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GORDON AND JILL BOURNS

College of Engineering

CIVIL ENGINEERING | CONSTRUCTION MANAGEMENT™

# NEWSLETTER



2023

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2024

## Message from the chair

# Jong-Wha Bai, Ph.D., P.E.

Dear friends and colleagues,

The spring semester of 2024, marked by hefty rainfall, is coming to an end. As we reflect on the past year's achievements, I am proud to share some highlights that exemplify the dedication and excellence within our department. Our faculty members continue to shine through their exceptional teaching and scholarly activities. Their passion for teaching has enriched the learning experience of our students.

Additionally, our faculty members have demonstrated outstanding service to both our school and the local community. Their contributions beyond the classroom have made a difference, reflecting our department's commitment to making a positive impact beyond our campus.

Our students have actively participated in extracurricular activities such as the Associated Schools of Construction (ASC) Reno competition and the Pacific Southwest Symposium (PSWS) hosted by the University of Hawaii, Manoa, this year. Throughout these competitions and experiences, students have not only acquired technical knowledge and skills but also developed humble leadership and team spirit. Special thanks to the generous support of our industry partners and organizations, who made these trips possible. Our students have also received scholarships and benefited from positive internship experiences.

I am pleased to report that our recent ABET accreditation visit was successful. We eagerly await the official response this summer. I extend my gratitude to all CECM faculty members, CBU administrations, and industry partners for maintaining high standards of academic quality to meet our needs.

Last year, we organized a series of outreach activities to promote STEM fields among aspiring young minds. These included the Graham Cracker Gingerbread House Shakedown event and the CECM Summer Camp. Through these events, we were able to inspire the next generation of scientists and engineers.

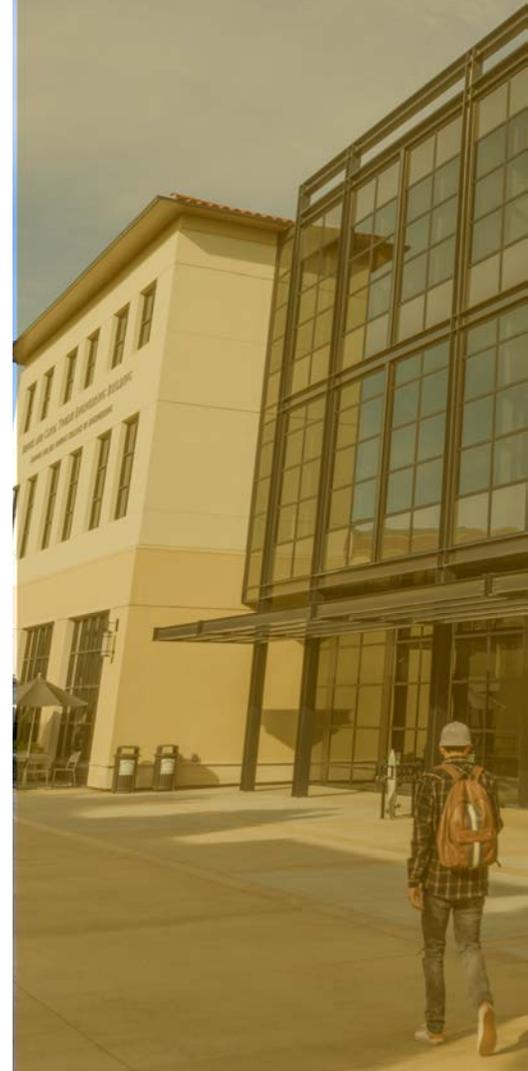
As we look ahead, let us build upon these accomplishments and continue to strive for excellence in all that we do. On behalf of our faculty, staff, and students, I extend sincere thanks for your support and prayers for the department. We eagerly anticipate continuing our progress together. Your prayers and support for future events, including capstone projects and competitions like ASC Reno and ASCE PSWS, are greatly appreciated.

Thank you for your continued support and dedication.

Blessings,

Jong-Wha Bai, Ph.D., P.E.

Department Chair / Professor



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# 2023-2024 CECM

# Faculty Highlights



## Dr. Jong-Wha Bai

Dr. Bai collaborated with Dr. Yeesock Kim on a research project funded by CBU's internal grant, focusing on shake table testing of historic buildings with seismic retrofit techniques. Two undergraduate research assistants, Jakob Yovanovich and Rikus Van Niekerk, actively participated in designing and constructing a scaled wood-frame structure. He also organized outreach events such as CECM summer camp for 5th- 8th grade students and the Graham Cracker Gingerbread House Shakedown for local high school students. In addition, he made a presentation titled "Shaking Up Learning: Engaging Engineering Education and Outreach with a Shake Table" at the KSEA conference.



