

GLF-CEM newsletter

March 2019
Volume 3, Issue 1



Distributed by:
The Global Leadership Forum for Construction Engineering and Management Programs



Global Leadership Forum for
Construction Engineering and Management:
<http://wpvcemweb01.itap.purdue.edu/glf/>

CONTENT

- 1 Letter from the 2019 Organizing Committee
- 2 A Summary of the 2018 GLF-CEM in Stellenbosch
Dr. Jan Wium, Stellenbosch University
- 4 The 2019 GLF-CEM in Huddersfield, England**
- 8 UPDATE
KPI Committee Progress
Dr. Markarand Hastak
- 10 Meet Our New Members
- 14 Membership List
- 16 Focus on Programs**
Division of CEM at Purdue University
- 20 Member Feedback Survey

2018 - 2020 Executive Committee



Chair

Hans-Joachim Bargstädt
Bauhaus-University at Weimar
Germany



Vice-Chair

Edward J. Jaselskis
North Carolina State University
United States



Treasurer

Lucio Soibelman
University of Southern California
United States



Secretary

Mike Kagioglou
University of Huddersfield
United Kingdom



Past-Chair

Geoffrey Q.P. Shen
Hong Kong Polytechnic University
Hong Kong



Past-Chair

Simaan AbouRizk
University of Alberta
Canada



Founding Chair

Makarand Hastak
Purdue University
United States

Executive Board Members

Jan Wium
Stellenbosch University
South Africa

Irtishad Ahmad
American University of Sharjah, Florida Intl. University
United Arab Emirates, United States

Dongping Fang
Tsinghua University
China

Fletcher Griffis
Polytechnic Institute of NYU
United States

Jeffrey Russell
University of Wisconsin-Madison
United States

Koshy Varghese
Indian Institute of Technology, Madras
India

Welcome

GLF-CEM MEMBERS + FRIENDS

I wanted to cordially invite all relevant colleagues to the 2019 Global Leadership Forum for Construction Engineering and Management Programs taking place at the University of Huddersfield between the 5th-7th of June 2019.

Since 2011, eight successful meetings have been hosted around the globe by Purdue University (Lafayette, USA), Hong Kong Polytechnic University (Hong Kong), University of Alberta (Banff, Canada), Bauhaus University (Weimar, Germany), Tsinghua University (Beijing, China), University of Southern California (Los Angeles, USA) and Stellenbosch University (Stellenbosch, South Africa).

In recognition of the importance of leadership, the 2019 event hosted by the University of Huddersfield, UK, will focus on various aspects of leadership including, but not limited to, collaborations between industry and academia, collaborative program developments across the globe, trends and benchmarking initiatives, research collaboration and collaborative working at the interface of research, innovation and development, and new talent development in industry as well as academia. As such, the forum is encouraging both senior leaders from industry and academia to attend, as well as developing academics that can benefit from being exposed to a truly unique network that includes current decision makers.

Further updates and booking details are provided on the [conference web site](#) on a regular basis as the programme becomes finalized.

The team at Huddersfield is looking forward to welcoming you all.

Kind Regards,

MIKE KAGIOGLOU

Mike Kagioglou
2019 GLF-CEM Organizing Committee Chair
Professor, Dean of the School of Art, Design and Architecture
University of Huddersfield, United Kingdom

Stellenbosch, South Africa

A SUMMARY OF THE 2018 GLF-CEM

Jan Wium, Ph.D.

Executive Committee Member, GLF-CEM

Professor, Chair in Construction Engineering and Management
Stellenbosch University
South Africa

The 2018 GLF-CEM meeting was held from May 17 to 18 at Stellenbosch University in South Africa.

Pre-Forum Events: May 16, 2018

The Forum was preceded by afternoon lectures delivered by four GLF-CEM members to post-graduate students on a topic of their choice. The lectures presented a valuable experience to our students to learn about international research and interact with international faculty.



Day 1: May 17, 2018

The first day of the Forum began with the introduction of our new members. This year, the Forum grew larger with participation from the USA, South Africa, and Australasia.

