

CIVIL ENGINEERING AND CONSTRUCTION MANAGEMENT



2018-2019

CECM Department Faculty, Fall of 2018



Gordon and Jill Bourns College of Engineering

LIVE YOUR PURPOSE®

MESSAGE FROM THE CHAIR

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



I hope you enjoy this edition of our Civil Engineering and Construction Management (CECM) Newsletter. This is a time of significant growth and exciting changes in our

programs. After moving into the Dennis and Carol Troesh Engineering Building last summer, all of our students and faculty enjoyed their first year with high technology and cutting-edge equipment. In addition to the big change in facility, we also hired Dr. Jay Lee as the new Director of Construction Management Program. Under his great leadership and the support from CECM Industry Advisory Council, our CM program was able to grow in student activities and even participated in the ASC's Reno competition as observers.

There have been many exciting milestones for faculty and students. Dr. Yeeseok Kim submitted his second research grant to National Institutes of Health (NIH) on his cancer cell research. Dr. Helen Jung developed two online courses during her Sabbatical leave in Seoul, Korea in the Spring of 2019. In addition, several Civil Engineering students received recognition from professional organizations: Nathaniel Small was awarded an \$8000 scholarship from the American Council of Engineering Companies (ACEC)

LA County Chapter, and Kristi Sleeper and Kalen Gopperton received \$2500 scholarships each from the American Public Works Association (APWA) Inland Empire Branch.

Last summer, our students participated in internships in public and private sectors such as Caltrans, Granite, Swinerton, Rick Engineering, and Tilden-Coil. I want to thank our industry partners for their valuable support, not only providing opportunities for our students, but also donating funds and time to impact our students and programs. In addition, two MSCE students, Adeel Syed and Ezekiel Cortez, successfully defended their thesis/projects and graduated in May this year.

I look forward to working together with you to continue to move our program forward. With the support of our faculty, staff, alumni, and industry partners, our department continues to grow and strive for excellence and innovation. There are many future events that need your prayer such as seniors' capstone projects, the preparation of ASC's Reno competition and ASCE Pacific South West Conference (PSWC) next year, and continuous enhancement on both Civil Engineering and Construction Management programs.

Blessings,

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

Department Chair / Professor



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FACULTY HIGHLIGHTS

From Research to International Conferences



Dr. Jay Lee

Dr. Lee served as a PEV for Accreditation Board for Engineering and Technology (ABET). In Oct 27 - Oct 30, 2018, he reviewed the Architectural Engineering Technology Program at NHTI – Concord’s Community College, Concord, New Hampshire and received the Excellent Service Recognition by Executive Director & CEO of ABET for 2018 Review Period. Dr. Lee’s research interests include spatial analysis utilizing GIS applications and safety management in construction. His current scholarly work includes application of urban activity data and machine learning algorithm. He is also collaborating with Dr. Shoji Nakayama at Purdue University Northwest investigating leading causes of highway work-zone incidents.

Dr. Jong-Wha Bai

Dr. Jong-Wha Bai received the Faculty Member of the Game Award from Guidestone during the CBU’s basketball game on January 24, 2019. Dr. Bai also attended the Fall 2018 American Concrete Institute (ACI) Convention and participated in the committee meetings in Las Vegas on October 14-17, 2018. In November, he attended the FEMA P-58 Training Seminar on performance-based seismic design in Seattle on November 28-29, 2018. Dr. Bai submitted an abstract with one undergraduate student (Nathaniel Small) to the 13th International Conference on Applications of Statistics and Probability in Civil Engineering (ICASP13) and it was recently accepted for presentation.



Dr. Helen Jung

Dr. Helen Jung was invited as a keynote speaker, presenting her research “Flood forecasting with HEC-HMS under extreme land cover change conditions” at the Global Conference on Engineering and Applied Science (GCEAS), Tokyo, Japan. Her outreach activities involved 5 schools providing tutoring for K-12 students through our college of engineering students’ service learning class. She returned from her sabbatical during the spring semester and completed pilot testing her two courses online. She is continually serving the College of Engineering as an Associate Dean, College of Engineering Rep for the Undergraduate Curriculum Committee and as an Assessment Committee representative.

