—Colorado Foundation Solutions, Colorado Springs, CO; Key Individuals: John Lohman—PTI Certified Field Inspector, Bill Donald—CFS Construction Consultant, John Clarke, P.E.—RMG Foundation Design**



# 2016 Private Sector Project of the Year



## **Knott Laboratory LLC – “Advanced Forensic Engineering Analysis of a Shooting Incident”**

Knott Laboratory was asked to perform an investigation of a shooting incident in which a police officer shot and killed a fellow police officer while attempting to clear the backyard of a residence at night.

The purpose of this investigation was to evaluate the available evidence and reconstruct the shooting incident, including analysis of bullet trajectories, shot group precision and accuracy analysis, and an evaluation of the shooting position and visibility assessment moments before the first officer shot and killed the other officer. Knott Laboratory performed a thorough inspection of the shooting site which included using high-definition laser scanning and collected a point cloud of approximately 439 million three-dimensional data points documenting the evidence and the site. This point cloud was used to create a highly accurate (within a few millimeters) three-dimensional model of the site in virtual space. The digital model of the site was put into a three-dimensional, interactive virtual environment allowing Knott Lab to move around and view the shooting site from any position and any angle; perform bullet trajectory analysis; perform shot group analysis; test and analyze the position of the two officers during the shooting.

Knott Laboratory performed photogrammetry on provided scene photographs to attain accurate positions and measurements of evidence and other objects. They also performed videogrammetry on Police Department’s Helicopter’s Forward Looking Infrared Radar (FLIR) video footage which captured the police officer’s position before the shooting and then his final position after he was shot.

Knott Laboratory also constructed a full-scale mock-up of the backyard area where the shooting occurred and set it up in their Motion Capture Lab to collect and analyze the motion of surrogates for the shooter and victim. They also used the mock-up to conduct biomechanical testing to reconstruct the stance and pose of the victim as well as testing how the victim’s handgun fell.

Knott Laboratory mechanical engineers worked very closely with the animators and the visualization department and relied heavily on three-dimensional data and digital models to build visual tools to aid in the reconstruction of this shooting incident.

With 3D models, ballistic testing, and visualization analysis Knott Laboratory was able to perform trajectory analysis with a level of accuracy and precision that was not possible with previous reconstructions.



**National Society of  
Professional Engineers–Colorado**

**[www.NSPE-CO.org](http://www.NSPE-CO.org)**