2022 YEAR IN REVIEW

BLACK DIAMONDS

WEST VIRGINIA

DEPARTMENT OF MINING ENGINEERING BENJAMIN M. STATLER COLLEGE OF ENGINEERING AND MINERAL RESOURCES WEST VIRGINIA UNIVERSITY®

U.S. SENATOR SHELLEY MOORE CAPITO DELIVERS POUNDSTONE LECTURE

United States Senator Shelley Moore Capito of West Virginia delivered the Poundstone Lecture in a private event on Monday, October 3, as part of West Virginia University's Department of Mining Engineering's William N. Poundstone Lecture Series at the Erickson Alumni Center.

Senator Capito is a lifelong West Virginian from Glen Dale. She holds a BS in Zoology from Duke University and a M.Ed. from the University of Virginia. Capito was first elected to the United States Senate in 2014, and re-elected in 2020. She is the first female Senator in West Virginia's history and was elected with the largest margin of victory for a Republican in state history — winning more than 70 percent of the vote and all 55 counties, surpassing the previous mark she set in 2014 when she won more than 62 percent of the vote and all 55 counties.

After serving West Virginia's Second Congressional District in the U.S. House of Representatives for 14 years, and as a member of the West Virginia House of Delegates for four years prior, Senator Capito decided to run for Senate to be an even stronger voice for the Mountain State. Senator Capito currently serves on the Appropriations Committee, the Commerce, Science, and Transportation Committee, the Rules and Administration Committee, and the Environment and Public Works Committee as Ranking Member.

Monday's event was historic, as Senator Capito was the first female selected to deliver the Poundstone Lecture.

"Since its interception in 2000, all Poundstone Lecturers have been males," said Vladislav Kecojevic, the Robert E. Murray Chair and professor of mining engineering and Interim Chair of the Wadsworth Department of Civil and Environmental Engineering. "Having such a distinguished lecturer plays a critical role in enhancing the educational experience and retention of our students in a male-dominated industry."

Senator Capito's lecture touched on the economic impact the mining industry has on the state and beyond. She commended mining engineers on the

continued on page 2...

THIS ISSUE

STATLER COLLEGE MISSION STATEMENT

We develop globally-minded engineers, scientists and leaders who improve the quality of life by solving societal challenges and stimulating economic growth in West Virginia, and beyond, within an inclusive, collaborative and innovative educational community.

critical role they fill to provide invaluable energy resources in West Virginia and stressed the important impact they will have on the future of the mining industry.

"Senator Capito emphasized that minerals are of essential need for the state of West Virginia and the nation, particularly for U.S. infrastructure, national security, green technologies as well as environmental sustainability," said Kecojevic. "Having Senator Capito as a Poundstone lecturer acknowledges the importance of the WVU department of mining engineering in educating and training future mining engineers through high-quality and innovative teaching and research."

Following the lecture, students and faculty members had the opportunity to ask questions and converse with Senator Capito and other industry professionals.

"The lecture was not only beneficial to students but also the state of West Virginia," said Jared Morse, a senior mining engineering student from Earleville, Maryland. "It's nice to have an update from somebody who holds an important office in the U.S. Senate. The key takeaway is that our industry has the support of our government, not only in the state but also at the federal level, and that its importance extends beyond domestic use."

"It was an honor to deliver the 2022 WVU William N. Poundstone Lecture, and see firsthand just how bright the future of mining is for our state and nation," Senator Capito said. "In West Virginia, mining is a part of our heritage, and it touches nearly all of us in some way every single day. The students and faculty within the department of mining engineering are the ones who will not only continue our state's proud tradition as an energy-producer, but also bring our nation's economy and energy sector to levels we can't yet imagine. I can't wait to see how our bright young men and women shape that future, and I'm so proud it all starts right here at WVU.

The Department of Mining Engineering established the William N. Poundstone Lecture Series in 2000 to honor Poundstone, a distinguished alumnus of the Department, and to bring mining industry experts to campus to share their expertise with students and faculty. Poundstone, who passed away in 2015, was inducted into the National Mining Hall of Fame and Museum in 2016.

U.S. Senator Capito addresses the audience.

(photo on left) U.S. Senator Capito receives a plaque from Vlad Kecojevic, professor and chair of the mining engineering department. (photo on right) U.S. Senator Capito speaking from the podium.

(photo above and below) The audience listens intently to U.S. Senator Capito.

MESSAGE FROM THE CHAIR


KECOJEVIC

Dear Alumni and Friends,

Greetings from Morgantown! I do hope you are all staying safe and healthy. It was a very busy year for the department with so many achievements, accomplishments and about activities by our students and faculty. I do hope that you will enjoy reading them.

Our mining engineering students landed summer 2022 internships and full-time jobs across the coal, metal and non-metal sectors of our industry. Our students worked for a number of companies, several of them being Fortune 500 companies, including Arch Resources, Luck Stone, Nevada Gold Mines, Freeport-McMoRan, Vulcan Materials, East Fair Field Stone, Rosebud Mining, Iron Senergy, Lehigh Hanson, American Consolidated Natural Resources, Coronado, Piedmont Lithium, Blackhawk Mining LLC, Warrior Met, Alliance Resources Partners, Martin Marietta, Nyrstar and Rio Tinto. I have included several stories on their summer internship experiences and I hope you enjoy reading them.

It is encouraging to conduct industry information sessions and have many companies come back to interview our students. We welcomed Iron Senergy, CRH America Materials, Nevada Gold Mines, Nyrstar, Martin Marietta, RESPEC, Blackhawk Mining, CEMEX, American Consolidated Natural Resources, Alliance Resources Partners, Foresight, Rosebud Mining, Piedmont Lithium, United, Arch Resources, Robindale Energy and York Building.

We welcomed two new faculty members this fall, Deniz Talan and Deniz Tuncay. I would like to call your attention to the articles written by these two new faculty members on page 8, and we look forward to their future contributions to the Department.

We have two student chapters, WVU Society of Mining Engineers and Women in Mining. These professional societies are very active in inviting guest speakers, participating in national meetings and recruiting events. We currently have two female faculty members out of six total tenure-track faculty, and our goal is to continue to diversify the department.

The quality of WVU mining engineering is exceptional. Our students take accolades, honors, and recognitions at national competitions such as senior design, mine rescue, and graduate contests. For example, our students have taken first or second place in the SME/PCMIA Senior Mine Design Contest 15 times in the last 21 years. Our students have taken first place in the Carlson Senior Design Project Competition four times in the last five years. We have also won the mine rescue national championships for six years in a row.

I advise and encourage students to apply and compete for many external scholarships that are awarded to mining engineering students. I am happy to report that our students won a number of national scholarships and awards. They make us very proud of their achievements. I am also thankful to many of our alumni, friends and donors who established scholarships and endowments for our students over the years.

In October, we had the honor of welcoming West Virginia U.S. Senator Shelley Moore Capito as the first female speaker for the William N. Poundstone Lecture. She shared an exceptional lecture on the importance of energy and mineral resources for the state of West Virginia and nation with students, faculty, college and university administration, alumni and friends of the department.

At the 2022 Student Awards Banquet, we were privileged to host West Virginia State Senators Randy E. Smith and Rupie Phillips, and WV Coal Association President Chris Hamilton. They all expressed their words of wisdom to our graduates as they transition from school to industry.

It is with immense sadness that we grieve the loss of our two faculty members, Yi Luo and John Craynon. They were pillars of our department and they are missed by all of us.

As the chair, and on the behalf of the faculty, staff and students, I wish you all a safe, healthy and happy new year.

VLADISLAV KECOJEVIC
Robert E. Murray Chair and Professor
Department of Mining Engineering

Department News

STATLER COLLEGE ANNOUNCES HUANG AS NEW DEAN'S LEADERSHIP FELLOW FOR ENGAGEMENT AND OUTREACH

Excellence in leadership development is a core value of the Statler College of Engineering and Mineral Resources at West Virginia University. In order to foster and sustain leadership excellence, the Statler College has announced the selection of three professors to the Dean's Leadership Fellows Program.

The Leadership Fellows Program was created and designed to help identify and grow the next generation of pioneers and leaders for the College. The one-year program will eliminate barriers faculty may have previously faced when exploring leadership opportunities and empower them to become advocates of change in the areas of research, teaching or service, therefore advancing their career trajectory while benefiting students and the College.

Participating faculty members, will work closely with the Associate Deans and the Dean's Office to advance their leadership skills and collaborate on projects that will enhance partnerships, events, and activities within the College.


HUANG

"I strongly believe that part of my role as Dean is to support and develop the future leaders of the Statler College and WVU," said Pedro Mago, Glen H. Hiner Dean of the Statler College. "Therefore, the Dean's Leadership Fellows Program is a great initiative launched to provide selected faculty members with valuable experience and an opportunity to develop leadership skills while supporting major initiatives in the College."

The implementation of this program demonstrates the College's commitment to providing faculty members with the tools needed to succeed in the competitive world of academia. The Statler College has a reputation for excellence, and the faculty members who complete the Leader Fellows Program will be equipped to carry on that legacy.

The three areas in the Leadership Fellows Program focus on Research, Academics and Engagement and Outreach.

Qingqing Huang, assistant professor of mining engineering, has been appointed as the Dean's Fellow for Engagement and Outreach.

Huang will assist Cerasela Zoica Dinu, associate dean for student, faculty and staff engagement, in developing meaningful engagement and outreach programs for the College. She will also serve as a liaison between the College and alumni as needed and will develop active networks with stakeholders, students, faculty, and staff at WVU.

"I feel honored and very excited to be named the Inaugural Dean's Fellow for Engagement and Outreach," said Huang. "It gives me an excellent opportunity to work with the Associate Dean for Student, Faculty and Staff Engagement, Dr. Cerasela Dinu, and the Dean's office. I look forward to working with all of them."

Huang earned her bachelors in mineral processing engineering from Central South University in China in 2009, and her doctorate in mining engineering from the University of Kentucky in 2016. She joined the Statler College in 2017 and looks forward to growing professionally during her year as a fellow.

"It will be a wonderful year working with great colleagues and of great learning experiences!" Huang explained.

Each fellow will be expected to develop, support, implement, and assess activities, events, and programing for the College. Through this intensive leadership development program, the inaugural faculty members will gain the opportunity to directly impact the University and become agents of change for the College.

"I am very excited about the talent, enthusiasm, energy, and new ideas that the inaugural class of fellows will bring into our administrative offices," said Mago. "They will have an opportunity to work with our team and associate deans on exciting academics, research, and engagement and outreach initiatives that will help transform the Statler College."

KECOJEVIC APPOINTED INTERIM CHAIR OF WADSWORTH DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING

Vladislav Kecojevic, professor and Robert E. Murray Chair of mining engineering at West Virginia University, has been selected as the interim chair of the Wadsworth Department of Civil and Environmental Engineering, effective August 21, 2022.