FACULTY HIGHLIGHTS

From Research to International Conferences

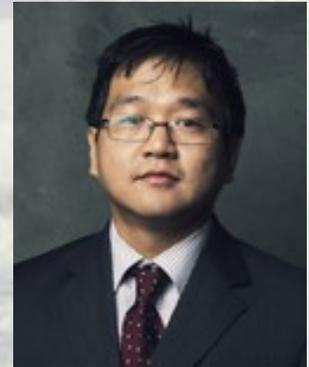


Dr. Michael Nalbandian

Dr. Nalbandian's research interests revolve around environmental nanotechnology. He recently published a journal paper in *Frontiers in Chemistry* on the synthesis and analysis of hollow lead telluride (PbTe) nanofibers towards their use as thermoelectric materials. He also attended the ASCE Pacific Southwest Conference at Cal Poly San Luis Obispo with CBU's local student chapter as well as the ACS Nano Western Regional Meeting at Cal Tech. He is an active reviewer for several peer-reviewed journals such as *Materials & Design*, *Water*, and *Applied Sciences*. He is currently working with research students on analyzing empirical models on electrospinning synthesis.

Dr. Yeesock Kim

Dr. Yeesock Kim, Associate Professor of Civil Engineering and Construction Management has served as a faculty member at California Baptist University since 2016. Kim holds his Ph.D. degree in Civil Engineering from Texas A&M University with an emphasis in Artificial Intelligence (AI). Dr. Yeesock Kim's teaching and research interests are in the areas of artificial intelligence, machine learning, structural mechanics, smart buildings, system identification, fault and damage detection, energy efficient buildings, optimization of construction materials and systems, structural health monitoring, and structural controls.



Dr. Julian Mills-Beale

Dr. Mills-Beale has been spearheading efforts at helping the continent of Africa in engineering and technology development. As part of his initiative, the 1st African Renewable Energy and Smart Technology conference (AFRESMART 2019) will be hosted at the California Baptist University's Gordon and Jill Bourns College of Engineering, from December 17 – 19, 2019. The conference will bring together innovators, technologists, academicians and industrialists seeking to help Africa develop through improved technology.

Dr. Fred Pontius

In 2018, Dr. Fred Pontius served as Visiting Professor in the department of environmental engineering at Chung Yuan Christian University, Taiyuan City, Taiwan, where he taught courses in civil engineering sustainability, international field study, and engineering from a Christian perspective. He participated in the International Industrial-Academic Leadership Experience giving presentations on sustainable communities, climate changes within a local reference frame and sustainability programs for the built environment. Dr. Pontius completed a research study on desalination of Salton Sea water resulting in a peer-reviewed paper in the journal "Water, Treatability of a Highly-Impaired, Saline Surface Water for Potential Urban Water Use."



FACULTY SPOTLIGHT

AI research at CBU



Dr. Kim focuses on research in a variety of areas, such as forecasting, real-time monitoring, optimal material selection, adaptive control system designs, optimal energy building, smart buildings, and sensor/actuators fault diagnosis, among others. In particular, Dr. Kim focuses on development of advanced AI algorithms for adaptive system identification for real-time forecasting in complex systems. His software program has been applied to the design, analysis and implementation of smart buildings; optimal material selections in construction; and forecasting of MEP (mechanical, electrical, and plumbing) systems, biological systems, algae blooms in river, and seismically excited building/bridges' behaviors, among others. Dr. Kim is

currently doing research on forecasting complex behavior of cells subjected to several external stimuli in real time, which is sponsored by the National Institute of Health (NIH). In addition, a NIH R01 project, entitled "Deconvolution of Subcellular Heterogeneity of Molecular Coordination by Time Series Modeling and Machine Learning", is currently pending. If funded, Dr. Kim will develop a nonlinear time-varying forecasting algorithm for predicting the behavior of cancer cells.