The introduction of new members was followed by a session with presentations on teaching and research methods. An industry participant, Enzo Menegaldo (CEO of Haw & Inglis Construction), discussed potential gaps in teaching and research. In particular, young engineers must learn the skills and capacities required to solve problems to excel in industry. A broad exposure to the many aspects of the profession, including basic sciences, contracts, procurement, risks, and employee management, should also be emphasized. Finally, young engineers must develop a desire to learn and to engage in collaborative, team-based problem solving.

Day 2: May 18, 2018

The second day of the Forum consisted of a seminar, attended by GLF-CEM members and industry professionals, entitled "Disruptive Technologies on the Future of Construction." The program was structured with presentations from two industrial practitioners and three GLF-CEM members from various world regions.

Speakers from industry encouraged academics to seize opportunities for enhancing change. Practitioners, together with academic institutions, should be continuously scanning the horizon to prepare themselves for the future.

As for the academic speakers, Professor Lucio Soibelman presented on a variety of new technologies and their impact on processes, methods, and procedures. Professor Koshy Varghese discussed how to make use of new technologies

within the constraints of emerging countries, while balancing the need for new technologies with the need for the creation of employment opportunities. Finally, Professor Bargstädt from Bauhaus University presented a historical overview of technology development and implementation in university education.

The presentations were followed by a lively discussion, where participants from the floor participated in a discussion with the presenters. The opportunity to involve industrial participants in the GLF-CEM forum was most beneficial, providing exposure for industry to worldwide trends, while enabling researchers and academics to obtain valuable input from industry.

This session was followed by a presentation from the Trends Committee, established in Banff, Canada, in 2017, who reported on their progress.

In the final session of the workshop, GLF-CEM members were divided into two break-away groups to discuss aspects of disruptive technologies in construction. Current disruptive technologies were identified to include robotics (both nano and large-scale), augmented reality, virtual reality, BIM, remote sensing technologies, and 3D printing. As educators, we must teach and challenge our students to think about problems from a "disruptive technologies" perspective, enabling our students to capitalize on these advancements



to create innovative solutions to problems. From a research perspective, academics should pursue unconstrained, disruption-focused solutions to problems, even if unfunded. Industry can address disruptive technologies by adopting at an earlier phase in the technology's life cycle, immediately after a technology has been reasonably proven (i.e., cutting edge as opposed to bleeding edge).

Post-Forum Events: May 19, 2018

The Forum concluded with a closing dinner at the Neethlingshof Wine Estate outside of Stellenbosch and a full-day outing on to explore the Cape Peninsula.



2019 GLF-CEM

Huddersfield, United Kingdom

JUNE 5 - 7

Registration + Fees:

The 2019 Global Leadership Forum for Construction Engineering and Management Programs will be held at the University of Huddersfield from June 5 - 7, 2019.

Detailed registration information, fees, and speaker information available online.

Please visit [conference website](#) for more information.

2019 Event Program

Day 1: June 5, 2019

13:00 - 14:00	Lunch
14:00 - 15:00	Welcome Reception Introduction of New Members
15:00 - 18:00	Session 1 <i>Leadership: Industry and Academia Collaboration</i>
18:00	Reception Dinner

Day 2: June 6, 2019

10:00 - 10:30	Refreshments
10:30 - 12:30	Session 2 <i>Leadership: Future Trends and Benchmarking</i>
12:30 - 14:00	Lunch
14:00 - 15:30	Session 3 <i>Leadership: Best Practice in Research and Teaching</i>
15:30 - 15:45	Refreshments
15:45 - 17:00	Session 4 <i>Leadership: Mentorship and Coaching</i>

Day 3: June 7, 2019

09:00 - 15:00	Cultural Tour (Optional Field Trip) <i>*Additional Costs Required</i>
---------------	--

This event is sponsored by:





WHAT TO EXPECT:

Huddersfield



Huddersfield

Huddersfield is a large market town situated in West Yorkshire, England. It is the 11th largest town in the United Kingdom. It boasts a wide range of facilities and attractions as well as its football team, Huddersfield Town A.F.C. recently being promoted to the Premier League.