"The institutions of higher education today face many challenges and headwinds, increasing the number of students that enroll and attend these institutions is just one of them. The Wadsworth Department of Civil and Environmental Engineering faculty at WVU is uniquely positioned to address these challenges," Kecojevic said. "As an interim chair, I am pleased to work with our faculty to establish a new degree in environmental engineering which will be housed within the Wadsworth department. With a growing need for environmental engineers, there is an opportunity for us to fill the gap, educate and train future generations that will excitedly take on environmental challenges ahead and contribute building a more sustainable society."


KECOJEVIC

Kecojevic joined the Department of Mining Engineering in 2010 before becoming the interim chair of mining engineering in 2017 and permanent chair of mining engineering in 2018. Kecojevic began his academic career at The Pennsylvania State University in 2001, held the Centennial Career Development Professorship in Mining Engineering from 2005-2009 and the Massey Foundation Professorship at WVU from 2012 to 2018.

His research areas of expertise include surface mining, surface mine safety, information technology and environmental issues in surface mining. Kecojevic's research has been funded by the mining industry, equipment manufacturers and governmental agencies. He has published his research work in a leading mining- and safety-related peer-reviewed journals.

Kecojevic has been recognized internationally for his contributions to the mining industry. Most recently, he has been honored as the 2022 SME Fellow and, in 2019, awarded SME Coal and Energy Division Distinguished Service Award.

"I want to thank Dr. Kecojevic for his strong leadership and willingness to help the Wadsworth department and the College," said Pedro Mago, Glen H. Hiner Dean of the Statler College. "I am very excited about the future of the civil and environmental engineering program under Dr. Kecojevic's leadership and am confident he will do an outstanding job."

Kecojevic will replace Hema Siriwardane, whom Mago praised for his "many years of hard work and dedication as Department chair." Siriwardane, professor and chair of the Wadsworth Department of Civil and Environmental Engineering, has retired effective August 12, 2022.

"I want to take this opportunity to thank and acknowledge Dr. Siriwardane," Mago said. "We are grateful for his leadership, service and every effort he has made to support the students, faculty and staff in the Wadsworth Department and the College."

Kecojevic will continue in his roles as professor and Robert E. Murrary Chair of mining engineering while in this role as interim chair.

PEREIRA AND TULU

Research News

WVU ENGINEERS AIM TO IMPROVE SAFETY WITH AUTONOMOUS ROBOTIC INSPECTION SYSTEM FOR COAL WASTE STORAGE FACILITIES

Two West Virginia University engineers are developing new technologies for coal waste storage facilities that will detect and prevent potential failures like leakage of hazardous materials into the environment.

Guilherme Pereira, associate professor in the mechanical and aerospace engineering department and adjunct associate professor in the Lane Department of Computer Science and Electrical Engineering, and Ihsan Berk Tulu, Wayne and Kathy Richards Faculty Fellow and assistant professor of mining engineering, received nearly $500,000 in funding to conduct research that will deliver an aerial robot-enabled inspection and monitoring system for active and abandoned coal ash and tailings or waste storage facilities.

The goal of the project is to find a way to detect leakages and failures at coal waste facilities before tailings and coal ash are released into the environment. Tailings are waste materials left behind after extracting coal from the earth that are stored above-ground behind earthen dams, whereas coal ash is a residue left over from burning coal at power plants. Coal ash is one of the largest U.S. supplies of industrial waste, containing metals such as lead, mercury, chromium, selenium, cadmium and arsenic, that never biodegrade and are dangerous to humans.

“Failure of these structures has been shown to be catastrophic, causing massive mudslides that have devastated entire communities and created irreversible environmental damage,” Tulu said. “Industry, federal and state governments spend great effort and time inspecting these structures and finding hazards that might lead to wastewater leakages or failures.”

Researchers will develop and program an intelligent drone that will autonomously inspect the structural components of coal waste storage facilities. The drone will be able to create thermal and visual images and high-resolution, three-dimensional maps of the facility, which will permit the detection of cracks, deformities and other hazards in the structures.

A second objective of the project is to create and equip the drones with software that uses artificial intelligence-based algorithms to detect potential hazards. The software will collect and use thermal and visual images, as well as 3D point clouds, a technology that utilizes laser scanners to measure where light hits a particular surface or object, to generate highly accurate 3D models of the coal storage facilities. This will allow researchers to identify potential hazards quickly and efficiently without having to physically be present at the inspection site.

Funding comes from the United States Department of Energy and is administered by the National Energy Technology Laboratory under the University Training and Research for Fossil Energy and Carbon Management Program. This funding will allow four students at the Statler College of Engineering and Mineral Resources to work on this project and gain real-world experience related to autonomous robotic inspection systems.

The research can provide a faster and long-term economical solution to this mounting global issue, a subject that hits close to home for Pereira.

“I’m originally from Minas Gerais state in Brazil, where catastrophic accidents with tailing dams happened recently, so the project has a special motivation for me,” Pereira said. “It is an opportunity to develop a technology that can save lives in the United States and in my country.”

In 2015, a tailings dam in Bento Rodrigues, Brazil collapsed, unleashing thousands of pounds of hazardous mud spill that killed 19 people. The mining waste eventually flowed more than 400 miles from its source to the Atlantic Ocean, contaminating water supplies along its route.

An incident that struck the heart of West Virginia occurred in 1972, when a tailing dam in Logan County failed following a heavy rainstorm, known as the Buffalo Creek Flood. This catastrophic dam failure released 132 million gallons of wastewater into the surrounding community. The incident killed 125 people, injured 1,100 others and left 4,000 people without homes.

“It is a very exciting project for us,” Tulu said. “We will train the next generation of engineers in the application of robotics technologies for our mining communities. A successful outcome from this project will be another technology tool for both West Virginia’s and the nations’ mining industries to improve the safety of the mines and the health of the nearby communities.”

New Hires

The Statler College of Engineering and Mineral Resources at WVU welcomes 16 new faculty members to kick off the 2022-23 academic year. The Department of Mining Engineering brings two talented faculty to bolster the College's growing research programs. Learn more about our two new faculty below:


TALAN

DENIZ TALAN

I joined the WVU Department of Mining Engineering as an assistant professor in August 2022. I earned my bachelor's in mining engineering in 2013 from Hacettepe University and my master's degree in 2016 from Middle East Technical University, both located in Turkey. I completed my doctorate at WVU in 2021.

Throughout my career, I have gained experience in various aspects of mining and mineral processing with different commodities from industrial minerals to coal and metals, emphasizing flotation, briquetting, characterization and physical separation. My current research interests include sustainable recovery of critical minerals from unconventional sources, environmental control of the extraction processes and recycling technologies. Moreover, as an instructor and teaching assistant, I have been involved in numerous mining and mineral engineering courses including mineral processing, coal preparation, mine surveying and engineering CAD.

I am an external reviewer and on the junior editorial board of Mineral Processing and Extractive Metallurgy Review. Other journals that I have been serving as an external reviewer are Minerals, Sustainability, International Journal of Coal Preparation and Utilization and Journal of Mining, Metallurgy, and Exploration. I am also an active member of SME's Mineral and Metallurgical Processing Division and the SME Pittsburgh/ PCMIA Joint Committee. Additionally, I received the 2020 WVU Statler Outstanding Merit Fellowship for Continuing Doctoral Students, and I recently received the 2021-2022 SME Rong Yu Wan PhD Dissertation Award.

As a proud Mountaineer for the past five years, I am honored to be able to continue growing in this department in a new position. I look forward to working with students, faculty and other departments to help improve the mining and mineral industry and to guide the next generation of mining engineers.


TUNCAY

DENIZ TUNCAY

I joined the WVU Department of Mining Engineering as an assistant professor in August 2022. I received my bachelor's degree in 2011 and my master's degree in 2014 from the Middle East Technical University, Turkey. In 2021, I earned my PhD degree in mining engineering from WVU.

The mining industry is constantly growing and improving with new technologies and findings. As a researcher, I will focus my effort and knowledge to help the mining industry become safer, more efficient and sustainable by seeking answers through my research. I have been involved in research focused on different aspects of mining including ground control, mine ventilation, machine reliability and maintenance. I am grateful that I had the opportunity to work on several different projects that touched on various problems faced by the mining industry. I have published my work in peer-reviewed journals and presented them in international conferences. These outputs allowed me to earn the WVU Mining Engineering Faculty Graduate Award and the Syd S. and Felicia F. Peng Ground Control in Mining Scholarship in 2019. I also received the SME's Raja V. and Geetha V. Ramani Graduate Students Award in 2021. Throughout my career, I was also fortunate to be involved in the teaching aspect of a broad range of courses, including surface mining, mine safety and health, mine ventilation, mine system analysis, mine surveying and mine property valuation.

I am an active member of SME and have been involved in the Coal and Energy Division, Young Leaders Committee and the SME Pittsburgh/PCMIA Joint Meeting Committee. I recently started my role as the guest editor for the Ground Control in Mining collection within the Mining, Metallurgy & Exploration Journal, where I also serve as an external reviewer. I also served as an external reviewer for the Bulletin of Engineering Geology and the Environment.

For the past five years, gold and blue have become a part of me, and I am proud to call myself a Mountaineer. I am excited to be a part of the WVU Mining Engineering Department. I look forward to contributing to the mining industry directly through my research and indirectly through the education of future mining engineers.

STUDENTS PLACE FIRST IN THE NATIONAL CARLSON SOFTWARE COMPETITION FOR THE THIRD TIME IN FOUR YEARS

Time and time again, a team of students from West Virginia University's mining engineering program stepped up to the challenge of researching and recommending a plan of action to recover the maximum amount of resource from a full-scale operating coal mine.

Takoda Kelly, Dylan Powers, Jared Morse and William Geldhauser, graduating seniors in the mining engineering department of the Statler College, have won first place in the national Carlson Software Competition.

This is the third time in four years that WVU has placed first in the national competition.

The Carlson Software Competition compares capstone projects among multiple schools across the country. The projects are a culmination of two semesters of work and represent each team's ability to conduct complex analysis of a geologic mineral or coal deposit and plan its extraction over its predicted mine-life. Each school is limited to one project submission, which is judged on design justification, market analysis, risk assessment, overall presentation quality and a variety of other criteria by industry professionals.

The winning project was completed as part of the Capstone Mine Design Course taught by lecturer supervisor, Dan Alexander. "I can say without reservation that these competitions do motivate WVU's best students to go beyond the Capstone Mine Design course requirements for the recognition they receive and satisfaction that they have not only met the ABET Mining Engineering accreditation requirements but are ready to enter the professional mining community," said Alexander.

Using skills learned in the mining and engineering program, Geldhauser, Kelly, Morse and Powers teamed up in the fall semester of 2021 to produce an exploration report, which detailed information on geology, quality, location, market and mining conditions.

The maps drafted for the project were based on real life core-hole data provided by an operating coal mine. With this information in-hand, the students created a mine plan during the spring semester of 2022. Data from the mine plan, including annual production of coal, number of employees required, equipment used, costs for operations and capital facilities, are then used to estimate the project cash flow and economic merit measures.

The team can then draw conclusions and make recommendations on whether an investment should be made in the project. These findings are presented to industry representatives and assessed in oral and written presentations.