CBU AEC Club Activities

Embarking on a Journey to the ASC Reno Student Competition

This past February, four construction management students were able to visit the ASC Reno Student Competition in Reno, Nevada. Schools from all over the west coast travel to compete in this rigorous competition and demonstrate their problem solving and team collaboration skills to numerous industry professionals. There are a variety of problem topics that students are invited to compete in such as Pre-Construction, Design Build, Heavy Civil, and Commercial with each topic being presented and judged by well-

“We were able to identify the specific category that we want to compete in for next year.”
- Hazel Amigon, AEC Club Member

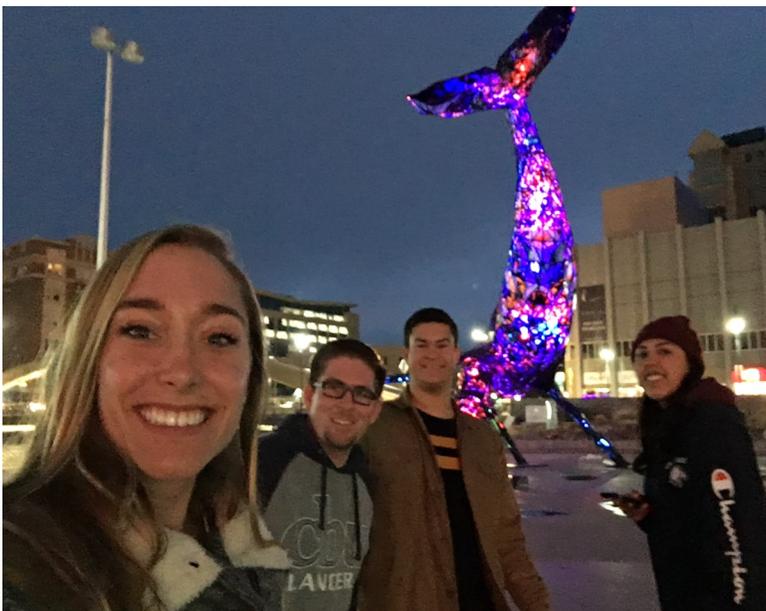
known companies such as PLC Construction, Swinerton, Granite Construction, and Hensel Phelps. For

each topic, competing students are given a real-life construction project that they spend all day designing and scheduling. The follow-

ing day, they present their work to the company running that topic. During this visit, the CBU students did not compete, but through observing, gained a lot of knowledge about how the competition functioned and the preparation and work required by each problem topic. Leaving the competition, the CBU students were filled with excitement at the prospect of competing next year.

“I am confident that we will put forth the best possible project in next year’s competition.”
- Johnathan Toews, AEC Club Member

Pictures and Information provided by: Sophia Siemens & Hazel Amigon



STUDENT SPOTLIGHT: Civil Engineering

Nathaniel Small Receives Scholarship



Nathaniel Small, a junior civil engineering student from Monrovia, California, was recently presented a scholarship award from the American Council of Engineering Companies. Mr. Small is very grateful for receiving the scholarship; stating that it will reduce the financial stresses that are common amongst undergraduate students and allow him to place a greater amount of emphasis on his academics. Nathaniel is passionate about his studies and attributes to this passion as the deciding factor for receiving the award. He is deeply fascinated by physics and geometry, explaining that these core elements made courses such as Soil Mechanics and Strength & Materials enjoyable .

Not only is he deeply involved in his studies, Nathaniel is also able to allocate time for extracurricular activities. As a freshman, he was active in the American Society Of Civil Engi-

neers (ASCE) at CBU, serving as an underclassman recruitment officer. While he no longer serves in an officer position in the club, he recently served as the captain for the Concrete Canoe Competition held at the Pacific Southwest Conference. His involvement in the project consisted of managing and coordinating the project, as well as, collaborating with members of the ASCE club.

One would assume that Nathaniel's plate was full, but he still manages time for a student-worker position for the Civil Engineering department. His responsibilities range from the organization of course schedules for Dr. Bai, to conducting lab and research studies for Dr. Mills-Beale. In addition, he serves as a public representative for the CE department.

