The 2019 Women in IES Workshop in Vancouver

The 2019 Women in the Industrial Electronics Society (IES) Workshop was held 13 June during the IEEE International Symposium on Industrial Electronics (ISIE) 2019 in Vancouver, Canada. The technical workshop focused on artificial intelligence (AI) and data science. The program consisted of three invited speeches and a panel discussion. I had the pleasure of chairing the event, together with Mahsa Keikha, founder and chief executive officer of Connected Things Consulting, Canada.

Selyn Chen, Dr. Samaneh Khakshour, and Dr. Mariam Rahmani were the outstanding invited speakers. Chen is the IEEE Women in Engineering Vancouver and West Canada chair. Khakshour is from Delta Controls, Canada. Rahmani is from Intel, United States.

In her speech, “The AI Initiatives by IEEE WIE Vancouver and Some of Vancouver-Born Interesting AI Industrial Projects,” Chen explained that in the age of AI technology, we have to be more cautious about teaching machines human biases. “Diversity and inclusion is the most important element that will neutralize these biases,” she said. “Other than making organizations and companies aware of and care about diversity and inclusion, we must also ensure that they are applying this principle in their daily operations.”

Dr. Khakshour, in her talk, “Data Science and Building Energy Efficiency,” gave an overview of data science and its current and future applications. “In the relentless momentum of technology, we might lose sight of the greater purpose of our work,” she said. “The massive amount of data gathered every moment and the science of analyzing it has got much attention in the business world and scientific communities. However, at some point, we might need to take a step back and investigate how to effectively leverage data science for social good and contribute meaningfully to help society as a whole.”

Dr. Rahmani, in her presentation, “Artificial Intelligence and the Impact to Society,” said that applying the best practices using AI algorithms will be an iterative and self-correcting process, “like all the developed technological means that happened in the past.” There will be hiccups and modulations as augmentations to AI come along. This reiterative process, however, will lead to improvements in society.

Chen, Dr. Khakshour, and Dr. Rahmani also shared with the audience their views and experience as they participated in the panel discussion “Cutting-Edge Topics and Research Opportunities in Industrial Electronics and Industrial Informatics.”

Other panelists in addition to Keikha included Dr. Zhenwei Cao from Swinburne University of Technology, Australia; Prof. Morgan Kiani from Texas Christian University, Fort Worth, United States; Prof. Yajun Pan from Dalhousie University, Canada; Pahola Porras Rodriguez from ETS, Canada; and Prof. Jie Sheng from the University of Washington, Tacoma, United States (Figure 1).

During the lively discussion, the panelists addressed their research topics, pointed at future directions of investigation, and answered questions from the audience. Sheng pointed out that during the past decades, educators specializing in control systems engineering have been challenged to...
introduce and integrate into teaching “hot topics,” such as embedded systems, cyberphysical systems, big data, cloud technology, and the Internet of Things (IoT). To meet the demands on the engineering profession in the 21st century, more practical curriculums, new software, and other teaching platforms need to be developed so students will be prepared with skills required by both industry and academia.

Speaking about the IoT, Keikha pointed out that it is revolutionizing everything and everyone’s life by simply providing interconnectedness. However, she pointed out, we should remember that, as humans, “we are already interconnected by our nature and every single one of us has an effect on the whole universe.” While addressing future promising research trends, Prof. Pan stated that smart autonomous robots and collaborative robots, capable of assisting and interacting with humans, will have revolutionary effects on many areas, such as factory automation, health care, and transportation. This suggests the need for new infrastructures, interfaces, and software using AI, smart sensors, data analysis, and cloud computing. While productivity and efficiency are the main drivers, safety, security, complexity, and reliability are the ongoing challenges that must be met to bring to life smart and collaborative systems for a better world.

Porras Rodriguez, one of the youngest members of the panel, spoke about how lucky she was being surrounded by such “experienced and wonderful women.” It gave her encouragement to “keep going with my dreams and projects. All the panelists that I met are absolutely ready to help and share knowledge. As I told them, I will be working in Montreal to encourage women in engineering and renewable energies.”

Her comments are meaningful to everyone involved in the Women in IES initiative. Each Women in IES event aims to foster women’s involvement in scientific and technical activities. What Rodriguez said she is going to do in her geographical area is exactly what the Women in IES initiative wants to achieve. Another success story for Women in IES is Keikha, who decided to join IES and the Women in IES team after attending the 2018 Women in IES Forum in Washington, D.C. during the 2018 Conference of the IEEE IEC. So our recipe works!

However, the Women in IES Workshop it is not intended for women only. We broadly pursue diversity and inclusiveness. Workshop participants included a significant percentage of men. The interesting panel discussion triggered a very fruitful interaction with the large audience, consisting of master’s degree and Ph.D. students, junior and senior researchers, and faculties from many different countries (Figure 2). At the end of the workshop, time was scheduled to allow audience members to mingle; network; talk to speakers and panelists; and exchange ideas, suggestions, and good practices. Many participants posted on LinkedIn, further increasing the visibility and impact of the event.

This workshop is the result of great teamwork. I am grateful to Mahsa Keikha, a great person who is truly passionate about technology. She chaired the workshop speeches in a very professional manner, and her help in the selection of the technical topics and the speakers was invaluable. I am also grateful to Prof. Zhenwei Cao for her amazing contribution to the panel discussion; Morgan Kiani, who was as supportive as usual in our WiE events; and Leila Parsa, for being part of the team. A special thanks goes to all the speakers, panelists, and attendees for the sincere interest and passion they devoted to this event. I am also very grateful to ISIE 2019 General Chair Yang Shi and his team for the logistic support they provided.

I express my sincere thanks to the IEEE IES and especially to Prof. Yousef Ibrahim and IES President Xinghuo Yu, who supported me in preparing this event under the WiE initiative within the IEEE/IES Growth Center program. To follow the Women in IES initiatives, stay in touch with us on LinkedIn (https://www.linkedin.com/groups/8609923/). Women in IES is a community, and you are welcome to join us.