A year of teamwork, time management and communication paid off when the WVU team walked away with first place. "It's honestly such an honor to win this award. Our team put in a lot of hard work and long nights into this project and it's just really great to see something positive come from that" says Dylan Powers, one of the students on the winning WVU team.

WVU has received recognition in the Carlson Software Competition for 15 out of the last 22 years and has placed first seven times since 2000. Additionally, WVU mining students earned similar recognition in the Pittsburgh Coal Mining Institute of America/Society for Mining, Metallurgy & Exploration-Pittsburgh (PCMIA/SME-PGH) senior mine design competition, placing 17 times in 29 years with 11 first places.

INDUSTRIAL INFORMATION SESSIONS AND JOB INTERVIEWS

The department was pleased to host several mining companies in 2022 including Martin Marietta, RESPEC, Blackhawk Mining, CEMEX, American Consolidated Natural Resources, Alliance Resources Partners, Freeport, Foresight, Rosebud Mining, Piedmont Lithium, Arch Resources, Nevada Gold Mines, Robindale Energy, United and York Building. We appreciate them giving info sessions and interviewing our students for both full-time positions and summer internships.

EXTERNAL SCHOLARSHIPS, AWARDS AND RECOGNITIONS

A number of mining engineering students and faculty received external scholarships through professional societies, organizations and foundations. These include:

SME Coal and Energy Division: **Jared Morse** (1)

SME Eugene P. Pfleider Scholarship: **Gabriela Kosakowski** (2)

SME J. H. Fletcher & Co. Scholarship: **Gabriela Kosakowski** (3)

Syd S. and Felicia F. Peng Ground Control in Mining Scholarship: **Yun Zhao** (4) and **Qingwen Shi** (5)

SME Environmental Division Scholarships: **Gabriela Kosakowski** and **Zeynep Cicek** (6)

SME MPD Division Outstanding Graduate Scholarship: **Zeynep Cicek** (7)

SME Stewart R. Wallace Memorial Scholarship: **Mustafa Baris Ates** (8)

SME Ernest K. Lehmann Memorial Scholarship: **Mackenzie Stone** (9)

SME Mining and Exploration Division Scholarship: **Mackenzie Stone** (10)

First place at the SME Collegiate Mine Rescue Skills Competition: Breathing Apparatus Bench: **Brian Welsh** (11)

First place at the SME MPD poster contest: **Kayla Gibson** (12)

Fourth place at the SME Graduate Student Research Poster Contest: **Emmy Muhoza** (13)

SME Rong Yu Wan PhD Dissertation Award: **Deniz Talan** (14)

The 2022 SME Fellow Class: **Vlad Kecojevic** (15)

The Society of Explosives Engineers Education Foundation: **Jared Morse** (16)

MS Thesis Award by the American Rock Mechanics Association (ARMA): **Mustafa Can Suner** (17)

SME/PCMIA Claude A. Goode Memorial Scholarship Award and Mike Kotch Memorial Scholarship Award: **Gabriela Kosakowski** (18)

Second place at the SME/PCMIA Graduate Student Presentation Competition: **Gaobo Zhao** (19)

PCMIA Donald S. Kingery Memorial Award: **Keith A. Heasley** (20)

The Gimme Foundation Scholarships: **Gabriela Kosakowski, Rylan Nemesh, Connor Baker** (21), **Ashton Crawford** (22) and **Jared Broyles** (23)

The Pennsylvania Western Section of WAAIME: **Gabriela Kosakowski, MiKy Alves, Thommy Bafunye** (24), **Victor Valencia** (25) and **Zoey Carper** (26)

WAAIME Scholarships: **Alejandro Agudelo, Connor Baker, Jared Broyles, Zeynep Cicek, Kyle Jenness, Rosbel Jimenez, Jared Morse, Rylan Nemesh, Joshua Riffle, Megan Sibley, Mustafa Can Suner, Juan David Valencia Quiceno, Jose Raul Zela Concha** (27), **Yinan Zhang** (28), **Maria Fernanda Quintero** (29) and **Francisco Gil Hurtado** (30).

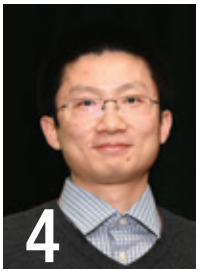
Martin Marietta Scholarships: **Gabriela Kosakowski, Victor Valencia** and **Brian Welsh.**

Students continue to garner awards for their design work from national contests and competitions.

In 2022, **William Geldhauser, Takoda Kelly, Jared Morse and Dylan Powers** (31) finished first, while **Gabriela Kosakowski, Chase Mowrey, Maxwell Schaefer** (32) placed third in the 30th SME/PCMIA Senior Design Award Competition. They were guided by Dan Alexander and late John Craynon. The competition is open to all U.S. ABET accredited mining engineering programs. WVU has taken first or second place in this contest 15 times in the last 22 years.


1


2/3

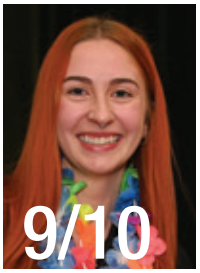

4


5


6


7


8


9/10


11


12


13


14


15


16


17


18


19

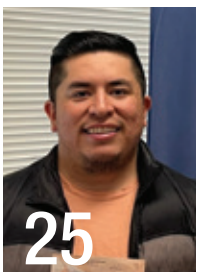

20


21

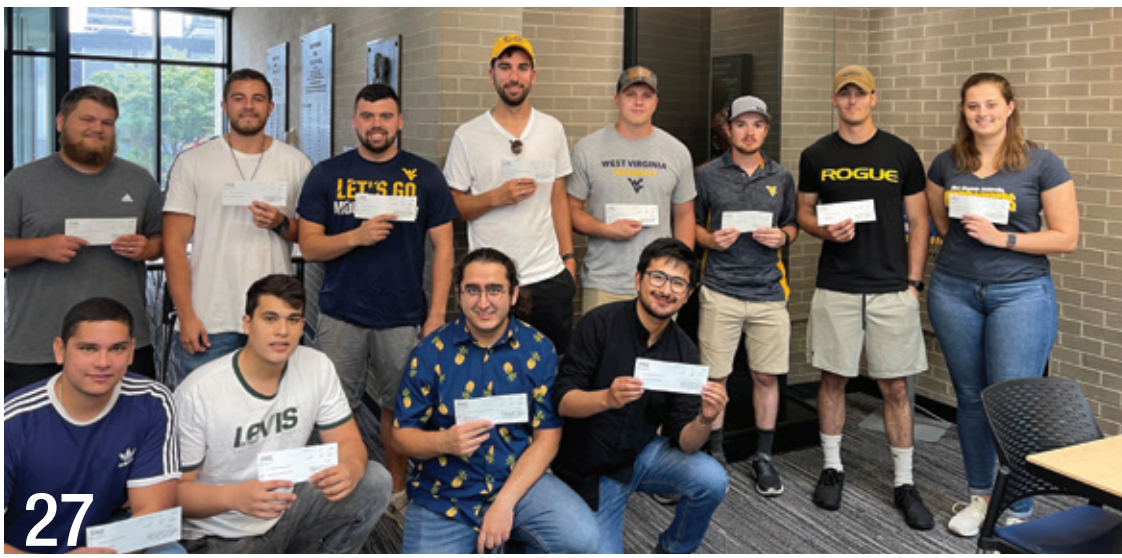

22


23


24


25


26


27


28


29


30


31


32

WVU TEAMS WIN FIRST AND SECOND PLACE IN SME MINE RESCUE COMPETITION

Members of the Gold and Blue Teams and trainers. (Front Row: Jared Morse, Thomas Spotloe, Dylan Shilling. Second Row: Josh Riffle, Dawson Apple, Josh Brady, Megan Sibley, Cole Delisle, Ashton Crawford, Ricky Ferenchak. Back Row: Oden Smith, Brian Welsh, Justin Waybright, Troy Whiton, John Helmick, Sean Rhodes)

Two Mine Rescue teams from WVU's Statler College of Engineering and Mineral Resources took home top honors in the Society for Mining, Metallurgy and Exploration – 2022 Eastern Collegiate Mine Rescue Competition. The event was held on October 29, in Julian, West Virginia.

The WVU Gold Team finished in first for the fifth consecutive year and the Blue Team finished in second, beating out teams from the University of Kentucky and Virginia Tech.

"I'm proud of the entire group: students, trainers, and the support we receive from Dean Mago and Dr. Kecojevic," said Joshua Brady, director of mining and industrial extension,. "We are working on more than mine rescue skills every week. We teach the students how to communicate, handle yourself in a professional setting, being polite and work hard for the highest quality results."

The purpose of the mine rescue competition is to enhance the skills, knowledge and abilities of engineering students in the basic principles of mine rescue, teamwork and leadership. The contest includes a timed written exam as well as simulated team rescue exercise. During the exercise, teams must locate and mark on their maps the locations of various hazards and items such as people, fires or ventilation structures.

In preparation for the competition, the team trained at WVU's Academy for Mine Training and Energy Technologies. Team members worked through problems designed by their trainers to teach them skills they would need to accomplish the goal of the given scenario.

"The most useful lesson learned through the competition is how to identify a problem early on and figure out a solution quickly so that it does not slow down the overall advancement of the operation," said Megan Sibley, a mining engineering undergraduate student from Tampa, Florida. "I also learned how to more effectively communicate in stressful and difficult situations. Both lessons have made me more prepared to transition into my career and be a better, more efficient member in my career field."

The Gold Team was led by senior mining engineering student and four-year competition participant, Jared Morse from Earleville, Maryland.

"Each member on our team has their own individual roles to play during the competition," Morse said. "What separates us from other teams is our ability to assume our teammates' responsibilities when our duties are complete. This translates directly into the mining industry, where personnel look out for each other through all phases of production."

Joining Morse on the Gold team were mining engineering students Ashton Crawford, Cole Delisle, Megan Sibley, and Brian Welsh, geology major Tom Spotloe and biology major Troy Whiton.

Members of the Blue Team included mining engineering students Dawson Apple, Ricky Ferenchak, Josh Riffle, Dylan Shilling, Odin Smith and Justin Waybright.

Trainers include Brady and mining and industrial extension agents, George "Smurf" Rannenberg, Sean Rhodes and John Helmick.

"I couldn't be happier for these students," Helmick said. "They have demonstrated a commitment to their teams, WVU, and our department at a level many professionals struggle to achieve." Helmick said.

STUDENTS AND FACULTY ON THE MOVE

Mining engineering students and faculty have attended several professional conferences and visited several mines in 2022. Our appreciation and thanks are extended to our alumni, friends and mine managements for hospitality and hosting our students and faculty.

Surface mining class and faculty visited Alpha Metallurgical Resource's mine near Beckley, WV. (1)

Underground mining engineering class students had an opportunity to visit Arch Resources underground longwall mine in West Virginia. (2)

A group of students and faculty attended the 2022 West Virginia Coal Mining Institute and West Virginia Coal Association Meeting and the Coal Hall of Fame ceremony in Morgantown, WV (3). They had the opportunity to meet with industry professionals and WV legislators.