Situated in the largest county, Yorkshire, it is surrounded by superb scenery and landscapes, which are perfect for walking or cycling opportunities. To ensure you get that warm Yorkshire welcome, be sure to visit some of the small villages on the outskirts of Huddersfield where you will be able to take in the big skies and rolling hills.

After taking in the views at the Holmfirth Vineyard, visit the local Handmade bakery

in Slaithwaite. Make the journey back through to Huddersfield to catch a show at the famous Lawrence Batley theatre.

Throughout the years, Huddersfield has been home to popular and famous festivals, including the Marsden Jazz Festival in October, the Huddersfield Literature Festival in March, and the Huddersfield Contemporary Music Festival in November, which featured this year an epic performance from Christian Marclay and a one-week exhibition in the heart of the town centre.

Many people associate Huddersfield as a textile town, being its primary export for many years. However, recent research has indicated that Huddersfield is transforming into a giant in the creative industries, with web design emerging as the number one export.

The closest cities are Manchester and Leeds, with excellent network links between both of them. Indeed, Huddersfield is situated just off the M62, which is a direct route to both cities.

Yorkshire

Yorkshire is the largest county in England, stretching from the North Sea Coast deep into the Pennine Mountains, and cutting off just before Manchester. A historic county, Yorkshire includes large cities such as York, Leeds, and Sheffield.

Manchester

Huddersfield is approximately 24 miles northeast of Manchester and has a direct train and bus to the city centre. Main attractions consist of the Science and Industry Museum, Manchester Art Gallery, and the National Football Museum.

Manchester is home to one of the UK's largest and busiest airports, which operates more than 70 airlines that travel to over 210 destinations worldwide.

Leeds

Huddersfield is 14 miles southwest of Leeds and has direct links via the train and bus, which take between 20 – 40 minutes.

Leeds is fast developing city that has recently seen two large investments, with the Victoria Quarter hosting a range of luxury shops and the Trinity Shopping Centre featuring a cinema, restaurants, and high street shops.








◀ *Top:* Huddersfield Railway Station.

▶ *Top:* Yorkshire County; *Middle:* Manchester Town Hall; *Bottom:* Victoria Quarter, Leeds



An update of the KPI Initiative

The Trends Committee was established to address one of the key objectives of the GLF-CEM—to explore and report on the global trends in the construction engineering and management community. As a result, a KPI Committee was delegated to explore international key performance indicators (KPIs) in the areas of Industry, Program, Education, and Research. As reported earlier, the Committee on Key Performance Indicators has identified two KPIs each under the Industry category and the Program category. Presently, committee members are debating and exploring metrics that should be considered to collect data for analyzing the performance of the four KPIs, such that the data required for the metrics is readily available through public sources in the member countries. Our current progress is detailed as follows

	KPIs	Current Progress	Committee Members
INDUSTRY	Productivity Safety	Exploration of which metrics can be identified under the two key performance indexes.	  T. Ng M. Kumaraswamy
RESEARCH	<i>To be determined</i>	Development of KPIs.	   M. Kumaraswamy G. Shen T. Ng
PROGRAM	Number of student applications Employment rate of students by country	Exploration of which metrics can be identified under the two key performance indexes.	 M. Hastak
EDUCATION	<i>To be determined</i>	Development of KPIs using program introductions contributed by GLF-CEM members.	 M. Kagioglou

Each member of the KPI Committee is also independently engaged in research in this area. Jan Wium and his team in South Africa are exploring data collection, big data statistical analysis, and data mining. Their research has focused on data mining and data analytics for construction project documentation to aid in project management (as a pilot study). Several data mining methods, including similarity and distance, association pattern mining, cluster analysis, outlier analysis, classification and regression, and text mining, were explored to predict the number of employment opportunities that could be generated on road construction projects in South Africa. Their research in data mining and modeling has facilitated the (1) determination and demonstration of the applicability of large-scale information extraction from project documentation, (2) determination of the different levels of data required to improve the management of projects, and (3) reduction of the uncertainties within projects. More importantly, they found that varying levels of familiarity with programming languages of industry personnel did not pose a significant challenge in using big data, as resources exist to streamline the implementation of a data mining application.