Nathaniel's time at CBU has greatly influenced his future. He is considering pursuing a graduate degree in Geotechnical Engineering and later aspires to become a professor. He explains that CBU has allowed him to develop a deeper understanding of academia.

For those desiring to obtain a scholarship, Nathaniel advises students to do the following: take academics seriously and make your academics a priority; conduct background research concerning the scholarship, as well as its sponsors; continue to hone your writing skills as the essay is a large component of the application process.

STUDENT SPOTLIGHT: Construction Management

Regan Allgier Gaining Experience



Regan Allgier, a recent graduate of the Construction Management program, shared his perspective on his recent internship with Hensel Phelps Construction Company. This internship took place over the course of the past 2018-2019 academic year; beginning at the end of August 2018 and continuing through the end of May 2019.

Mr. Allgier has gained multiple levels of experience from this opportunity ranging from the business aspects of construction to the legal elements of construction. The experience he has gained through this internship has prepared him for a future in this field. The application of his work at Hensel Phelps is displayed in his studies." I

have found it especially helpful when something I do at work is then discussed in the classroom because I have already had a chance to see that particular concept or procedure in action, and thus am that much more prepared for my assignments" says Allgier.

Regan has not restricted his

gained experience and knowledge from this internship, he was presented with a job offer from a reputable general contractor which he plans to accept upon his spring graduation.



learning to the classroom specifically, alternately his education continues at the worksite. He acknowledges his time in the field as an opportunity to learn and does not shy away from asking questions. Not only has he

"There is no substitute for on the job experience and training"

CBU ASCE CHAPTER GOES TO PSWC

Building a Legacy



noe was completed as a Junior Design Project for the 2018-2019 school year and provided proof of the ever improving CBU engineering program. The canoe and other CBU projects were part of a competition in early April of 2019 at the American Society of Civil Engineers, Pacific-Southwest Conference (PSWC). College students from southern California, Arizona, Nevada, and Hawaii journeyed to California Polytechnic State University in San Luis Obispo, California to

Nathan Small, Patrick Lau, Ryan Nguyen, Nathan Sells, Cole McManus, Ryan Johnson, Kalen Gopperton, Steven Mascaro, Mirna Beshay, and Carissa Waite made up a small team that was responsible for the design of a lightweight concrete canoe. The canoe is sturdy, less dense than water, maneuverable in water, and buoyant under various loading conditions. With a lower budget and limited previous experience, the students had their work cut-out for them. Faculty advisors Dr. Bai and Dr. Mills-Beale were a great resource of information when required, however, the vast majority of research gathered was through online studies and conversations with those with more experience in concrete. The opportunity to conduct meetings and pour our canoe in the new Engineering Building provided a significant advantage over any previous CBU concrete canoe teams. The CBU concrete ca-

“A successful finish in this year’s competition not only provides a boost of encouragement for future teams, but attests to the credibility and quality produced in the CBU engineering program.”
- Patrick Lau, Mix Design Captain

compete, display, present, and race their canoes. In previous years CBU has improved their research and development within the canoe project,

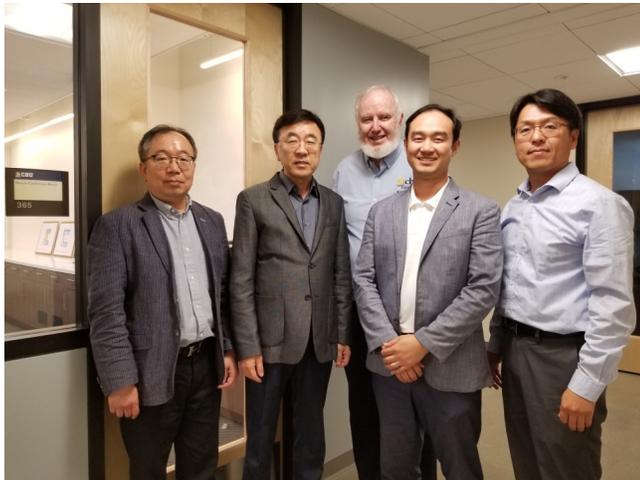
but has never been able to complete all aspects of the project including design paper, presentation, display, and race day activities. The 2018-2019 team was able to not only compete in all aspect of the competition and races, but were competitive against the 18 universities involved. The team placed 9th in both the Men’s Slalom and Coed Sprint events.