Almost 30 students, faculty and staff members attended the 2022 SME Annual Meeting in Salt Lake City, UT. (4 and 6).

More than 20 students attended this year's SME/PCMIA meeting in Canonsburg, Pennsylvania in October. (5)

Department Chair Vladislav Kecojevic had the opportunity to attend the regional meeting of international Society of Mining Professors in Lima, Peru (7). He gave presentations on enrollment trends in mining engineering schools in the United States.

Aggregates production class students had an opportunity to visit Laurel Aggregates underground limestone mine in Pennsylvania. (8)

1


2


3


4


5


6


7


8

DEPARTMENT AWARDS AND SCHOLARSHIPS

The Charles T. Holland Award: **Maxwell Schaefer** (1)

The Charles E. Lawall Award: **Haitham Al Yaaqoubi** (2)

MRAC Award: **Gabriela Kosakowski** (3)

The Old Timers Award: **Brian Welsh** (4)

SME Officers Mining Engineering Student Award: **Gabriela Kosakowski** (5)

The West Virginia Coal Mining Institute Award: **Emily Carroll** (6)

The Careers in Coal Award: **Jared Morse** (7)

Mining Engineering Faculty Awards (undergraduates): **Mackenzie Stone** (8), **Kayla Gibson** (9), **El Hacen Saleh** (10) and **Rylan Nemesh** (11)

Mining Engineering Faculty Awards (graduate): **Zeynep Cicek** (12)

The Collegiate Mine Rescue Award: **William Geldhauser, Chase Mowery, Dylan Powers, Maxwell Schaefer** and **Mackenzie Stone** (13)

Outstanding Faculty Member: **Berk Tulu**

SME Officer Outstanding Faculty: **Hassan Amini** (14)

The Calvin Kidd Fellowship Award: **Josh Brady** (15)

Watson Scholarship: **Jared Broyles**

Department of Mining Engineering Scholarship: **Megan Sibley, Jared Morse, Gabriela Kosakowski, MiKy Alves** and **John Dickson**

Wells Fargo Energy Group Scholarship: **Donovan Key** and **Maureen Ghee**

Syd S. and Felicia F. Peng Family Endowed Scholarship: **Jonathan Slezak**

Hardy Tait COMER Endowed Scholarship: **Emily Carroll, Richard Ferenchak** and **John Dickson**

Doris H. and J. Banner Bise Memorial Scholarship in Mining Engineering: **Rylan Nemesh**

Mineral Resources Alumni Chapter Mining Engineering Scholarship: **Heriberto Perez**

James Sterling Farinash Scholarship: **Jonathan Slezak**

Charles Edward Witt Memorial Scholarship: **Joshua Riffle**

Kirkland Scholarship: **Megan Sibley, Colin Bourn, John Samonsky, Thommy Bafuney, Jared Morse** and **Gabriela Kosakowski**

Ralph and Geraldine F. Dado Mining Engineering Endowed Scholarship: **Maxwell Schaefer**

Peter's Creek Coal Association Scholarship: **Jared Broyles**

Royce J. and Caroline Baker Watts Family Endowed Scholarship: **Jared Broyles**

Robert L. Raines Mining Scholarship: **Maxwell Schaefer** and **Megan Sibley**

Raymond H. Blowers, Jr. Scholarship: **Jonathan Slezak**

Remember the Miners Scholarship for Mining Engineering: **Gabriela Kosakowski**

Julius W. Singleton, Jr. Scholarship: **Joshua Riffle, Mackenzie Stone, Dawson Apple** and **Layne Gumowski**

Raymond E. Salvati Memorial Scholarship: **Joshua Riffle** and **Layne Gumowski**

A. Wahab and Judith B. Khair Endowed Scholarship: **Rylan Nemesh**

R. Larry Grayson Endowed Scholarship: **Rylan Nemesh**

Warren D. and Grace W. Sharpenberg Scholarship: **Rylan Nemesh**

Jack and Pat Caffrey Endowed Scholarship: **Layne Gumowski**

Westmoreland-Sprague Scholarship: **Zoey Carper**

Joseph W. Leonard IV Memorial Scholarship: **Joshua Riffle, Mackenzie Stone, Dawson Apple** and **Layne Gumowski**

Mark Sansone Memorial Scholarship: **Takoda Kelly**

McElroy Scholarship: **Jared Broyles**

Charles R. Nailler Memorial Scholarship: **Kayla Gibson**

Northern WV Coal Preparation Society Scholarship: **Joshua Riffle, Takoda Kelly** and **Mackenzie Stone**

Jake White Memorial Scholarship: **Rylan Nemesh**

Kaiser Aluminum and Chemical Corporation Scholarship: **MiKy Alves**

Henry Ballangee Endowed Engineering Scholarship: **Connor Baker**

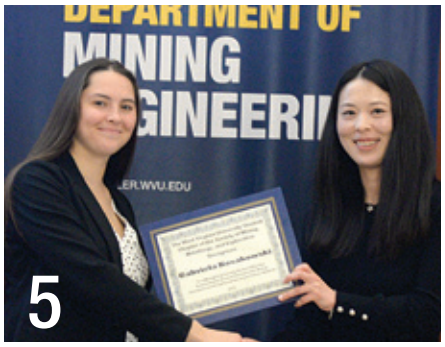
George and Margie Booth Scholarship: **Layne Gumowski**

1

2

3


4



5

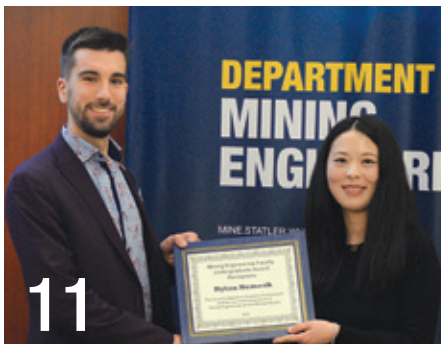

6


7

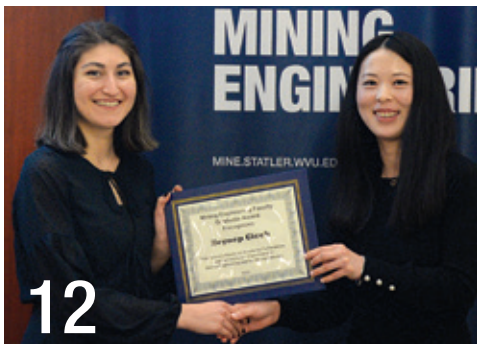

8

9

10



11



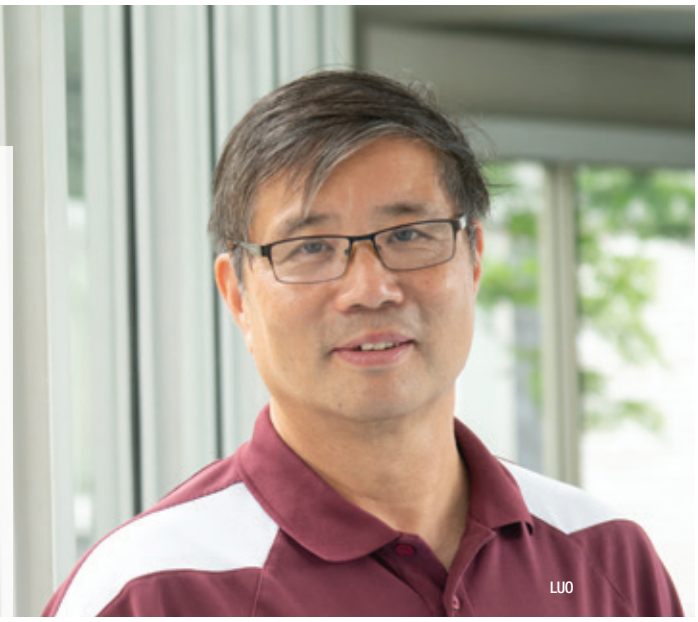
12

13


14

15

WVU ALUMNI ESTABLISH MINING ENGINEERING SCHOLARSHIP IN MEMORY OF LATE PROFESSOR



LUO

More than 40 people – including many former students – are building upon the legacy of late West Virginia University professor Yi Luo by establishing a memorial scholarship to benefit graduate students in the Statler College of Engineering and Mineral Resources Department of Mining Engineering.

Luo passed away unexpectedly Feb. 13, 2022, at the age of 64. Within weeks, his former students, colleagues, friends and family contributed enough to establish the endowed Professor Yi Luo Memorial Scholarship, and the fundraising total has since climbed to over $44,000. The scholarship will be awarded to students pursuing a master's or doctoral degree, with preference for those in their final year of study.

"Professor Luo would be overwhelmed to know that his former students put forth such a noble effort to raise this money to establish a scholarship in his name," Vladislav Kecojevic, Robert E. Chair and Professor of Mining Engineering, said. "It's a wonderful way to keep his name and his legacy here with the department, particularly for graduate students. He was really committed to graduate programs and to providing opportunities for graduate students to come here to the United States and pursue their education."

A native of China, Luo came to WVU to pursue a doctorate in mining engineering in 1985 and called Morgantown home for the rest of his life. He worked for more than 30 years in the Department of Mining Engineering, where he was a celebrated researcher in the area of mine subsidence and ventilation.

Luo was also a dedicated supporter of international students. He often returned to his alma mater in China, Xi'an University of Science and Technology, to present lectures and discuss educational opportunities in the U.S.

Hua Jiang is among the students Luo recruited from Xi'an University. Jiang completed his PhD at WVU in 2020 and now works for the National Institute for Occupational Health and Safety in Pittsburgh, where he conducts research related to health and safety for coal miners.

"Without Professor Luo, I might have graduated in China and worked somewhere there," Jiang said. "I would never have had the chance to come over to the U.S., which has been a very valuable, life-changing experience for me."

Luo was always patient and supportive as he taught graduate students to be better researchers. But his support went far beyond the classroom. Jiang noted that Luo invited graduate students to play volleyball on weekends and hosted a Thanksgiving dinner for international students at his home every year, as well as picnics and other activities.

He also helped many international students find housing and get settled by offering them his almost-new secondhand furniture. Jiang recalled that Luo gave him a TV stand – and offered his couch, too – after Jiang moved to Morgantown.

"He enjoyed giving away furniture to international students to help them settle in," Jiang said. "He constantly updated his own furniture then offered the gently used pieces to students and visiting scholars. I would also admit that this helped support his shopping habit."

Jiang was among a core group of former graduate students who reached out to others seeking contributions for the memorial scholarship, with support from Luo's family. Their initial goal was $10,000, a figure they surpassed quickly.

"All his students feel the same way as me: He was like a family member, not just our professor or adviser," Jiang said. "We wanted to try to find a way to remember him. This will be forever. I know everybody definitely misses him."

The group also raised money for a memorial bench that will be placed at WVU's Core Arboretum later this year.

