



# Newsletter

• FALL 2019 •

## ➔ Message from **the President**

Dear APSE members,

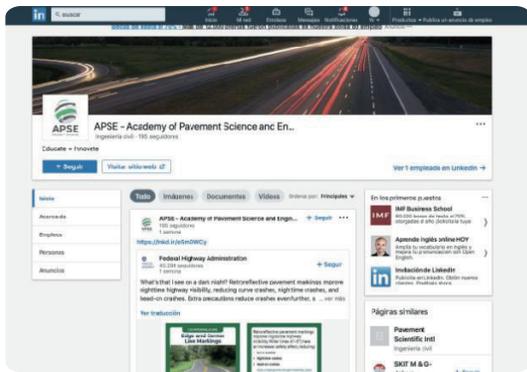
Last April our organization turned two years since it was officially launched. During those two years, our first president, Dr. Amit Bhasin, with the guidance of the board of governors, and the collaboration of the APSE officers and numerous enthusiastic members, led several critical administrative and missional activities. Thanks to these efforts, APSE is currently registered as a non-profit organization, we launched our website, we held two annual meetings, we count with more than 150 academic, associate and student members, and, more importantly, we formed six task forces to attain specific objectives related to our three committees (education, research and professional issues).

After this initial consolidation stage, we continue working hard on accomplishing APSE's mission. During the past six months, I have met with APSE officers (Dr. Eyad Masad, Dr. Elie Haj, Dr. Sandra Erkens and Dr. Amit Bhasin) and the board of governors. As a result, we have designed a set of new strategies to get members more involved in the organization and to attain some initial tangible products that will benefit our community. Among other initiatives, we are designing two series of webinars, dedicated to technical and non-technical content, as well as several sessions as part of some main conferences in our area that will be mainly focused on professional development and education issues. We also expect to finalize the activities of the initial task forces at the end of this year and initiate a second phase of these efforts with some new ambitious goals.

I would like to extend my gratitude to all of you for your continuous support, and invite you to get involved in several of these activities. I hope you can join us in the coming Annual Meeting that will be held on January 11<sup>th</sup> 2020 to learn more about our future plans and the different possibilities to support our community.



**Silvia Caro**  
APSE President



## ➔ APSE in the social media

APSE is increasing the efforts to improve its communication with all APSE members. One move towards this direction has been the creation of the APSE LinkedIn page. In this platform, which has been well received by the community, having already around 200 followers, we share APSE up to date information and upcoming activities for all members and friends to engage in. We encourage you to follow us. We recommend that you follow us, scanning the following QR code:



<https://www.linkedin.com/company/apse-academy-of-pavement-science-and-engineering/>



## ➔ Call for the APSE 2020 Awards nominations

One of the ways APSE wants to promote the field of pavement science and engineering is by recognizing the excellent work being done by its student and academic members from all levels and sub-disciplines throughout the world. Since 2018, the APSE Awards Committee formalized and launched two awards: 1) Emerging Outstanding Academic, and 2) Citation for Outstanding Service by a Student Member. The Nomination deadline is **November 29, 2019** for awards to be announced in the January 2020 annual meeting in Washington D.C.

Scan the following QR code for more information:



<https://apse.wildapricot.org/admin/website>



### ➔ Highlight of recent activities:



APSE co-sponsored the session “Prepare to Profess: Pavements Faculty Workshop” as part of the ASCE T&DI: International Airfield and Highway Pavements Conference that was held in Chicago last July. Professors and APSE members Dr. Imad Al-Qadi, Dr. Chuck Schwartz, Dr. Kevin Hall, Dr. Erol Tutumluer and Dr. Eyad Masad participated in a panel where topics such as how to apply to academic positions and develop a successful career as a pavement engineering faculty member were discussed. Dr. Hasan Ozer and Dr. Silvia Caro served as moderators of this interesting session that was very well attended by grad students, postdoc students and faculty members.

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### ➔ New Chair of the APSE Awards Committee and APSE Awards committee members:



We are pleased to announce **Prof. Zheng Leng**, APSE member (The Hong Kong Polytechnic University), as the New Chair of the Awards Committee. Welcome!

Dr. Zheng will count with the support of three APSE members that make part of the Awards Committee:

- **Karim Chatti** (Michigan State University, USA)
- **Susan Tighe** (University of Waterloo, Canada)
- **Julie Marie Vandenbossche** (University of Pittsburgh, USA)



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➔ **News** about our members:

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We are pleased to announce prestigious awards that have recently received some of our APSE members. Congratulations to all!



