Assessing Avalanche Conditions to Reduce Risk

According to the Colorado Avalanche Information Center (CAIC), during the 2003-2004 winter season 2106 avalanches were reported in Colorado, seven people were buried and three people were killed. Through his work at the CAIC, Ethan Greene, Colorado State atmospheric science alumnus (M.S. 1999) and current geosciences doctoral candidate, promotes safety. He does this by reducing the impact of avalanches on recreation, industry and transportation in the State through a program of forecasting and education. As Director of the CAIC, Greene utilizes his technical background in atmospheric science and experience as a backcountry skier to generate mountain weather and avalanche forecasts, supporting snow safety programs and backcountry recreation throughout the State of Colorado. Greene was awarded the American Avalanche Association’s Special Service Award for his publication entitled Snow, Weather, and Avalanches: Observational Guidelines for Avalanche Programs in the United States.

In addition to his full-time position as CAIC director, Greene is a full-time doctoral student. He is currently writing his dissertation on “The microstructural and thermophysical effects of an artificial ice lens in a natural snow cover,” which examines how heat moves through a simple layered snow structure and how its layered character affects the nature and number of the ice bonds.

Through his Ph.D. research, avalanche research and recreational activities, Greene has traveled the world. His Ph.D. project, a collaborative effort with the Swiss Federal Institute of Snow and Avalanche Research, has taken Greene to Davos, Switzerland. As an extreme kayaker, he has explored many of the world’s major rivers, from British Columbia to Nepal and parts of South America. He has also traveled to Vienna as a member of a working group charged with revising snow cover classification.

Although busy with the CAIC and doctoral work, Greene still finds time to spend with his wife Dana, and 15-month-old daughter Elona, possibly even skiing a run or two on the slopes in the winter!

“Atm”

Ethan analyzes snow crystals in the Colorado mountains near Cameron Pass.

“Assessing Avalanche Conditions to Reduce Risk”

Ethan Greene and friends surveying an avalanche in January 2006.

“Assessing Avalanche Conditions to Reduce Risk”

Ethan Greene and friends surveying an avalanche in January 2006.
Sustainable Energy Fuels Passion

When Jim McMillan (B.S. 1982) entered Colorado State’s chemical engineering program, the energy crisis in the 70s was just ending and U.S. leaders were interested in finding more sustainable transportation and energy solutions. Federal agencies and universities were just starting to explore new energy alternatives, and as an environmentally aware undergraduate, McMillan was eager to help develop these solutions. A research assistantship at the Engineering Research Center gave him this opportunity and fostered a burgeoning interest in applying biochemical engineering to convert renewable plant-based materials into fuels and chemicals. The knowledge he gained about conducting biochemical engineering research put him a step ahead of his graduate school colleagues when he enrolled at MIT for his master’s and doctoral degrees.

Today, as a senior engineer and group manager at the National Renewable Energy Laboratory (NREL), McMillan is taking his interest in alternative energy and sustainable technology development to the next level. He leads and participates in a variety of bioprocess R&D projects to advance the production of fuels and chemicals from abundant, inexpensive lignocellulosic (fibrous) biomass materials such as agricultural and forestry residues and cellulose industrial wastes. During his 15 years at NREL, Jim has investigated most aspects of biologically-mediated biomass conversion, including pretreatment, hydrolyzate conditioning, pentose and mixed sugar fermentation, cellulase enzyme production, simultaneous and separate enzymatic hydrolysis and fermentation, and integrated processing. Through his work, he is helping to develop the tools, knowledge base and processing strategies that will enable lignocellulose-based biorefineries to become a commercial reality in the coming decades.

In between projects and national AIChe committee work, he likes to go for long bike rides and travel the world, habits he developed growing up and when he took a year off between high school and college circumnavigating the world, learning about the people and ecosystems from England to Afghanistan and beyond.

Jim stays connected to his department and college, serving on advisory boards and doctoral thesis committees. His passion for educational and environmental causes has never waned, but has only gotten stronger. Jim’s commitment to creating a sustainable future has inspired other young people to pursue their own aspirations to make the world a better place to live. As Jim says, if you love and believe in what you do, you’ll work hard and have fun doing it!

Jim touring Secretary of Energy Bodman through the NREL National Bioenergy Center biomass conversion pilot plant.

Jim led the 2002 “Insect Invasion” Boulder kinetics entry by the Cyclepathz Kinetic Sculpture team. (He is the big bee, front left.)