Research conducted by Thomas Ng and his research team was initiated by the Construction Industry Council in Hong Kong. They have developed a set of their own KPIs to measure the performance of the local construction industry against that of other advanced economies. The industry KPIs in their study include (1) productivity, (2) safety, (3) environment, (4) manpower, (5) cost, (6) dispute resolution, (7) time, and (8) innovation. Additionally, they compared KPI trends with those in the United States, United Kingdom, and Singapore. They found that, due to the differences in the statistical data collection methods used in different countries, a direct comparison of the construction industry performance between the countries was not feasible. However, they were able to demonstrate that the safety performance of Hong Kong is improving over time, whereas the productivity and manpower indicated a declining trend. Their results suggest that greater adoption of modular construction and standardization is required, and the development of a stable construction environment to attract young talent to join the construction industry is needed.

Makarand Hastak's research team at Purdue University has developed a protocol for systematic construction data collection and analytics that consists of six phases: (1) analysis of current business situation, (2) problem to be resolved, (3) understanding available data, (4) data refinement, (5) data analyses and modeling, and (6) interpretations and outcomes. The proposed protocol (i) leverages available data for analyses and effective decision-making by exploring the right questions, (ii) facilitates a standardized approach to data collection and analysis within an organization, and (iii) facilitates data collection and analyses at various levels including organizational, project, and process levels.

The KPI Committee is soliciting input!

We encourage members to share their research questions, results, and interests with the KPI Committee:

Professor Thomas Ng
The University of Hong Kong
Honk Kong
tstng@hku.hk

Professor Makarand Hastak
Purdue University
United States
hastak@purdue.edu

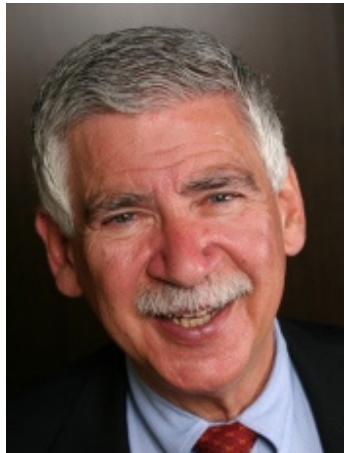
Professor Mohan Kumaraswamy
The University of Hong Kong
Hong Kong
University of Moratuwa
Sri Lanka
mohan@hku.hk

Professor Jan Wium
Stellenbosch University
South Africa
janw@sun.ac.za

Professor Michail Kagioglou
University of Huddersfield
United Kingdom
M.Kagioglou@hud.ac.uk

Professor Geoffrey Shen
Hong Kong Polytechnic University
Hong Kong
bsqpshen@polyu.edu.hk

MEET OUR New Members



Henry Koffman
Professor, Director of CEM Program

Viterbi School of Engineering
University of Southern California
Los Angeles, CA, USA

koffman@usc.edu

Prof. Henry M. Koffman received a BSCE cum laude from the University of Southern California, an MSCE – Construction from Stanford University, and has 30 years of experience as a Real Estate Developer and General Contractor. Currently, he is a Professor and the Director of the Construction Engineering and Management Program at the University of Southern California. In addition to his academic role, Prof. Koffman serves as an Expert Witness for litigation support, as an Arbitrator for the American Arbitration Association, and is a member of many Dispute Resolution Boards.

First Attendance:
2017 GLF-CEM in Los Angeles, USA

First Attendance:
2018 GLF-CEM in Stellenbosch, South Africa

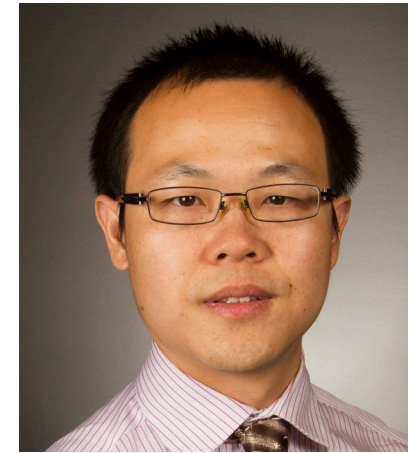


Sam Salem
Professor, Department Chair

Sid and Reva Dewberry Department of Civil,
Environmental, and Infrastructure Engineering
George Mason University
Fairfax, VA, USA