To contribute to the Professor Yi Luo Memorial Scholarship, visit secure.give.wvu.edu and specify fund number 3Z1060 as the designation for your gift. Interested donors can also contact Tammy Cavarretta, executive director of development for the Statler College, at tcavarretta@wvuf.org or 304-293-4036.

All gifts to the Professor Yi Luo Memorial Scholarship are made through the WVU Foundation, the nonprofit organization that receives and administers private donations on behalf of the University.

The Student Chapter Reports

SOCIETY FOR MINING, METALLURGY, AND EXPLORATION (SME)

The WVU Student Chapter of the Society for Mining, Metallurgy and Exploration was thrilled to have completed a full year of in person events and activities following the hardships of remote learning and communication.

Throughout the spring semester, the WVU SME Student Chapter was able to make strides towards the growth of the organization and department with the return of many exciting events. Members were able to attend company information sessions and monthly meetings which featured guest speakers Jeff Skousen and Ryan Murray. In addition to these networking events and learning opportunities, the organization partnered with the department to cover all expenses to take 14 undergraduate students to Salt Lake City, Utah for the MINEXCHANGE 2022 SME Annual Conference and Expo. There students were able to connect with industry professionals and mining students from across the globe while competing in student competitions and learning about advancements within the industry. This includes earning fourth place in the SME/NSSGA Student Design Competition (1), first and second place in the Collegiate Mine Rescue Skills Competition: Drager Breathing Apparatus Bench and 1st place in the Undergraduate MPD Student Poster Contest.

As we moved into the fall semester, students were excited to kick off the new school year with a multitude of volunteer and outreach opportunities. This included volunteering at events like High School Visitation Day, Discover WVU Day, Trunk or Treat and the department visits to give back to the University and the greater Morgantown community (2 and 3). Student members also participated in SME related events such as the SME Mineral Kits Pittsburgh Section and SME/PCMIA Annual Joint Meeting. The organization was also very excited to partner with the department to bring almost 20 companies from the coal, metals and aggregates industries to campus (4). It allowed for students to learn about mining in various commodities, network with alumni at their respective companies and have the opportunity to interview in person without the timely application process. This was extremely beneficial in our goal to have each student in the WVU Mining Engineering Department earn an internship or full time position for the summer of 2023. The organization also hosted monthly meetings where students were able to listen to presentations from Arch Resources and Blackhawk Mining as well as learn about volunteer, outreach and networking opportunities. The Annual William N. Poundstone Lecture Series featured U.S. Senator Shelley Moore Capito. This was a great opportunity to share the importance of the mining industry with the University while allowing our students to create an open dialog with the Senator Capito (5).

Many also participated in the SME Mineral Kits Pittsburgh Section volunteer event where boxes were folded and filled with a variety of minerals to be distributed to local schools and give younger students a greater understanding of geology and what makes mining so important (6 and 8).

We appreciate the support to our student chapter by American Consolidated Natural Resources (7).


1


2

3


4


5


6


7


8

WOMEN IN MINING

The Women in Mining West Virginia University Student Chapter serves as one of only six student chapters in the United States. The chapter seeks to promote women's involvement and diversity in the mining industry, inspire current and incoming students and facilitate networking opportunities between students and professionals.

Throughout the spring and ongoing fall semester, WVU WIM has strengthened its presence in the University through a variety of events and meetings. The chapter brought students and women professionals together through seminar and webinar events. In the past spring semester, we hosted Katie Kosloski (1), Greenfield Development Manager at Luck Stone, Colleen Roche Operations Support Manager at Capstone Mining and Katarina Gump (2), Chief Engineer at Iron Senergy. For the Fall 2022 semester, we hosted Rachel Boz Boothby (3 and 4), Engineer with GMS Mine Repair. Overall, it was inspirational to hear the career stories, advice, and way of navigating the successes and challenges of leading women professionals in the industry. There was also an opportunity for our members to ask any questions to get engaged and expand their network. WVU WIM also attended the department's annual William N. Poundstone Lecture which featured Senator Shelley Moore Capito — the first female selected as a lecturer in the event's history. (5)

Apart from guest speaker events, WVU WIM is involved in various volunteer and social events. The organization has actively volunteered for outreach events of Statler College like Discover WVU Day (8), EngineerFest (6) and High School Visitation Day, where we aim to inspire high school students to choose a career in the mining industry. Our members shared their experiences with students and families to promote existing opportunities in our department and the industry. WVU WIM also set up a table at Statler College's 2022 homecoming tailgate tent, where we connected recent graduates with established professionals and had fun. WVU WIM officers Zeynep Cicek and Maria Fernanda Quintero attended the 36th Annual Elko Mine Expo in Nevada, where they made new connections for the chapter and met members of the WIM Nevada Chapter (7). Additionally, many WVU WIM members are involved in multiple student organizations offered by the department, such as the Society for Mining, Metallurgy, and Exploration. WVU WIM attended the Women of SME Breakfast at the 2022 SME Annual Conference and EXPO in Salt Lake City. We are collaborating with WVU SME, especially in volunteering events, and look forward to continuing this partnership.


1


2


3


4


5

6


7

8

1

MINING IN SOCIETY MERIT BADGE

The Pittsburgh section of SME and the WVU student chapter helped 10 Scouts earn the Mining in Society merit badge. WVU and the Mountaineer Scout Council annually host the Merit Badge University in Morgantown. We have supported this activity for three of the past four years, as there was no opportunity in 2021 due to the pandemic. To date 27 Scouts, four of whom are young women, have completed the Mining in Society merit badge through this program.

This year Russell Bolyard, General Manager at LP Mineral, hosted the Scout tour of the Humphrey Surface Mine (1 and 2). First, all visitors must have hazard awareness training and wear appropriate personal protective equipment for the areas of the mine in which they will travel. Note that participants are wearing hard hats, courtesy of the WVU Mining Engineering Department, and boots for the mine tour.

The Scouts viewed the contour mining on a cold day. Coal from three seams including underground pillars in the Pittsburgh seam and limestone are mined here.

Four Mining in Society merit badge requirements were completed at the mine and at WVU. Mackenzie Stone and Jared Morse from the WVU student chapter assisted Dan Alexander, a merit badge counselor, for the day's activities. Scouts got to see several types of mobile equipment such as Caterpillar dozers (2).

2

In addition to mining coal and limestone, the Humphrey Mine recovers waste coal fines from the slurry pond filled during the 50 years the underground mine operated.

When complete, this area is planned to be developed into a residential/commercial area serving greater Morgantown, like the University Town Center, mixed use retail development constructed over the Arkwright Mine disposal area. It is important for Scouts to see how the mining industry makes use of mined materials and returns the land to productive use. This is similar to the "Leave No Trace" value Scouts apply to their camping adventures.

In the afternoon, Scouts completed requirement one by using the 10 mineral kits produced for academic use by the Pittsburgh section of SME. Each Scout kept their mineral kit and explanatory booklet for later use or for sharing with their family and other Scouts. Mineral Kits contain samples of bituminous and anthracite coal, limestone, marble, gold, iron, copper ore, zeolite and gypsum.

SUMMER INTERNSHIPS


MUHOZA

Borates and lithium mining in California

BY EMMY MUHOZA

This summer, I had the incredible opportunity to do an internship for Rio Tinto Borates and Lithium in Boron, CA. During my internship, I worked as a process engineer. As a graduate student, I spend most of my working hours in the laboratory doing experiments or writing papers for future publications and this internship was so different from that. As a process engineer, I spent about 30 percent of my time in the office doing computer work and about 70 percent of my time in the field being hands-on and seeing first-hand how things work in industry with regards to mineral processing and metallurgy. I also got to attend various meetings with company leadership and I got to witness what goes into strategic decision-making for a company as established as Rio Tinto.

My day-to-day responsibilities were mostly about assessing and solving daily plant performance inefficiencies and inadequate performance through key performance indicators analysis. This usually required me to partner and to work together with operators, engineers, maintenance team, and management on a regular basis to assess and improve plant performance. However, the most exciting experience of my internship was when I was tasked with a top priority project for the company. The project required me to design and develop a constraint utilization model to monitor and measure process constraints to enable the plant to realize the full potential and utilization of its assets. This was my main project throughout the internship period. By the end of the internship, the project had gone through the initial stages of validation by management and it was a success with some minor recommendations and suggestions from management and the process engineering team.

All in all, my internship experience would not have been as exciting and insightful as it was had not been for the immeasurable and strong foundation provided to me by the mining engineering department at WVU. My ability to take on leadership roles, being able to think critically and innovatively and the strong work ethic have all been developed and shaped during my time at WVU. I cannot forget the persistent encouragement from the mining engineering department for students to apply for internships and various other opportunities that help us to grow and develop our professional lives.

Virtual design and construction in Maryland

BY MIKY ALVES


ALVES

This summer I was given the opportunity to work with The Whiting-Turner Contracting Company, as a virtual design and construction engineering intern. To say that I not only enjoyed my time interning for Whiting-Turner but made lasting connections and learned an abundance about the VDC field and the company, is an understatement to the memorable experience I had.

With this being my first internship, I was undoubtably nervous and at the same time full of excitement. On my first day, I had butterflies running from my stomach to my feet. I was so anxious about not making any mistakes and being an asset to the company.

I was initially hesitant about my role as I knew nothing about VDC and wasn't sure how it would connect to the knowledge I had acquired in my three undergraduate years as a civil and mining engineering dual-degree student. I was pleasantly surprised to find that the position aligned with what I had been working on thus far in my studies and I'd now be getting the opportunity to take that knowledge and all those theoretical textbook problems and apply them to real-world projects and work.

During my time, I was involved with the Digital Building Solutions team and learned about laser scanning and its connection to the construction industry. I had some previous knowledge and introduction to laser scanning in my sophomore year mining courses, but got to work hands-on with the laser scanning equipment in a real-life field setting, which surmounted in comparison to that of a textbook. Additionally, I gained lots of knowledge about the software used within the VDC field to construct 3D models and complete other project-related works, and as a computer science minor student, I appreciated this aspect of my internship greatly. I worked on several projects that ranged from AutoCAD assignments, to laser scanning in the field, to creating 3D models of laser-scanned buildings and outdoor areas. Likewise, I learned lots of terminology about the construction field and completed MEP, mechanical, electrical, and plumping, 3D models for a project, to which I had never been exposed and gained lots of valuable insight.

My summer internship was undoubtedly one of the most rewarding experiences of my professional career thus far and an opportunity I will continue learning from as I progress through the engineering world and my academic studies. I am immensely grateful to Whiting-Turner for the opportunity and for what they have taught me.

Gold metal mining in

BY ZEYNEP CICEK

This summer, I had the opportunity to perform a mining engineering internship with Nevada Gold Mines in Elko, Nevada. Nevada Gold Mines is a joint venture between Barrick Gold Corporation and Newmont Corporation, two leading gold mining companies. I was eager to learn as much as possible, get my hands dirty and gain hands-on experience. It was a tremendous experience to work with the world's largest gold-producing district.