## Dr. Jay Lee

Dr. Lee has been serving as the CM Program Director since he joined the College of Engineering at CBU in 2018 and a Program Evaluator (PEV) for ABET since 2016. Dr. Lee's recent research interests include using a 3D scanner for the analysis of as-built drawings and advanced Building Information Modeling (BIM) applications. He tries to bring in the experiences from his recent scholarly activities to his classroom and continues to help his students in learning new applications for construction management. He is currently working on an NSF grant proposal for Undergraduate Education (DUE) in the STEM Education (EDU) division.



## Dr. Helen Jung

Dr. Jung conducted flood prediction research with an undergraduate research student, resulting in a presentation. The conference paper, "Understanding buoyancy by building a miniature concrete canoe," was presented at ASEE's FYEE (First Year Engineering Education) Conference. She also mentored a graduate student on research titled "Understanding HEC-HMS Parameters with Watershed Response in Lewiston, CA." In addition, she served as a panelist and reviewer for the National Science Foundation and UCLA Engineering Scholarship as an alum reviewer. As her service, she advised 15 first-year teams on civil engineering projects such as a mini concrete canoe and bridge competition.

## Dr. Yesock Kim

Dr. Kim has developed artificial intelligence (AI) models that predict the complex behaviors of ocean waves. This work utilizes data from two Wellen radar systems situated in Samcheok City, Gangwon-do, on the east coast of Korea. In addition to this, Dr. Kim has crafted pattern recognition algorithms to visualize ocean wave motions. With an editorial background, Dr. Kim has contributed as an editor or associate editor to numerous journal articles across several publications, including Intelligent and Fuzzy Systems, Sensors, and Advances in Mechanical Engineering. In 2023, Dr. Kim had one peer-reviewed journal article under review in artificial intelligence and machine learning.



## Dr. Jiliang Li

Dr. Li specializes in geotechnical engineering (soil & rock mechanics, foundation engineering, earth retaining structures) and geomaterials characterization from strip loading test to wheel loading test development. Dr. Li developed and has applied the FI7MI5LDV (Faith Integrated Inventive Instruction Improvement with Interesting Imaginary Innovative Mnemonic, Intuition, Insight and Inspiration for Interdisciplinary Impactful Learning Discovery Vision) framework to his learning and teaching discoveries. He was a panelist and reviewer for four National Science Foundation Career grant proposals in 2023. Dr. Li and his co-authors recently published a GeoRisk paper, "Deterministic and Probabilistic Rock Plan Slope Stability Analysis."



## Dr. Michael Nalbandian

Dr. Nalbandian has been part of CBU's College of Engineering since 2015, spearheading its environmental engineering courses. His research interests revolve around environmental nanotechnology, specifically the fabrication of electrospun nanofibers for the removal of contaminants in impaired water sources. He is also very active in the San Geronimo local section of the American Chemical Society and a reviewer for several peer-reviewed journals, including Materials & Design and Applied Sciences. He recently published a critical review with collaborators on the development of electrospun nanofiber materials for POU/POE water treatment systems in the Journal of Hazardous Materials Advances.



## Dr. Humberto Gallegos

Dr. Gallegos obtained his college degrees in civil engineering from California State University, Los Angeles, Colorado State University, and the University of California, Irvine, with an emphasis on water resources. He is also a P.E. in the State of California. He is currently pursuing a license as a Professional Land Surveyor. He is currently a member of the California Land Surveyors Association, American Society of Civil Engineers and is currently chair of the California Spatial Reference Center. His love for engineering is directly connected to observing his students succeed as professional student engineers.





# Faculty Spotlight

## Humberto Gallegos, Ph.D.

Your professor hails from Los Angeles, California. He graduated from Roosevelt High School in Los Angeles, CA and he obtained his college degrees in civil engineering from California State University, Los Angeles (Cum laude), Colorado State University, and from the University of California, Irvine with an emphasis in water resources. He is also licensed in the State of California (PE – C66840). Dr. Gallegos is currently pursuing a license as a Professional Land Surveyor (LSIT No. 8849). He is currently a member of the California Land Surveyors Association (CLSA), Los Angeles Chapter and a member of the American Society of Civil Engineers (ASCE) and currently chair for the California Spatial Reference Center (CSRC). His love for STEM is directly connected to observing his students succeed as professional student engineers via their careers and/or during student competitions (ASCE, ASME, SWE, etc.), and/or observing them progress academically in class.



Trust in the LORD with all your heart and lean not on your own understanding; in all your ways submit to him, and he will make your paths straight.