Chemical and Biological Engineering Alumni Facts

Number of CBE alumni: 745
States in which alumni live: 43
(In order of number: CO, TX, CA, IL, MA, WA, MN, OR, VA, AZ, NJ, NC, IN, NM, ID, FL, NY, PA, WY, LA, MD, MI, OH, UT, WI, CT, NV, OK, AK, GA, MO, NE, SC, IA, TN, MT, OH, AL, DC, HI, KS, SD, VT, WV plus alums in the armed forces in Europe, Middle East, and Canada)
Countries in which alumni live: 13
(In order of number: United States, India, Malaysia, Saudi Arabia, South Korea, Thailand, Puerto Rico, South Dakota, Argentina, France, Greece, Mexico, Singapore, Taiwan)
Earliest class year with living alumi: 1979
CBE alums who married other CSU alums: 91
CBE alums with more than one CSU degree: 40

“The Professor I remember most, was my guide, Professor Terry G. Lenz. He was such a gracious person and right from day one, took me under his wing and was a source of inspiration. His understanding of thermodynamics—one of the most difficult subjects—was simply amazing.”

Sabya Patnaik, M.S. 1988

“I vividly and fondly remember the Colorado Bioprocessing Center and the staff, students, and academics that made it a fun, interesting and challenging place to work and in which to do my graduate research. Many people who worked there are spread throughout the small world of biotechnology, several of us in the San Francisco bay area. And, I often think of Professor Allen Rakow who was a great source of advice and encouragement, and who is greatly missed on this planet. I also credit him for starting my sushi habit!”

Raven biotechnologies, Inc.
South San Francisco
Civil & Environmental Engineering Alumni Facts

Number of CE alumni: 5,080
States in which alumni live: 50
(Countries in order of number: CO, CA, TX, WA, AZ, FL, VA, NM, OR, IL, WY, NY, ID, AK, NE, NV, MT, KS, MD, MN, OH, UT, MA, PA, HI, MI, MO, MS, NC, OK, GA, IA, WI, TN, NJ, SD, CT, LA, NH, IN, AL, SC, KY, VT, DC, ME, AR, RI, DE, ND, WV, GU, plus alums in the armed forces in Europe, Middle East, Canada and the Pacific)
Countries in which alumni live: 93
(Countries in order of number: United States, Thailand, Pakistan, Brazil, Taiwan, Canada, South Korea, Egypt, India, Indonesia, Japan, Mexico, Iran, Iraq, Spain, Philippines, Ecuador, South Africa, Sudan, Afghanistan, Italy, Australia, Chile, Dominican Republic, Germany, Honduras, Jordan, Malawi, Peru, Switzerland, Tunisia, France, Kuwait, Libya, Nepal, Nigeria, Portugal, Tanzania, United Kingdom, Argentina, Greece, Kenya, Lebanon, New Zealand, Nicaragua, Peoples Republic of China, Serbia, United Arab Emirates, Yugoslavia, Zambia, Virgins Islands, Algeria, Antigua, Austria, Bangladesh, Belgium, Brunei, Cameroon, Costa Rica, Cyprus, Denmark, El Salvador, Eritrea, Ethiopia, Ghana, Guyana, Hungary, Ireland, Israel, Ivory Coast, Jamaica, Laos, Mali, Mauritania, Netherlands, Oman, Palestine, Qatar, Sierra Leone, Singapore, Somalia, Sri Lanka, Sweden, Syria, Uganda, Yemen, Zimbabwe)
Earliest class year with living alumi: 1931
CE alums who married other CSU alums: 663
CE alums with more than one CSU degree: 186

“One of my favorite memories is the day we ‘blew up’ the oval. I was taking Dr. Dan Sunada’s ground water course and he demonstrated how seismic techniques could be used to map subsurface formations. He marched the class out to the oval and we began digging holes and placing geophones in the ground. Dan then placed half a stick of dynamite in each hole and proceeded to blow them up and record the response. Clearly our class was the envy of every student on campus that day. I currently work with seismic imaging every day. Thanks for the preview of a very useful technology!”
Greg Peters, M.S. 1977
Reservoir Engineering Manager, Nigeria
ExxonMobil Development Company
(Greg’s son, Tyler, is a senior at CSU in Mechanical Engineering)
**Professor Impacting Surgical Profession Through Research and Education**

Utilizing problem-solving skills rooted in her educational background, Dr. Leigh Neumayer (B.S. 1981) is making a positive impact on the lives of patients, medical students, and residents as professor of surgery at the University of Utah. With an interest in math and physics and a mechanically inclined mind, Dr. Neumayer knew that engineering science was a good path for her and would provide an excellent background for the medical profession.