Pictures and Information provided by: Dr. Jong-Wha Bai

ACADEMIC SUCCESSSES

Excellence in Scholarship and Exciting Developments

Excellence in Scholarship - Two CE students, Kristi Sleeper and Kalen Gopperton, received \$2500 scholarships from the American Public Works Association (APWA) Inland Empire branch. These exemplified the excellence of our CE students who demonstrated their academic success in their young career.



International Faculty Collaboration -

Scholars from South Korea, Dr. Sang-Hyo Kim (Yonsei University) and Mr. Ki Jung Kim (Cenits Corp.) visited CBU to discuss future research collaboration in engineering.



Whatever you do, work at it with all your heart, as working for the Lord, not for human masters, since you know that you will receive an inheritance from the Lord as a reward. It is the Lord Christ you are serving. - *Colossians 3:23-24*

MSCE thesis presentation - Two MSCE students (Adeel Syed and Ezekiel Cortez) conducted their final presentations.

ACADEMIC SUCCESSES

2019 Capstone Design Projects

Indiana Rehabilitation Project

Team: Construxus (Phoebe Ligeralde, Manny Gomez-Cruz, Mirna Beshay Tadrous, Cameron Adams, and Ian Gust)



New CBU School of Nursing Building

Team: GORLLS (Christopher Gallardo, Steven Stockman, Kimberly Ochoa-Uranga, Jared Edward Lindsay, John Luke Rizk, and Danny Lima)

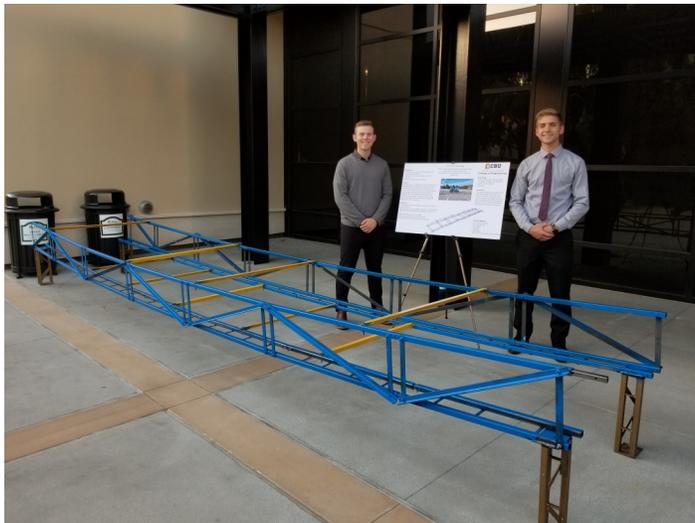


Installing a Structural Health Monitoring System in the Troesh Engineering Building

Team: Drake and Josh Engineering (Kristi Sleeper, Jared Gilster, Josh Lawrence, Peter Cunningham, Daniel Carey, and Christian Reyes)

ACADEMIC SUCCESSES

Excellence in Scholarship and Exciting Developments



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.

Upcoming Events:

September, 2019 — CBU Engineering Fair

November, 2019 — CECM Industry Advisory Council meeting

December, 2019 — CBU Fall 2019 Commencement

February 5-8, 2020 — ASC Regions 6 & 7 Student Competition at Nugget Casino Resort, Sparks, NV

April, 2020 — Pacific Southwest Conference (PSWC) at Cal State Fullerton, Fullerton, CA

April, 2020 — CBU Spring Commencement

May, 2020 — CECM Industry Advisory Council meeting

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