In the first week of my internship, I completed 40 hours of underground and surface mining training required by the Mine Safety and Health Administration. Throughout the summer, I have been involved in three different projects and rotated in two different offices. My first project was a reconciliation project for underground stope and heading for overbreak and underbreak analyses in the Pete Bajo underground mine in Carlin Trend. Overbreak is the volume of rock outside the minimum excavation line removed during excavation operations, while underbreak is the rock that remains unbroken inside of the planned stope. These are some of the common problems faced in an underground operation. I analyzed the amount of overbreak and underbreak ring by the ring for the given stopes and headings of the mine by using the Deswik underground reconciliation tool. Afterward, I investigated the factors that might have caused overbreak and underbreak like the powder factor, the positioning of the stope, and rock type. I was carrying out this project collaboratively with another intern, which also improved my teamwork skills.

My second project was a time study for an underground drilling jumbo, a more site-specific project. I enjoyed a lot being underground all day and having a chance to observe the operation closely. In the scope of the study, I was with the jumbo operator during the day. I recorded the duration of every activity they do and the average time for one work cycle, which is critical for engineers to determine the accurate advance rate, fleet size and budget. I determined the inaccuracies in what has been reported to the dispatch system for jumbo operation and my observation (real data). Then I brought ideas for improving the data quality in the system and the typical work delays of jumbo operations. Apart from the project goal, I have learned much from being on the mine site and watching the miners. I also tried to ask as many questions as I could to learn from senior engineers in the mine.

After completing this project, I moved to the headquarters of the Nevada Gold Mines in Elko to start my third project, a benchmarking project on a rolling life of mine forecast of all the underground mines across Nevada Gold Mines. I worked on the data using OneStream software and Microsoft Excel to create various graphs of unit costs, such as overall, ground support, maintenance and allocation, for comparison between mine sites. I reported any dramatic or unexpected increase and decrease in the overall cost with their causes. This project was very useful in understanding the economic aspect of the mine. This, along with the other projects that I worked on this summer, has allowed me to apply what I learned in the classroom to real-world cases. Overall, my internship experience and exposure to USA mining culture were one of the best experiences in my professional career as an international student at WVU.

Nevada


CICEK

BY MARIA FERNANDA QUINTERO

I started my internship at Nevada Gold Mines with a training week in safety, which was beneficial training to understand the possible hazards we will face underground. It is hard to realize all those things when you start working in that environment. I worked in Carlin Portals Pete Bajo mine. In my first month, I spent a lot of time underground working with different teams, which helped me to understand the activities developed for each department.

I started with the geological team seeing the underground core drilling, a process to obtain data about the quality of the material underground. We supervised an inspection on the heading checking the signs and the gas inspection. I worked with the surveyor's team, where I understood the function of the mobile station for collecting, mapping, and scanning data. Later, that data will be uploaded in mining software to understand the ground's features and be able to make stope designs, heading evaluation and production planning. I had the opportunity to start mining software training, which in the future will help me to develop my first project. Subsequently, I helped the engineering team to create a ventilation plan, so we went underground and took representative ventilation samples for the new heading.

My first project was called the reconciliation project. The main idea of the project was to determine and analyze the contributed factors for the overbreak and underbreak of stopes and heading mined during 2021 and 2022. The analysis of the contributed factors in the stopes and heading will help to focus on the repair of factors to decrease the overbreak and underbreak. That reduction is expressed in a decrease in the operation process, time, and money. I studied factors like drilled face round, powder factor, strike length stability number and hydraulic radius.

The second project was called a time study project. The main objective of the project was to analyze and determine the entire cycle of the haul trucks, jumbos, and bolters at Pete Bajo Mine. We wanted to determine the target time for each job done during the process and find potential delays and standbys to correct unnecessary operations, helping us to optimize the operating cycles of haul trucks, jumbos and bolters. When collecting all the data for the time study, I had the opportunity to be with the operators and learn about the operation of haul trucks, jumbos and bolters. Likewise, I learned to do the preoperational equipment check, workplace check, and other procedures that must be carried out to have a safe work environment.

In conclusion, I had many expectations when I came to work in this company, but the main one was to know how mining works in the United States, since I am an international student. This internship exceeded all my expectations. I was fortunate to have an excellent work team, supervisors, operators and other team members who shared invaluable knowledge that will surely help me greatly in my professional and personal life.

Copper metal mining


HURTADO

BY FRANCISCO GIL HURTADO

When I came from Peru to pursue my master's degree, I knew that there were many challenges ahead. However, it never crossed my mind that I would be able to do an internship during the summer. Last December, I received the wonderful news from Freeport-McMoRan that I would be able to do my internship at the Safford Mine, an open-pit copper mine located in Graham County, Arizona. From that day on, I wanted the time to pass quickly, so I could enjoy the experience that was waiting for me. What I didn't take into account was that I was going to have to make a road trip of approximately 2,000 miles from the green paradise of West Virginia to the hot and dry desert of Arizona. My father was telling me that I was going to make the same journey west, as the settlers of this country once did when Thomas Jefferson was able to purchase the Louisiana Territory. While he was having those deep thoughts, I was just hoping that I didn't lose my cell phone with my GPS, because it was the first time I was going to have to drive many hours every day on roads I had never even heard of.

After five days of having started my journey, I made it to Safford and was able to begin my practice as a GMX intern. The first week, all the interns had our safety training, because first and foremost, Freeport-McMoRan wanted us all to be able to return home safe and sound after the internship, considering that in mining, a single accident can be fatal. After that I was able to go to the mine to meet my co-workers in the GMX department, who taught me so many things during only three months and to whom I have a deep affection and respect.

The first few weeks I was learning how the mine worked in general, the daily tasks I had to perform or support in my department and many other things, until I was assigned a project to do. They gave me a general idea of what they expected to be done, and in the end, I gave it the title Blasting Simulation and Recommending New Times. As the title says, my project was partly focused on blasting, but also considered geomechanical aspects. The first step was to select the right place to make a signature hole, which when it went off, would provide important information of its behavior that would be recorded by a blasting seismograph located 200 feet from the hole. With this information, it was possible to perform blasting simulations. Blasting causes vibrations that manifest themselves in waves in all directions. Vibrations with small frequencies present a risk when traveling through the walls of benches because they can cause slope failure. Therefore, the objective of this project was to simulate blasting patterns by selecting the proper timing to generate large frequencies greater than 30 hertz. The objective was met at the end of this project since most of the blasting generated values close to those simulated.

Finally, I can say that my summer internship was an unforgettable experience. I was able to experience the work culture of this country, as well as meet people from different backgrounds who I consider good friends that I am sure I will see again someday. I thank Freeport-McMoRan for giving me this opportunity and the Safford GMX team for making sure I had a good time all summer long while I was working and learning.

in Arizona

BY JOSE CONCHA

When I was in Peru, I worked for five years in the copper industry in many areas, such as exploration, mine geology and geomechanics. This summer, I had the opportunity to cross the United States and move to Arizona to work at Morenci, the largest copper producer mine in North America. Returning to the mining industry after almost one and a half years in graduate school was an enriching experience.

Working in the U.S. mining industry was one of the achievements I have always wanted to accomplish, and moving to Morenci during the summer was very exciting. As I mentioned before, I had previous experience in the copper industry in Peru, and after receiving internship offers from other metal companies and even receiving two internship offers from the same company that I worked for, I decided to choose to do my internship in Tailing Dams as a geotechnical engineering intern for Freeport McMoran. I think that this decision will help increase my background in the mining industry. Nowadays, tailing dams in many commodities are receiving too much attention because if one fails it has negative economic and environmental consequences. I want to mention that the last failure of a tailing dam occurred on September 11, 2022, in South Africa. The Jagerfontein failure killed at least five people and affected one small town close to this diamond mine.

During my internship, I was involved in learning how the tailing dams are managed, how they are constructed, and how they are monitored. My main project was focused on performing borehole camera recordings on the open case piezometers; I liked my project because I was able to find exciting things inside the piezometers. My second project involved arranging a new database for the information collected for the piezometers; I used VBA to facilitate getting the information. My internship projects were also selected to participate in the intern conference arranged by Freeport, where interns from their other nine operations come to share their internship experiences. I also had the opportunity to shadow in ore control, mine exploration and geomechanics.

This internship was very valuable because I learned about the American mining culture. I am grateful to my supervisors and mentors who always helped and guided me to finish my projects. Finally, I want to thank Freeport McMoran for giving me this invaluable opportunity to work in the American copper industry.

JENNESS

Aggregates mining in Maryland

BY KYLE JENNESS

As a student from Maryland attending WVU, I had never heard about mining or had any idea that it was a relevant career path in America today. Following up with some light research, I didn't just determine it was a stable industry in the U.S., but it was thriving and a perfect place to start a career. With a love of geology, business, and design at a young age, along with the help of amazing professors and eager students, I had made the decision to give it a go, and I am grateful to consider the mining department my home.

At my first internship it was a priority for me to get my hands dirty in a limestone or granite mine in operations, avoiding the engineering side to better understand what I was learning in my classes. I was lucky enough to get an internship opportunity from Vulcan Materials at a granite quarry in Havre De Grace, Maryland. At Vulcan, they gave me everything I asked for and more.

I started working long days in the plant with the maintenance operators spraying pads, shoveling, greasing, retraining belts, along with constant crusher, liner, belt and water pump repairs because something was always broken or dirty. It was tough getting used to the manual labor and long hours the first two weeks, but after this transition I came home tired, dirty, yet ultimately satisfied. I was also fortunate enough to assist in our gyratory primary crusher rebuild along with a secondary cone crusher rebuild on the weekends which became a highlight of the summer knowing full well I would have never gotten this opportunity at any other site.

I spent a large portion of my time filling in needed shifts on dock loadout helping load barges at either upper or lower dock. The upper dock had a manual winch line to move barges while applying a sweeper belt with a truck hopper designed for 65-ton haul trucks. This device was known as a TeleStacker. This dock did not have a scale, so a skilled eye was needed to appropriately load each barge. The lower dock was more advanced, employing a blending plant to take product by belt from product piles directly to the dock, only occasionally using a truck hopper when necessary to make certain blends. The number of barges on call and if they were loaded correctly or on time, determined whether you or your supervisor was having a good day.

In the quality control lab, I learned more about the different product blends doing product sampling by conducting various wash loss tests, sieve tests, along with crusher and belt samples. Quality control was an essential component for ensuring customers got the correct sized products while serving as an early warning system if a crusher or sieve was not working as intended. I was trained in a Komatsu 605 stockpiling barge loading or moving mud when an extra operator was needed. Lastly, I worked on a couple blasting sites preparing boosters, caps, filling drill holes with ANFO and guiding skid steers and back loaders for capping holes.

At Vulcan Materials, I learned the essential skills needed to understand the most basic aspects of any aggregate operation. Havre De Grace allowed me to take my technical skills and translate it into hands on experience that allowed me to bridge the gap between classwork and the real-world applications in my field. It was rewarding to connect and earn the respect of coworkers from all different backgrounds and creeds, helping me develop as a person in a way I never thought possible. Thank you, Vulcan.