After leaving CSU, Dr. Neumayer earned her medical degree from Baylor College of Medicine and a master’s degree in clinical research design and statistical analysis from the University of Michigan. Today, Dr. Neumayer serves on a multidisciplinary team treating breast cancer at the Huntsman Cancer Institute, and is a specialist in surgery of the thyroid and parathyroid glands. She holds adjunct appointments in obstetrics and gynecology, as well as family and preventive medicine, and is principal and co-investigator on a number of research projects in the medical field.

In addition to improving the care that surgical patients receive, Dr. Neumayer works to bring more women into the surgical field. As principal author of a University of Utah study on the perceptions of women medical students and their influence on career choice, Dr. Neumayer found that women’s choice of surgery as a career was strongly associated with a higher proportion of women on the surgical faculty. Today, just over 20 percent of residents in surgery are women in comparison to approximately 50 percent in medical school classes. Dr. Neumayer has continued to support women in the surgical field by letting them do more in the operating room, and by showing them that being a mom and a surgeon are not mutually exclusive. Dr. Neumayer and her husband, David, have three children. Although now residing in Utah, Dr. Neumayer will never forget her experiences at CSU, especially the camaraderie with her classmates, and two of the professors that had a strong influence on her, Drs. Michael Histand and Michael Wells.

**Engineering Science Alumni Facts**

- Number of ES alumni: 444
- States in which alumni live: 39
  (In order of number: CO, CA, TX, AZ, FL, WA, VA, GA, NM, IL, NY, OR, MI, NV, OH, TN, ID, NE, NC, AK, DC, IN, MD, MA, MO, MT, NH, UT, WY, AL, HI, IA, KY, ME, MN, NJ, OK, PA, SC, WI)
- Countries in which alumni live: 2
  (In order of number: United States, Puerto Rico)
- Earliest class year with living alumi: 1968
- ES alums who married other CSU alums: 75
- ES alums with more than one CSU degree: 81

“The professor I remember most is Byron Winn because he challenged and inspired me to be the very best I could. He has remained an important influence in my life.”

“I also vividly remember spending late nights in the basement of the Engineering building, working at the card punch machine, walking down the long hall to the computer center to submit my programs, waiting hours for results, and then back to the card punch machine again to fix typos.”

Susan Hock, B.S. 1978
Director, Electric & Hydrogen Technologies & Systems Center
National Renewable Energy Laboratory

“I remember all of my classmates who are now doing a wide variety of wonderful things. One fond memory as E-Leg VP when we, as E-Leg officers, had general access to use the Dean’s Office and spent an all-nighter there organizing events for E-Days. Also, I recall when the small, but determined, Engineering Science program won our fair share of E-Days events and took home the Woodsie Wood from E-Days.”

Wade Troxell
Interim Associate Dean for Research and Economic Development
College of Engineering, Colorado State University
Tagging and Tracking Go High-Tech

With “noses” 1000 times more sensitive than that of a dog, honeybees have been RFID tagged and trained to seek out landmines as part of a Defense Advanced Research Project Agency (DARPA) project. Radio Frequency Identification (RFID), an automatic identification system incorporated into products, animals and almost every item on the planet, has grown into a multi-billion dollar industry, quickly replacing bar codes in conglomerates such as Wal*Mart and the Department of Defense. Helping the technology develop and flourish over the years, Ron Gilbert, CSU electrical engineering alumnus (B.S. 1978, M.S. 1980) and chief technology officer at Integral RFID, brings 17 years of experience to the small RFID consulting and innovations company. Integral RFID specializes in custom niche applications. Gilbert has used RFID tags to monitor everything from honeybees to railroad cars. Previous to his work at Integral RFID, Gilbert served as the director of hardware engineering for Alien Technology, a world leader in RFID tags and readers, and is co-founder of WaveID, an early RFID company spun out of the Pacific Northwest National Laboratory.

Currently, Gilbert is gearing up for a polar bear project funded by universities and the USGS in Alaska. Kicking into high gear in March 2006, Gilbert will be responsible for the identification of tagged animals via planes, a project scheduled to be filmed and documented by both National Geographic and the BBC.

Raised in Fort Collins, Gilbert stems from a long line of CSU alumni. Gilbert’s father, Doug Gilbert, served as head of the Department of Wildlife Biology until 1980. His mother, Dorothy Gilbert, still an avid alumna, helps in the dietetics department, and his sister, wife, and multiple other relatives graduated from CSU. While attending the University, Gilbert not only succeeded within the electrical engineering department, but also excelled in music and was awarded a trombone scholarship. “Synthesizing” these two interests even won him first place at the Engineering Days competition for his senior design project entitled “A digitally controlled music synthesizer.”