osalem@gmu.edu

Dr. Salem has more than 30 years of professional and academic experience in construction engineering, project management, infrastructure asset management, and sustainable development. He serves on several boards and committees of many national and international organizations and on the editorial boards of 3 leading journals in his field. Dr. Salem has authored and co-authored over 120 peer-reviewed articles and technical reports, advised more than 70 graduate students, and generated research funding exceeding \$10 million USD. He received several research and teaching awards from organizations in the US and abroad and has conducted research and consulting work for many national and international, public and private organizations. Dr. Salem's research interests include accelerated construction of infrastructure, lean and green construction, project management, Public-Private Partnerships, smart infrastructure systems, sustainable development, lifecycle analysis, and infrastructure asset management.



Pingbo Tang
Associate Professor

School of Sustainable Engineering
and the Built Environment
Arizona State University
Tempe, AZ, USA

tangpingbo@asu.edu

Dr. Pingbo Tang, PhD, is an Associate Professor in Del E. Webb School of Construction at the School of Sustainable Engineering and the Built Environment at Arizona State University. He holds memberships to several professional organizations, including the TRB's Committee on Bridge Management and ASCE's Data Sensing and Analysis Committee (Committee Chair). He is an associate editor of ASCE's Journal of Computing in Civil Engineering and is on the editorial board of Springer's Journal of Innovative Infrastructure Solutions. He is the recipient of the 2013 Recent Alumnus Achievement Award from the Civil and Environmental Engineering Department at Carnegie Mellon University and a 2015 National Science Foundation CAREER Award. Dr. Tang's research explores remote sensing, human systems engineering, and information modeling technology to support spatiotemporal analyses needed for effective diagnosis and management of construction sites, constructed facilities, and civil infrastructure systems. The National Science Foundation, Department of Energy, NASA, Salt River Project, DPR Construction, and Phoenix Government have funded his research efforts.

First Attendance:
2016 GLF-CEM in Beijing, China

First Attendance:
2018 GLF-CEM in Stellenbosch, South Africa



Ron Wakefield
Dean, School of PCPM and Deputy PVC, Int.

School of Property, Construction
and Project Management
RMIT University
Melbourne, Australia

ron.wakefield@rmit.edu.au

Prof. Wakefield researches and teaches at RMIT in the areas of process simulation and modeling, residential and commercial construction and uses of information technology in construction management. He has degrees in Civil Engineering, including a PhD and BE (Hon 1) from the University of New South Wales and an MSE from Princeton University. Prior to joining RMIT, Professor Wakefield was the William E. Jamerson Professor of Building Construction in the Department of Building Construction and the Associate Director for Building Technology Research at the Center for Housing Research, Virginia Tech. Professor Wakefield has over 22 years' experience as an international researcher, consultant and engineer in building construction. He is a Director of Launch Housing and JJR Consulting and a coopted member of the Victorian Building Practitioners Board.



David Root
Professor, School Head

School of Construction Economics and Management
University of the Witwatersrand
Johannesburg, South Africa

david.root@wits.ac.za

Prof. David Root is the Head of School at the Wits University's School of Construction Economics and Management from 2011. Previously, he was Associate Professor and Senior Lecturer in the Department of Construction Economics and Management at the University of Cape Town, which he joined in 2003. He originally trained as a Chartered Building Surveyor, working in both private practice and client organisations in the UK before entering academia. David graduated in Building Surveying from Salford University and gained his Masters and PhD in Construction Management from the University of Bath. He held a post doctoral appointment at Loughborough before joining UCT and has published over 90 journal and conference papers over his career. He is a Fellow of the RICS and CIOB and is registered with the SACPCMP as a Construction Project Manager in South Africa.