Aggregates mining in Illinois

BY RYLAN NEMESH

Many mining engineering internships aren't located near large population centers, let alone the third largest city in the United States. I was fortunate enough to live less than a twenty-minute train ride from downtown Chicago this past summer while still interning in the mining industry. I was an operational improvement intern for Lehigh Hanson, part of the Heidelberg Cement Group. During this internship, I worked extremely close with my boss, Alex McArthur of Virginia Tech, throughout the entire Midwest division of the company, contributing to projects in Illinois, Indiana, Ohio and Kentucky.

This internship was unlike most of my fellow Mountaineers in the mining department, as I had the chance to experience the industry through the eyes of both executive management and on-site management. Seeing the industry from this viewpoint was very eye-opening, as I now understand the tight margins of aggregates and the reasoning behind many business decisions that directly affect field operators. I was able to add value to the company both from the Chicago office as well as during the many different site visits I was able to go on throughout the Midwest. I was exposed to many different operations, from underground limestone mines with 92-foot ceilings to open pit quarries with upwards of ten million tons per year capacities to sites with 38 feet of overburden requiring a dragline for efficient removal.

Throughout the summer, I was responsible for a few projects. One of these projects revolved around developing a digital infrastructure to support the maintenance application Checkproof. I, as well as an operational and an environmental intern, launched this application at one of Lehigh Hanson's Kentucky sites. Checkproof aims to optimize routine interval maintenance and environmental checklists to increase site availability to nearly 99%. Eventually, this application will be implemented throughout the company's 150 North American operations.

My other main project was the creation of five "toolbox talk" type training videos used in pre-shift meetings by the foreman to educate the operators on various topics such as wash screen setup, cone crusher functionality, belt sampling, screen motion and checking the closed side setting of various crushers. These videos will eventually be used throughout the global company of Heilberg cement.

My other experiences this summer included analyzing operational key performance indicators with management using Tableau to present findings at regional executive meetings, as well as aiding in standardizing operational procedures throughout the Midwest division to amend performance inconsistencies. I was able to travel to most of the medium-large sized sites in four different states while helping my boss during these meetings. Finally, Lehigh Hanson offered an internally sponsored education system which allowed me to enrich my personal education by attending virtual seminars on aggregate financials, sand processing, cement production, plant fundamentals, quarrying best practices, tailings treatment and rock mechanics.

While this summer was not an operational, engineering or exploration internship like my previous one, it was very beneficial and I honestly learned more than I expected. I highly recommend that future mining engineers get experience in three facets of mining: field operations, project engineering and business roles. I believe I am more prepared to start my career having experienced each aspect of the industry.

Aggregates mining in Colorado

BY JACOB HORNER

This summer, I had the opportunity to intern for Martin Marietta in their western division. I was assigned to their southern Colorado region, which encompasses their four quarries and sand and gravel operations around the Colorado Springs area. I stayed in Canon City, which was conveniently located in the center of all the operations.

The primary aggregate mined in Colorado has different veins of granite, which makes up a majority of the Rocky Mountains. The sand and gravel operations mine alluvial reserves. The difficulty and variance in geology created challenges in mining the high-quality granite and mixing in the lower-grade rock to create good mixtures for concrete and railroad ballast. The permitting in the quarries is also difficult due to much of the Rocky Mountain range being protected public land.

Being moved to multiple operations gave me a great range of experiences and I got to work in a variety of different roles. I worked in the ground crew, helped repair mining equipment and vehicles, operated heavy equipment such as haul trucks and loaders and helped load and design shots with the blasting crew. Being interested in the blasting process, getting to spend time with the blast engineers and learning different blasting methods was one of my favorite parts of the summer.

The most valuable engineering experience I gained was creating a set of long-term mine plans for 10-20 years for the Red Canyon Quarry. This was a challenge due to the permitting restrictions and the complicated geology of the canyon it was situated in. I used GIS data from a drone survey and my own ideas of how I wanted the future development to progress to make the plans on AutoCAD. Currently the plans I created are being incorporated into the official mine plans of the quarry and will be presented to the corporate leaders.

Overall, I had an amazing summer in Colorado. Getting an in-depth overview of the aggregates industry, hands-on experience and spending a summer in the mountains proved to be a valuable internship experience.

HORNER

SHILLING

Aggregates mining in Virginia BY DYLAN SHILLING

In the summer of 2022, I was fortunate enough to have my first mining internship in aggregates. I interned with Luck Stone at their Rockville, Virginia location. This internship occurred the summer of my freshman year going into my sophomore year at WVU. I was eager to learn as much as I could at the plant and get as much hands-on experience as possible.

My time with Luck Stone, an aggregate company, was beneficial to me as a young student in my college career. I spent time with hands-on work within the plant. The employees I worked with were very knowledgeable about the aggregate field and made it their goal to teach me everything they knew about the industry. Having such great mentors has increased my knowledge of the industry by learning how to operate a haul truck, operate the primary crusher and the importance of doing everyday maintenance to the plant that keeps it up and running. I experienced welding for the first time while I was there. A tail pulley had to get new wings welded on and I got asked if I wanted to try welding. I was intimidated at first since I never welded before, but with great mentors I helped install new wings on the tail pulley. After that project I also did some welding throughout the plant.

This along with other projects involving a flooded tunnel, moving the pump as we started to develop the seventh bench and blasting have prepared me for the classes that I have to take. I was able to get an understanding of the operations of a quarry that a classroom will not be able to teach me and to get a better understanding of the work I will be doing in the classroom by understanding it in a real-life application. I am grateful for the opportunity to have such an amazing internship with Luck Stone at their Rockville quarry and having the opportunity to experience working in every aspect of the mine.

FERENCHAK

Aggregates mining in Ohio BY RICHARD FERENCHAK

This summer, I worked at an underground aggregate mine. Going into my junior year, I was looking for a place where I could grow both my infield knowledge and familiarity of the mining industry at both the operational level and the upper management level. I also preferred to stay relatively close to home and my friends and family. That's why I chose to work for East Fair Field Stone outside of Youngstown, Ohio. Working for a large regional sized company I was able to see how a mine operates on every level and spend my time there doing a wide variety of things.

I was able to spend time underground working on shot crew. This was a great way to learn how an underground room and pillar mine operates because you spend a lot of time on foot and get to see how each process works with each other in a cycle to advance the section each day. It's a great way to get better at working with others and practicing teamwork. Shot crew is relatively fast paced compared with other underground jobs, which makes it a great way to get quickly acclimated to being underground.

I was able to spend time away from the mine with the production engineer looking at sales records and going on field trips to current and potential customers. This was a great introduction to the business side of mining and gave me a great opportunity to see the various industries that are fueled by aggregate mining. One of the most interesting things I got to do this summer was work in the field at a new underground mine being developed. I got to operate equipment from driving a haul truck carrying overburden to a rock hammer or a ground compactor. I got to get familiar with various types of equipment.

I got to engage in mine planning discussions with the field engineer on site. I got to learn a lot about the setup of settling ponds, stockpile management and plant set up. From going on field trips to the interstate, to hauling overburden, to replacing a broken ANFO line, my summer was truly memorable and provided an invaluable experience. Working for East Fairfield was a great experience working for a great company.

Coal mining in West Virginia

BY RICHARD GERBER

Over the previous summer, I was given the opportunity to work alongside mining and civil engineers alike as an intern at American Consolidated Natural Resources, Inc. ACNR is the largest underground coal mining company in America, operating nine active mines and producing around 49 million tons of coal each year. As a mining and civil engineering student just beginning my junior year of WVU, this past summer was a great way to learn more about everything that goes into coal mining, allowing me to apply newfound knowledge to my upcoming engineering courses and future career.

With this opportunity being my first internship during college, I was eager to experience all of the intricate details that go along with coal mining. After having expressed these thoughts to ACNR's recruiting team, I was given an agenda that allowed me to get involved in everything that coal mining had to offer. I was based mainly at the Ohio County Coal Resources mine located near Wheeling, West Virginia, where I worked alongside the various departments and offices that made up their Golden Ridge Portal location. I was educated on the duties and importance of the safety, longwall, continuous mining, beltline, maintenance, engineering and outby departments. I discovered the unique but intertwined roles each area controls in safely extracting coal.

Furthermore, I was given the chance to work on the surface at sites such as the overland beltline, prep plant, surface engineering department and the impoundment, recognizing the wide range of operations that take place above the ground as well.

During my time in each of these areas, I learned more than I could have ever imagined. While the classroom setting is crucial, receiving hands-on experience in the field grants insight that a classroom environment can't possibly provide. Not only was I able to observe the many intriguing areas within the coal industry, but I was also able to meet many interesting people, each with different, yet important responsibilities. Likewise, as a member within multiple different crews I was able to observe the strong will and patient mindset needed to work within the coal industry, while also improving upon my teamwork and communication skills.

Overall, I am extremely grateful to ACNR for having given me the opportunity to intern within their company, as it was an invaluable experience. Being an engineering student, I know that understanding the inner workings of any complex system is a crucial factor in being able to improve upon it. This opportunity has allowed me to see the inner workings of a coal mine, and recognize the vast knowledge and experience required to produce effective results, placing me on the path towards further advancing the mining industry as a future engineer.

Coal mining in Virginia

BY JONATHAN SLEZAK

This past summer, I had the pleasure of working my first internship for Coronado Coal LLC at the Buchanan Mine in Raven, Virginia. I was excited to work for Coronado as their internship followed a rotational schedule where interns are moved between different departments in order to enhance understanding of the underground coal mining process. Having no prior experience in mining, it was a great opportunity to expand my knowledge and discover my own personal interests in the industry.

The rotation went through five different departments: production, maintenance, engineering, safety and the preparation plant. In production, I worked on various sections assisting miners with their work such as roof bolting, dusting and belt moving. In maintenance, I worked on repairing equipment, allowing me to learn more about how the machines operate and are maintained. In the safety department, I travelled with MSHA and state inspectors, learning more about the various regulations for underground coal mining and why they matter. I also helped replace fire hoses and checked the water lines for emergency fire suppression. In the engineering department, I travelled with the spad crew, where we surveyed the mine and I even got to set some spads myself. At the prep plant, I assisted in maintenance, helped with record keeping, and observed the processes involved in cleaning and transporting the coal.

While the internship focused more on the mining process rather than providing interns with individual engineering projects, I believe that it was a valuable and well spent experience, as it furthered my knowledge about the processes that the mining engineers design. After all, how can I be expected to design a system if I've never seen one in operation? I would like to thank Coronado and the Buchanan Mine for taking me on for this internship, and I look forward to working in the mining industry in the future.

Coal mining in Penns

BY THOMMY BAFUNYE

Ever since I transferred as a sophomore to WVU, I knew that I only had two summers left before graduation and it would be in my best interest to make good use of those summer breaks so I started going to information sessions of different mining companies to hear what they were all about. During the fall of 2021 and the spring of 2022, I got to learn something new from professionals in the industry every time I participated in info sessions. I ended up getting a few internship offers in the spring and I decided to go with Iron Senergy.