Proverbs 3:5-6

His technical passion lies in water resources simulations, land surveying works, and physical hydraulic modeling. He also finds himself encroaching in areas where structural analysis and soil mechanics are involved. While at CBU, Dr. Gallegos has been blessed to facilitate CBU CECM capstone projects, teach CAD, run fluids experiments, and is scheduled to teach land surveying this coming 2024 fall semester where he plans to incorporate PSWS ASCE surveying competition activities to win it all for the Lord. He's also a foodie.

# Student Spotlight - Civil Engineering

## Fatima Duenas-Esparza



Fatima Duenas Esparza graduated from California Baptist University with a degree in Civil Engineering. She interned with Flatiron Construction and will continue her career with the company. Since she was a little girl, her talents have gravitated toward mathematics and building things, from taking her toys apart to building something from her imagination and solving complex math equations. However, it wasn't until high school that her honors trigonometry teacher unveiled the world of engineering to her. Her high school teacher recognized her aptitude for math and saw the potential for her in the field of civil engineering. It took some time to gather the courage to pursue her degree in civil engineering, as fear held her back, knowing it was a very challenging field. However, she ultimately made the daunting decision to transfer universities, marking the pivotal moment where she faced her fears head-on and committed to her passion for engineering.



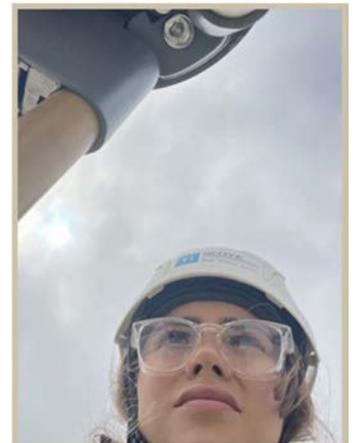
And whatever you ask in prayer, you will receive, if you have faith.

Matthew 21:22 (ESV)



The bible verse above always helped Fatima during doubtful moments. College was always challenging for her because she faced academic, physical, mental, emotional, and spiritual challenges.

She hopes to inspire others to always follow their dreams. Change will always be scary, but it can improve your life. If she had never dared to transfer to CBU, she would have never met her great professors, peers, and the great opportunities that came along.



# Student Spotlight - Construction Management

## Fabian Ortiz

Fabian Ortiz is a senior pursuing a master's in construction management. For the past two summers, he has had the opportunity to intern with two different heavy civil construction companies. His first internship was with Granite Construction at the Ortega Hwy project in Lake Elsinore. His second internship was with Flatiron Construction at Temecula's French Valley (I-15 I-215 interchange) project. For his final summer before graduating, he will be trying out the vertical construction industry, interning with Swinerton. A goal Fabian has for his career is to become a better builder. He believes that learning and watching the trades is essentially what makes you a better engineer. Understanding the sequence and interacting with the craft workers makes you well-balanced and makes you a better leader. One piece of advice he would give future students pursuing an education in construction management is not to be afraid of asking questions. Fabian came into this major with very minimal knowledge of construction. He explained that you don't realize that many other students are in the same position as you. Losing that fear of asking questions launches you into unlocking construction knowledge. Even during internships, ask questions. It may seem intimidating to ask experienced professionals, but they are more than willing to share their knowledge with the new generation, especially if you show that willingness to learn.



Do not be deceived; God cannot be mocked, for you reap whatever you sow

Galatians 6:7



# CBU AEC (Architecture Engineering Construction) Club - AGC (Associated General Contractors of America) Student Chapter



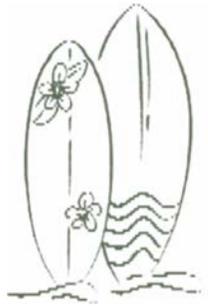
This year, the AEC Club completed many events for students to participate in with opportunities to network, compete, and acquire knowledge of the construction industry. Our fall 2023 semester started off with a resume workshop and career fair preparation meetings in collaboration with Pablo Hidalgo from the Career Center at CBU. Our goal was to prepare our club members on how to present themselves professionally while speaking to companies at the Engineer Career Fair. The rest of our Fall semester was comprised of Lunch-and-Learn meetings with notable companies such as Whiting-Turner, Flatiron Construction, and W.E. O'Neil.

In preparation for CBU's second year of taking three teams to the ASC Reno Competition (Heavy Civil, Pre-Construction, & Design-Build), all three teams met regularly with their coaches to practice, learn, and go through dry runs throughout the fall semester and continued to the 2024 spring semester leading up to February when the competition took place. Our teams' coaches were from Swinerton (Pre-Construction), Flatiron (Heavy Civil), and Whiting-Turner (Design-Build). Each team competed for over 15 hours straight! This included setting up the PowerPoint presentation and preparing for the presentation in front of the panel of judges. The competition was a great opportunity for the students to showcase their AEC skills in front of some of the largest construction companies in the nation, to meet students from other schools, and to enjoy their time with future co-workers.