First Attendance:
2018 GLF-CEM in Stellenbosch, South Africa

First Attendance:
2018 GLF-CEM in Stellenbosch, South Africa

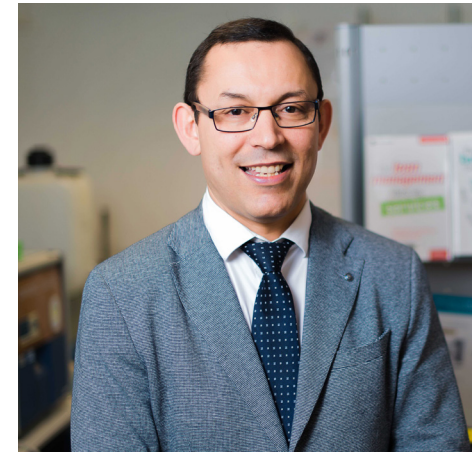


Hanbin Luo
Deputy Dean of School, Department Director

Construction Management Department,
School of Civil Engineering and Mechanics
Huazhong University of Science and Technology
Wuhan, China

luohbcm@hust.edu.cn

Prof. Luo Hanbin, PhD, is a Professor, Deputy Dean of the School of Civil Engineering and Mechanics, and Director of the Department of Construction Management at the Huazhong University of Science and Technology. Prof. Luo has received numerous award and honors in recognition of his investigation of key technologies of computer-integrated management systems for rail transit construction, integrated management of large construction enterprises, application of post-evaluation system for urban infrastructure and public service. He is the recipient of the 2014 National Science and Technology Progress Award (2nd Prize), the 2012 Ministry of Education Science and Technology Progress Award (1st Prize), and the 2010 Hubei Province Science and Technology Progress Award (1st Prize) and has made notable contributions in the areas of digital construction, construction safety, and construction project management



Zoubeir Lafhaj
Professor

School of Sustainable Engineering
and the Built Environment
Ecole Centrale de Lille
Villeneuve-d'Ascq, France

zoubeir.lafhaj@gmail.com

Prof. Zoubeir Lafhaj, PhD, is a full Professor at Ecole Centrale de Lille, the former Dean of International Relations (2008-2015), and a member of the of the School's Executive Committee. He has been involved in the Local Agenda 21 (Sustainable Development) since its foundation and leads a research team of five PhDs and three Postdoctoral Fellows in the LabMCube (Multiphysics and MultiScale Mechanics Laboratory). His research focuses on polluted sediments and their characterization, thermal problematic materials, and building in the strategic energy context. Prof. Lafhaj has developed a strong network with industry that aims to transfer technology and knowledge within R&D projects and clusters. He has received two Labels from French Ministries (Industry, Economy, and Employability) for two projects. Currently, he is launching an Industrial and Research Chair in partnership with Bouygues Construction Group, entitled "Construction 4.0," which proposes advanced solutions for envisioned construction practice.

First Attendance:
2016 GLF-CEM in Beijing, China



Our Members



Since 2011, the GLF-CEM has been open to persons involved in construction engineering and management programs around the world. To date, our membership is comprised of

85 members from 66 institutions in 19 countries.

- AUSTRALIA**
Curtin University
Xiangyu Wang
- Queensland University of Technology
Martin Skitmore
- RMIT Australia
Ron Wakefield
- BRAZIL**
Universidade Federal do Rio Grande do Sul
Carlos Formoso
- CANADA**
Concordia University
Osama Moselhi

- École de Technologie Supérieure
Adel Francis
- University of Alberta
Mohamed Al-Hussein
Aminah Robinson Fayek
Simaan AbouRizk
- University of British Columbia
Thomas Froese
- University of Calgary
Janaka Ruwanpura
- University of Waterloo
Carl T. Haas
- CHILE**
Universidad Técnica Federico Santa María
Leonhard Bernold

- CHINA**
Chongqing University
Guiwen Liu
Liyin Shen
- Dalian University of Technology
Zhongfu Li
- Harbin Institute of Technology
Xiaolong Xue
- Huazhong University of Science and Tech.
Hanbin Luo
- Shanghai Jiao Tong University
Saixing Zeng
- Shenzhen University
Jiayuan Wang