**PROF. TIEN FANG FWA ELECTED TO SINGAPORE ACADEMY OF ENGINEERING**

Dr. Fwa, **APSE** academic member (National University of Singapore), has been elected to the Singapore Academy of Engineering.



**PROF. EYAD MASAD RECEIVED THE 2019 JAMES LAURIE PRIZE**

Dr. Eyad Masad, **APSE** Vice-president (Texas A&M University, QATAR), received the 2019 James Laurie Prize. This recognition is awarded based on contributions to the advancement of transportation engineering, in the honor of the first ASCE President.

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### **PROF. JOHN HARVEY AWARDED THE FRANK M. MASTERS TRANSPORTATION ENGINEERING AWARD**

Dr. John T. Harvey, member of the **APSE** Board of Governors (University of California Davis, USA) has been awarded the Frank M. Masters Transportation Engineering Award. This award is a memorial to the outstanding professional accomplishments of Frank M. Masters, Hon.M.ASCE.

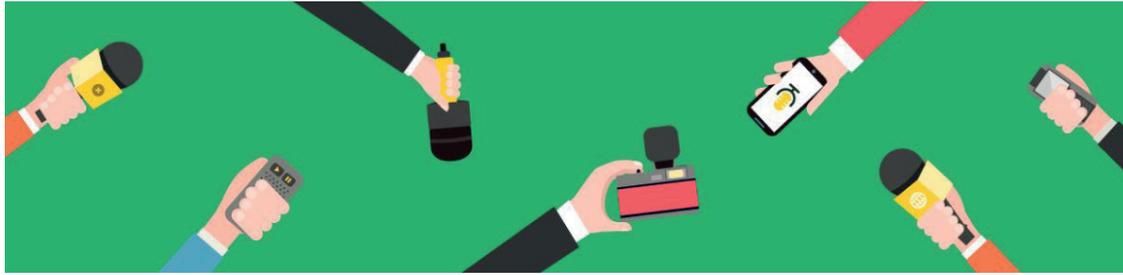
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### **PROF. BIRGISSON ELECTED TO ROYAL SWEDISH ACADEMY OF ENGINEERING SCIENCES**

Dr. Bjorn Birgisson, member of the **APSE** Board of Governors (Texas A&M University, USA) has been elected as a foreign member of the Royal Swedish Academy of Engineering Sciences (IVA). Founded in 1919, the IVA is the first engineering science academy to be established in the world.

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## ➔ Interview with Dr. Kevin Hall, APSE member:



Dr. Kevin Hall (University of Arkansas, USA) shared with us his view about the future of pavement engineering education. This interview is an invitation to reflect about the challenges we are facing to educate and form the next generation of successful pavement engineers.

**From your point of view, which are the new challenges that civil, and particularly, pavement engineers will need to face during the practice of their profession in the coming future?**

I think there are many exciting opportunities for pavement engineers in the future. Let's consider three things:

1. **Connected-and-Autonomous Vehicles (CAV).** The methods we currently use to consider traffic loadings, to be honest, have not significantly changed in the past 50 years. While we have moved in mechanistic-empirical design to the use of load spectra (from the ESAL concept), we do not typically consider the impact of highly channelized, platooning-type traffic that may be applying loads much more rapidly to the pavement structure than we experience today.
2. **Urban Infrastructure.** Most future-thinking projections envision a mass movement of people from rural areas to more urban areas in the foreseeable (20-40 years) future. Urban pavement engineering presents a different set of challenges – things like buried utilities, drainage, traffic speeds, etc. pose new and interesting questions regarding the pavement life-cycle. In addition, environmental concerns such as the 'heat island' effect in urban settings will require us to consider, more broadly, the environmental impact of pavement structures.

3. **System Preservation and Rapid Repair.** In many countries – particularly those with a more fully developed infrastructure – our focus has somewhat shifted to pavement preservation and maintenance, rather than ‘new’ construction. This trend will accelerate as we seek to preserve our pavement networks to increase the life-cycle cost of transportation infrastructure. In addition, total traffic volume continues to grow; the consequences of closing roads for repair are becoming critical from both an economic and a social perspective. Rapid repair technologies will become increasingly important as we move forward.
4. **Climate Change.** Our more advanced mechanistic-empirical design models rely on sound estimates of expected climatic conditions for a given area. In most cases, this data is based on historic records of climate and weather. However, as our climate continues to change, these historic models may not be accurate or applicable for the future.