Coming back from the competition, the AEC club did a recap of the competition to encourage other students to sign up for next year. More Lunch and Learns were organized as well as a job walk with Tilden-Coil at the new Baseball/Softball building on campus.



# CBU American Society of Civil Engineers Student Chapter



CBU ASCE had the opportunity to attend the Pacific Southwest Symposium in Hawaii, hosted by the University of Hawaii at Manoa. The ASCE students have achieved a significant milestone with the timely completion of the steel bridge project, demonstrating remarkable structural integrity. Successfully passing rigorous lateral testing, the bridge showcased its capacity by supporting loads exceeding 1500 lbs. This accomplishment underscores CBU's commitment to excellence in construction and engineering. In a notable expansion of their expertise, members of the American Society of Civil Engineers (ASCE) chapter at CBU ventured into the prestressed concrete competition for the first time. Despite being newcomers, their entry secured the second-highest strength rating, affirming their aptitude in this specialized field. Additionally, the ASCE students displayed exceptional foresight and analytical skills by accurately predicting deflection patterns in the timber-

strong competition.

Furthermore, CBU upheld its reputation as a formidable contender in recreational activities. As defending champions, the team secured second place in the competitive Kan Jam tournament, further demonstrating their prowess beyond the realm of engineering. These achievements not only highlight the technical proficiency of CBU ASCE students but also underscore their collaborative spirit and dedication to excellence across diverse disciplines. Such accomplishments serve as a testament to their unwavering commitment to innovation and leadership in engineering and beyond.



Throughout the year, and PSWS specifically, students had the opportunity to network with one another and potential employers. Students were able to learn and grow from their experiences together as a team.



# 2023 - 2024 CECM Program Updates

## PROGRAM HIGHLIGHTS

3 CE students received scholarships and sponsorship for travel (Laura Gallardo – IMEG \$10,000; Brandon Hluchan – Simpson Strong-Tie \$3,000; Austin Polich – ACI SoCal \$3,000 & IIBEC sponsorship)

Extra-Curricular Activities: 3 CM teams (Preconstruction, Design Build, and Heavy Civil) continue to be participating in the Reno Competition next year.

New faculty hire: Dr. Euysup Shim from Illinois State University, CM Director, starting July 1, 2024



## PROGRAM OUTREACH

CECM Program included the CECM Summer Camp held last July and the Graham Cracker Gingerbread House Competition held last December and hopes to continue them this year.



## OUTSTANDING STUDENTS



2024 Civil Engineering Award  
Rikus van Niekerk



2024 Construction Management Award  
Casey J. Puentes

# 2024 Civil Engineering and Construction Management Capstone Projects

## Riverside County Flood Control Channel Team

Angela Rodriguez  
Kolin Tersey  
Joshua Jacob  
Sarah - Jean Boyd



## Reno Competition Design Build Team

Cole Bradley  
Evan McReynolds  
Cabot Ferguson  
Allyson McCormick  
Micah Schwartz  
Isiah Rosales  
Christian Betancourt



## Subdivision Tract Map

Laura Gallardo  
Mariam Youwakim  
Tristin Koch  
Valente Gutierrez  
Rikus van Niekerk  
Jessi Dreschler  
Lisbeth Cerna



# 2024 Civil Engineering and Construction Management Capstone Projects



## **Reno Competition Heavy Civil Team**

Fabian Ortiz  
Brian Orozco  
Bryant Flores  
Giancarlo Triassi



## **Steel Bridge V2**

Jonathan Croyle  
Austin Polich  
Brandon Baxter  
Gabriela Rodriguez  
Jonathan Ivers  
Ahmad Hosseinkhani  
Nayeli Torres  
Christopher Schimming  
Christopher Althausen  
Frank Abacherli



## Want to be featured in the next issue?



Have you or someone you know achieved a recent professional success? We want to hear from you! CBU Civil Engineering

and Construction Management is looking to feature the many accomplishments of our Civil Engineering and Construction Management Department.

Please send your short article (200-500 words) to [jbai@calbaptist.edu](mailto:jbai@calbaptist.edu).

## Upcoming Events:

October, 2024 - CBU Engineering Fair

November, 2024 - CECM Industry Advisory Council Fall Meeting

December, 2024 - CBU Fall 2024 Commencement

February 2025 - ASC Regions 6 & 7 Student Competition at Nugget Casino Resort in Sparks, NV

April, 2025 - Pacific Southwest Symposium (PSWS) in California

## MAKE A GIFT

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From Left to Right: Jay Lee, Humberto Gallegos, Jiliang Li, Yeesock Kim, Helen Jung, Michael Nalbandian, and Jong-Wha Bai

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