Iron Senergy was founded in 2020 and is located in Waynesburg, Pennsylvania. This is an energy company that produces high-quality coal. The company mines its coal from the Cumberland mine, which is an underground mine. Since this was my first time working in an underground mine, I had to take my 40 Hours Apprentice Underground Miner Course for the State of Pennsylvania. Once the course was completed, I was given an opportunity to rotate in different areas of the mine for about 2 weeks. In the early days of the two weeks rotation, I worked at the No.1 Sump with an underground engineer. There, I had a chance to get some hands-on experience while working on pumps and water lines. Then I was sent to work outby on the longwall for a few days. That's where I was helping the crew with building cribs, removing rail tracks and breaking down the conveyor belt structure for the advancement of the tailpiece. From here, I was sent to continuous miner sections to learn and assist with production. It was interesting seeing a continuous miner machine cutting through different layers of coal and how roof support was being put in place right away after a few cuts.

After my two weeks rotation, I chose to stay underground for at least a month so I would keep on acquiring more knowledge on underground mining operations. I continued to spend most of my days on continuous miner sections, but I also worked with maintenance crews when given an opportunity. For instance, I would assist belt men with splicing a conveyor belt and replacing bad rollers. However, before I got sent to work outside at the preparation plant, I was involved in a small-scale project that consisted of profiling a belt line in one area of the mine. It was a pleasure for me to get tagged along on that project with an experienced foreman and with two other hourly miners. The experience was a lot of fun and a lot of learning.

Eventually, by the time I went to work at the preparation plant, I had a good understanding of how to mine coal, but I still had to learn how to process raw coal once it leaves the mine. Luckily for me, I met some experienced people at the plant who have been in the industry for so many years. To get started, I was trained for surface mining operations, and then I was given a tour by the safety team. In the days that followed, I worked in the control room and helped the crew do their run. And of course, I was also involved with the maintenance of the plant when needed. I used this opportunity of working outside the mine to check out the refuse site (impoundment) and the Harbor site (from where the coal is loaded in barges for naval transportation). Obviously, checking out those two sites was vital to my internship because I wanted to get exposure to the environmental and transportation side of the mining operation. A few weeks before the end of my internship, I was asked to work with the survey team so I could get some experience with underground survey practices. That being said, my summer internship was such a rewarding experience and I've learned a lot throughout the summer.

Finally, I want to take this opportunity to express my gratitude to Iron Senergy for giving me an opportunity to grow professionally in this industry. My colleague interns and I had support from everybody. From the executive branch and management to the engineering department, we were given everything we needed for a successful summer internship. I'm excited about what my next chapter will be.

sylvania

SMITH

BY ODIN SMITH

This summer, I engaged in an engineering internship at the Iron Senergy Cumberland coal mine. The Cumberland mine was taken over by the new company Iron Senergy only two years ago. After interviewing with the company in the second semester, I was offered an internship and was eager to accept. Working with the engineers, most of which were WVU alumni, the production crews and the surface workers in both the preparation plant and their very own harbor, gave me an amazing and comprehensive introduction to the coal mining industry.

The Iron Senergy company had a lot of interesting projects that were presented to the interns with an awesome enthusiasm. As an intern I got to be involved in projects, with varying degrees of involvement, both underground and on the surface. One that was very exciting to see completed over the stint of my internship was the implementation of longwall automation. There were many other projects that I worked on with involvement ranging from watching and absorbing information from ASU professors about the pumpable crib, to have hands on experience helping the engineers set up said projects.

Finally, I would like to give a huge thanks to the Iron Senergy engineering and corporate teams for giving me all the exposure to this industry and invaluable information about the major. Almost a larger thanks goes out to the workforce themselves; they were extremely helpful and enjoyable to be around. If anyone reading this has any questions about the Cumberland Mine or corporate Iron Senergy, feel welcome to come talk to me, or even come to the Company's tailgates at football games.


WELSH

BY BRIAN WELSH

As I reflect on my final summer as an intern, working at Rosebud Mining Company based out of Kittanning, Pennsylvania, I can wholeheartedly say that I am confident and proud of my college career and ready to start my professional career.

Prior to starting with the Rosebud engineering department, all my experience was focused on the operations side of the industry. This made me especially interested in accepting an engineering position. I may have lacked prior experience of real-life engineering applications, but I did not lack the willingness to learn or the confidence in my education to be able to apply myself in this new work environment.

My time spent at Rosebud Mining Company was exceedingly beneficial for a graduating senior ready to start his professional career. I spent my time assisting with various projects directly under Rosebud's engineering staff. These professionals were extremely knowledgeable in what they do and were very successful in teaching me what they knew. Having these great mentors allowed me to complete shear strength studies at 15 different underground coal mines, understand and assist with underground ventilation surveys for future mine planning, and determine water volume calculations of active and adjacent mines. The importance of planning and communication with the mine operations personnel to ensure successful outcomes for engineering projects and operational issues was reinforced throughout my time at Rosebud.

As I previously mentioned, this internship was beneficial and has prepared me for my much-anticipated career that I have in store after graduation in May 2023. I would not only like to thank the Rosebud Mining Company, but also the WVU Department of Mining Engineering for making opportunities like this possible, not only for me, but for every student enrolled in the program.

Geomechanics consulting in Minnesota

BY MUSTAFA CAN SUNER


SUNER

The main reason that drives me to pursue an academic career in the field of mining geomechanics is the idea that science is not about the final truth. But rather it is about continuously testing and trying to improve existing hypotheses until they are extremely well-supported. Since I have joined the Ground Control and Geomechanics Research Group of Berk Tulu at the Department of Mining Engineering at WVU, I had a series of great opportunities for fulfilling my goals by advancing in my research and representing my school in both a national and international scale. If you ask who I am, in very short, I am Mustafa Can Suner, a second-year international PhD student holding bachelor's and master's degrees in mining engineering obtained from Middle East Technical University in Turkey and WVU, respectively.

One of the greatest privileges of my program at WVU is that it provides a full variety of internship opportunities throughout the country under different companies and creates an encouraging environment to get involved in the industry. This summer I was in Minneapolis, Minnesota working for Itasca Consulting Group as a Consulting Intern, which is a prominent geomechanics software and consulting company in the world. I had a great number of opportunities to be involved in different projects such as comparison of two different in-house developed software, help the consulting team to understand the dynamics of one of the geomechanics software, generate Python routines to post-process numerical simulation results and involve in cave mining projects where I was responsible for preparing mine footprints for numerical simulations. All these projects were quite beneficial in understanding how scientific research turns into applications with consulting projects. During my time at Itasca Consulting Company, I not only helped the consulting team but also found an environment to improve my skills by learning new software such as 3DEC, PFC and Rhino.

Besides the technical work, I participated in the ICG, where I had the opportunity to personally meet with researchers like Peter Cundall and David Potyondy. Also, I was able to watch my first baseball game together with my colleagues at ICG and it was indeed a great victory for the Minnesota Twins! I must say a thank you to David Potyondy for the baseball lecture during the game! Plus, I was lucky to experience what Minneapolis offers. I had the opportunity to attend shows, concerts and open-air festivals and spend my weekend time next to one of the 10,000 lakes of Minnesota with great sightseeing and have a chance to try lots of different restaurants. To be exact, Roger Waters' concert at Target Center and the meal I ate at the Owamni by The Sioux Chef were magnificent.

This internship was such an unforgettable experience for me. I would like to thank my dear advisor Berk Tulu and my department chair Vladislav Kecojevic for their unconditional support and encouragement on the way to success. Therefore, I would like to thank Itasca Consulting Company and Ehsan Ghazvinian, Tryana Garza-Cruz, Miguel Fuenzalida and Christian Cancino for making it possible that I could blend into such a wonderful atmosphere and become a part of a huge family at Minneapolis.

Engineering technical sales in Nevada

BY VICTOR VALENCIA

Victor Valencia interned with Nalco Water, an Ecolab Company, during the summer of 2022. As an Engineering Technical Sales Intern, Victor assisted sales representatives and sales technicians at several gold and copper mines in Nevada. He trained in and learned about froth flotation processes, coagulants and flocculants. Victor had the opportunity to visit and work alongside lab technicians in a laboratory in Tucson, Arizona for a portion of the internship. In addition, he gave a presentation on his summer internship at Ecolab's headquarters in Naperville, Illinois.

In Memoriam

John R. Craynon 61, of Morgantown, passed away unexpectedly on Saturday, April 16. A Kentucky native, he had a passion for mining engineering in both the federal and private sectors and taught at West Virginia University as well as his alma mater, Virginia Tech. Craynon is survived by his four children: Johanna O'Hara, Megan Craynon, Sarah "Colleen" Etherton, and Robert Craynon, six grandchildren and his siblings Mary "Eddie" Craynon and Brian Craynon

Yi Luo, 64, passed away unexpectedly on Feb. 13, 2022. Luo was born in rural Xixiang county in Shaanxi, China, to a family of educators. Through his brilliance and hard work, he moved to America in 1983 to pursue higher education. Luo moved to Morgantown for his PhD in mining engineering at West Virginia University in 1985. He fell in love with the town and the university and would remain there for the rest of his life, working as a professor at his alma mater. He dedicated his life to teaching students of all levels and remained close to several of them, even decades after they graduated. He was a prolific researcher with over 100 published manuscripts. Moreover, he was pivotal in moving several young scholars from China to the United States so they could have the same opportunities that he did. Luo is survived by his children, Kevin and Ruth; siblings, Hui and Kai; and many nieces and nephews.

A scholarship fund has been established by WVU alumni to support students pursuing a master's or doctoral degree. The group also raised money for a memorial bench that will be placed in WVU's Core Arboretum. For more information see page 16.

BLACKDIAMONDS
WEST VIRGINIA

Department of Mining Engineering
West Virginia University
P.O. Box 6070
Morgantown, WV 26506-6070

Non-Profit
Organization
US Postage
PAID
Morgantown, WV
Permit No. 34

Alumni Update 2022 YEAR IN REVIEW

PLEASE WRITE TO US! We want to know where life has taken you since you left West Virginia University. Complete and return this form with your news and comments. Pass this newsletter on, or let us know any alumni who are not receiving Black Diamonds.

Send to: Department of Mining Engineering
West Virginia University | 365A MRB | PO Box 6070 | Morgantown, WV 26506-6070

Or, email updates to **karen.centofanti@mail.wvu.edu.**

Name: _____

Degree(s): _____ Year: _____

Home Address: _____

City:_____ State: ____ Zip: _____

Home Phone: _____

Business Phone: _____

E-mail: _____

Employer: _____

Position Title: _____

Employer Address: _____

City:_____ State: ____ Zip: _____

Preferred Mailing Address: ❑ Home ❑ Work

Brief news of professional and family activities for future newsletters:

_____

_____

_____

_____

_____

_____

_____

Suggestions/comments:_____

_____

_____

_____

_____

_____

_____

_____

This newsletter is published once a year to keep our alumni and friends informed of departmental news and ongoing activities. For additional information, visit our website: **mine.statler.wvu.edu**