**Which are the main technical and non-technical skills that pavement engineers will require to successfully face those coming challenges?**

Pavement engineers, like all engineers in general, must become much more holistic in their approach to solving transportation-related infrastructure issues. Most “visions” for the future related to the education of engineers agree that engineers who most closely work with people and society – civil/pavement engineers, for example – must have better preparation in both Professional Skills and in Humanities. Professional skills, i.e. communication, leadership, critical thinking, etc. are key to working with people; a better understanding of people and society (through a study of Humanities) are key to understanding how our projects actually affect the societies for which they are designed and constructed.

From a technical perspective, two areas which could certainly be strengthened in most undergraduates (in particular) include *systems thinking* and *materials science*. Our pavements are, in themselves, a system – including the entire life cycle from conception through rehabilitation. In addition, they are but one part of a transportation system, which is but one part of a given society’s infrastructure system – which interacts with economic systems, political systems, and so forth. Understanding how “my part” of pavement engineering (mix design, structural design, etc.) fits into, interacts with, and affects the systems around it is absolutely critical as we move forward.

**How can faculty members promote the development of these competences and skills in our students and future graduates?**

We must continue to push for “pavement engineering” to be recognized as a mature field in and of itself. It combines material science, mechanics, systems, and other fields in a manner equivalent to structural or geotechnical engineering. By doing so, we can describe a curriculum around pavement engineering, to build these competencies.

**What do you think is the role of information technology in the education of our current and future engineers?**

Across the board, information technology is a key to our engineering future. We are seeing an explosion of data in our infrastructure systems, from design, materials, construction, asset management, and rehabilitation. Sensor technology is truly revolutionizing the infrastructure engineering community. Unfortunately, in many cases we are “data rich but information poor” – that is, we have the ability to collect terabytes of data, but in many cases lack the tools to properly analyze and evaluate the data. We must seek to partner with data scientists to craft tools, through which we can make the most effective use of our data.

**Several experts have mentioned that the higher education is the sector where innovations are occurring at a larger and faster scale. Do you think this is true? Which are some of the main innovations you have observed in the case of engineering education?**

I think that in some areas/fields, innovation in education is indeed increasing. However, I am not convinced that we’ve seen the same rapid pace of innovation *systemically* in engineering – civil engineering in particular. Certainly, there are individuals and some programs which are pushing the cutting edge in education, but as a profession we find many places and many faculty who are teaching using the same methods that were used when they were students.

The good news is that we have recognized our situation, and are actively working to make changes. In the United States, the American Society of Civil Engineers (ASCE), for example, sponsored a Civil Engineering Education Summit, held in Dallas, Texas from May 28-30, 2019. Over 200 participants cast a vision for civil engineering education for the future, and identified both short-term and long-term actions to pursue to position education to equip future engineers for the challenges and opportunities ahead. The Summit Report is slated for release in January 2020.

**Are you aware of the approaches that higher education institutions are implementing to support faculty members that aim at transforming their current teaching practices?**

Among the best opportunities for improving classroom instruction is the ExCEED program through ASCE (Excellence in Civil Engineering Education). Many institutions sponsor faculty to participate in ExCEED. Many programs also support their faculty to become active in the American Society for Engineering Education (ASEE). Through ASEE, a faculty member can interact and learn from other professionals having a passion for good teaching. In addition, the resources of ASEE include many examples of innovative classroom practices. Other countries may have equivalent valuable organizations to support these processes.

**What are your 3 takeaways for the new generation of pavement engineers?**

1. You must consider a pavement in terms of a system – both within itself (its life cycle) and within a larger system of transportation infrastructure.
2. You face changes/advancements in every aspect of the pavement system and its life cycle; in some cases these changes occur very rapidly.
3. You must consider social, economic, and environmental impacts of your solutions regarding pavement design, construction, and management. It is not just about the technology itself – it is about the best solution for the society it serves.

**Is there any special message or advise related to engineering education that you would like to give to our APSE student members that aim at becoming faculty members in the future?**

Branch out! Broaden your education to prepare yourself to be a faculty member, and not 'just' a researcher. Learn about people; learn about society. Insist that your preparation include instruction and experience in teaching. Prepare now to be a "life-long learner" – never, ever, stop learning.

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**Mark your calendars – APSE annual meeting -  
January 11th 2020 in Washington D.C!**

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