- Southeast University
Dezhi Li
- Tianjin University
Junna Meng
- Tongji University
Guangbin Wang
- Tsinghua University
Dongping Fang
- FRANCE**
École Centrale de Lille
Zoubair Lafhaj
- GERMANY**
Bauhaus-University, Weimar
Hans-Joachim Bargstädt
- Technical University of Dresden
Rainer Schach
- University of Karlsruhe
Fritz Gehbauer
- University of Stuttgart
Fritz Berner
- HONG KONG**
Hong Kong Polytechnic University
Geoffrey Q.P. Shen
- University of Hong Kong
Mohan Kumaraswamy
Thomas Ng
Wilson Lu
- INDIA**
Amity University
Anil Sawhney
- Indian Institute of Technology, Delhi
K.C. Iyer
- Indian Institute of Technology, Madras
Satyanarayana Kalidindi
Koshy Varghese
- NETHERLANDS**
University of Twente
Andreas Hartmann
- NEW ZEALAND**
University of Canterbury
Eric Scheepbouwer
- POLAND**
Warsaw University of Technology
Aleksander Nicał

- SOUTH AFRICA**
Stellenbosch University
Jan Wium
- University of the Witwatersrand
David Root
- SOUTH KOREA**
University of Seoul
Chang Taek Hyun
- SPAIN**
Universitat Politècnica de València
Eugenio Pellicer
- SWEDEN**
Chalmers University of Technology
Hans Björnsson
- TAIWAN**
National Central University
Rong-Yau Huang
- National Taiwan University
Luh-Maan Chang
Po-Han Chen
Shang-Hsien P. Hsieh
- UNITED ARAB EMIRATES**
Abu Dhabi University
Raid Al-Aomar
- UNITED KINGDOM**
University of Cambridge
Sebastian MacMillan
Campbell R. Middleton
Kristen McAskill
- University of Huddersfield
Mike Kagioglou
- UNITED STATES**
Arizona State University
Samuel Ariaratnam
Pingbo Tang
- Florida International University
Irtishad Ahmad
- George Mason University
Sam Salem
- Georgia Institute of Technology
Daniel Castro
- Iowa State University
Charles T. Jahren
- Michigan State University
M. G. Matt Syal

- North Carolina State University
Edward J. Jaselskis
William J. Rasdorf
- Pennsylvania State University
Chimay Anumba
- Polytechnic Institute of NYU
Fletcher Griffis
- Purdue University
Daniel Halpin
Makarand Hastak
- Texas A&M University
Stuart Anderson
Jorge A. Vanegas
- University of Cincinnati
Issam A. Minkarah
- University of Colorado Boulder
Keith Molenaar
Paul Goodrum
- University of Dayton
Eddy Rojas
- University of Hawaii
Amarjit Singh
- University of Illinois
Khaled A. El-Rayes
- University of Nevada
David Ashley
- University of Southern California
Lucio Soibelman
Henry M. Koffman
- University of Texas at Austin
Carlos Caldas
Wayne A. Crew
William O'Brien
- University of Wisconsin-Madison
Awad Hanna
Jeffrey Russell
- Vanderbilt University
Sanjiv Gokhale
- Virginia Polytechnic Institute and State University
Jesus M. de la Garza
Mike Vorster

Focus on Programs

THE DIVISION OF CONSTRUCTION ENGINEERING AND MANAGEMENT AT PURDUE UNIVERSITY

FACULTY

Dr. Makarand Hastak is Professor and Head of Construction Engineering and Management

Dr. Dulcy Abraham is a Professor in Civil Engineering

Dr. Philip Dunston is a Professor in Civil Engineering and Director of the Advanced Construction Systems Laboratory

Dr. Hubo Cai is an Associate Professor of Civil Engineering and Construction Engineering and Management

Dr. Theodore Weidner is an Associate Professor of Engineering

Dr. Robert Patty is an Associate Professor and the Beavers Heavy Construction Distinguished Fellow

<https://engineering.purdue.edu/CEM/people>

The Division of Construction Engineering and Management (CEM) at Purdue University was established in 1976 as an independent academic unit within the College of Engineering that offers an ABET accredited degree in Construction Engineering. There are only seventeen ABET-accredited undergraduate construction engineering programs in the United States and under 30 in the world. While no national or international rankings are conducted for such a small number of programs, the Purdue CEM Division's construction engineering program is one of the four oldest in the nation and is regarded as a leader among the construction engineering programs. We offer an experiential program that blends theoretical and practical concepts in construction engineering through three 12-week paid internships and pedagogical curricular innovations that integrate community engagement in the learning process. Specifically, the division (1) recruits and retains the best students into CEM who will one day lead the world's construction and engineering companies, (2) engages in multi-disciplinary research to find innovative solutions to issues facing the construction industry, and (3) provides teaching excellence through continuous improvement in the curriculum to integrate pedagogical innovations and current topics of interest.