Today, after working on projects in virtually every major city in the nation, Ron Gilbert resides in Washington State, enjoying the great outdoors while continuing to help RFID technology grow and evolve.

“Tagging honeybees to find landmines has been a unique experience. The project has taught me about the importance of collaboration and innovation in the field of technology.”

Ron Gilbert, B.S. 1978, M.S. 1980
Green Engineering for Future Generations

“Life is not about ‘either-or,’ it’s about ‘and-both.’” Judy Dorsey, CSU alumna (M.S. 1992) and founder of The Brendle Group, epitomizes this ardent attitude in all aspects of her life, according to Julie Sieving, Brendle Group senior engineer.

After graduating from Colorado State University, Dorsey formed The Brendle Group, an engineering consulting firm specializing in energy efficiency, pollution prevention, water conservation and sustainable design, in memory of her mother, Eileen Brendle Dorsey. Through her entrepreneurial success, Dorsey daily exemplifies her philosophy by helping companies both augment profits and adopt sustainable business practices. As a recipient of the Northern Colorado Business Report’s Forty under 40 award, recognizing emerging leaders in Northern Colorado, and as an involved mother of two, Dorsey has maintained a flourishing business and a successful family.

Located in Fort Collins, The Brendle Group and its staff of engineers have conducted over 100 energy efficiency and pollution prevention assessments. Some of their projects include work with various Colorado school districts, the State of Colorado Capital Complex facilities, and the Northeast Metro Pollution Prevention Alliance which is focused on installing and measuring energy-efficient projects in small businesses. The Brendle Group earned the 2005 Governor’s Pollution Prevention Award for the company’s sustainable management system, and is the first Colorado company to be climate neutral, with a goal of being “zero waste” by 2010.

“Judy is a leader in the application of sustainable management, joining energy and environmental opportunities based on sound business practices,” says Wade Troxell, associate dean in the College of Engineering.

Personally, Dorsey continues to give back to the University that sparked her interest in sustainable design and pollution prevention, an interest inspired by mechanical engineering Professor Harry Edwards. She serves as an adjunct faculty member in the department and is on the Advisory Board for Colorado State’s Institute for the Built Environment. Recently, The Brendle Group worked with CSU’s NetEnergy design team, Vail Resorts and the National Ski Areas Association to develop renewable resources and energy storage for ski resorts.

With so many professional accomplishments at this stage in her career, Dorsey’s colleague Sieving affirms that Dorsey “has shown that entrepreneurship is a vehicle for both business success and living one’s value system.”

Mechanical Engineering Alumni Facts

Number of ME alumni: 3,203
States in which alumni live: 50
(In order of number: CO, CA, WA, TX, AZ, NM, FL, IL, MI, ID, VA, MN, NY, OR, KS, IA, OH, UT, PA, GA, NC, MA, WI, TN, WI, MD, NV, IN, MT, CT, AK, OK, HI, NE, NJ, AL, MO, AR, KY, SC, DC, SD, MS, NH, ME, VT, LA, ND, RI, WV, DE, plus alums in the armed forces in Europe, Middle East, Canada and the Pacific)
Countries in which alumni live: 26
(In order of number: United States, Japan, Saudi Arabia, Tunisia, Malaysia, Pakistan, Canada, Egypt, India, South Korea, Switzerland, Taiwan, Turkey, North Mariana Islands, Australia, Brunei, Columbia, Cyprus, Germany, Kuwait, Mexico, Netherlands Antilles, Paraguay, Sudan, Sweden, Thailand)
Earliest class year with living alum: 1934
ME alums who married other CSU alums: 417
ME alums with more than one CSU degree: 135
We regularly hear amazing stories about our engineering alumni – their work, their hobbies, their passions. In these pages we’ve assembled a few of these stories. We plan to share many more in the future.

You’ll also see memories that fellow classmates and friends have recalled in response to an e-mail request. Because there were so many responses, we have created a web page so that all of the memories could be documented and shared. Please see www.engr.colostate.edu/memories to view memories about professors, projects, classes, and old friends. Submit your memories for the web page by e-mailing them to SupportEngineering@colostate.edu. Also, the sidebar information is based on the data we currently have. Let us know if you have information regarding alums in other countries or states.

We believe that the excellence of the engineering education at Colorado State is reflected in the accomplishments and varied interests of its graduates.

If you have stories or memories to add, please share your alumni angle.

\[Signature\] Sandra Woods

Join us at the College of Engineering Annual Alumni and Friends Awards Dinner, Saturday, April 22. To get more information about the dinner, see www.engr.colostate.edu/development/alumni_and_friends/. You can also find information at that web address about making an online gift to engineering.