The vision of the CEM program at Purdue University is to be the premier construction engineering program while the mission is to be a global leader in Construction Engineering and Management by producing engineering leaders proficient in all aspects of project development and execution. To achieve the vision and mission, the division focuses on four strategic areas: Division, Teaching, Research, and Service.

RESEARCH AREAS

- Disaster mitigation
- Modeling of infrastructure interdependencies
- Capital rehabilitation planning
- Underground infrastructure construction and management
- Rapid improvement disciplines
- Facility engineering and management
- Data analytics
- Spatial modeling for the built environment
- Field sensing
- Profitability and risk
- Intelligent Planning Units (IPUs)
- Process Simulation
- Visualization

Our requirement for three progressive internship experiences positions students among those most sought after by industry upon graduation, resulting in a 100% placement through almost the entire history of the program. Over the past 40+ years, we have built an extensive network of industry partners that work with us to train and develop our students as proficient construction engineers. We are currently developing a Professional Masters Program in Construction Engineering that should be available soon. As a leading Construction Engineering and Management program, we offer a collegial and intellectual environment that nurtures growth in discovery, learning, and engagement.

The CEM faculty collectively has a breadth of experience and expertise that includes engineering design, construction engineering and management, project and program management, and facility management. A sample of the higher-level elective courses taught by specific individual faculty members may include equipment selection and utilization, infrastructure planning, design of temporary structures, facility engineering and management, underground infrastructure, infrastructure analytics, lean principles, building information modeling, and engineering for inland waterway navigation.

FOCUS ON PROGRAMS



PUBLIC SERVICE RESOURCES

Our faculty and staff believe in the continuous improvement that has helped us grow, maintain our leadership position, and further evolve the area of construction engineering and management through education, research, and service to the industry. The Division has developed and currently manages several websites as a public service to the construction industry, including:

- **Emerging Construction Technologies**
Highlighting innovative technologies for the construction industry
<http://wpvcemweb02.itap.purdue.edu/ect/default.aspx>
- **Academic Breakthroughs**
Recently established to capture academic advances in the area of CEM at the PhD level
<http://wpvcemweb01.itap.purdue.edu/phd2>
- **Purdue EPC^{DM}**
With an entrepreneurial spirit, we are now developing an interdisciplinary university-industry consortium to promote industry best practices and process innovations through research, which This consortium engages a team of experts including faculty, industry professionals, and graduate as well as undergraduate students, for disseminating specific knowledge through consulting, outreach, and training.
<http://engineering.purdue.edu/EPCom>
- **Purdue Index for Construction (Pi-C)**
Illustrates the periodic health of the construction industry
<http://wpvcemweb01.itap.purdue.edu/CEM/Pi-C>

For more information about the Division of Construction Engineering and Management at Purdue, please visit <http://engineering.purdue.edu/CEM>



Interested in GLF-CEM membership?

Individual membership is open to persons who are involved in construction engineering and management programs. Institutional and practitioner memberships are also available. Elections will take place at the 2019 GLF-CEM, in Huddersfield, UK.

Applicants for membership must have demonstrated a record of involvement in a construction engineering management educational program, preferably as a full professor or as an administrator.

Click here to learn more or to begin your membership application today.

Or, just want to attend?

Individuals may also choose to attend the GLF-CEM as an observer. If you are interested in participating in one of our events or are interested in learning more about the GLF-CEM, please click [here](#).

Have something to share?

The GLF-CEM Committee wants to hear from you.

We are looking for announcements, opinion pieces, images, and research highlights to include in our next issue. Have something to share? **Click here.**

And don't forget to let us know how we're doing—**click here** to take our short survey.