

SAC IEEE India Council and Nokia University Collaboration Experiential Learning – Industry Visit



The Student Activities Committee (SAC), in association with Nokia University Collaboration Team, Bangalore, successfully conducted a day-long workshop on upcoming mobile technologies, followed by network demos for students from IEEE sections across the country on 13th April 2019 (Saturday) at the Nokia R&D facilities in Bangalore.

The first session, after the morning coffee/tea, was conducted on 'Introduction to 4G wireless networks and its evolution' by Nagendren K. The talk focussed on the basic architecture of 2G/3G and how LTE has evolved from it. The speaker began the talk with three amusing objectives – to wake the students up, to keep them awake by the end of the talk and to tell them a bit about 4G. By the end of it, he was considerably successful in engaging the audience. Everyone had something to take away from the talk, for those in the audience who possessed a background of mobile telecom networks, the fine distinctions between LTE and 2G/3G were covered in great detail. For those new to the area, the session covered almost everything from the basics, from the OSI layer model to the 3GPP standards.

In logical succession to this session was the one on 5G, conducted by Rohith K A. Rohith focussed on the key areas for 5G, namely, Massive machine Type Communications (MMTC, also called the Internet of Things, IoT), Ultra Reliable and Low Latency Communications (URLLC), and higher data speeds. According to the International Telecommunications Union's (ITU's) IMT-2020 standards, the session showed us what the key use cases of 5G are, ranging from smart cities to self-driving cars, from work and play in cloud, to industry automation, from augmented and virtual reality to 3D UHD video streaming. He explained how modifications such as massive MIMO, network slicing, fast traffic forwarding, mm-wave communication multi-connectivity are enablers for the next generation 5G networks. When placed in context of the first session, this session enhanced the understanding of an up-and-coming technology that is poised to become a reality soon.

The last lecture session of the day was on one of the most trending areas of research and development today, the Internet of Things (IoT). The session, conducted by Zafrul Umar, provided rich detail, from why IoT is needed, to sensing as a service for smart cities supported by IoT, and even smart dust which employs sensors the size of dust particles. Zafrul also presented Nokia's Wide Area Global Network that Nokia provides for dedicated IoT application and characterised with low power and light-weight messages.

After the sessions, we had a break for lunch and also a group photograph post lunch. Three visits were organized post lunch and lasted till evening:

1. Technology demonstration of 4G and VoLTE
2. Technology Demonstration of 5G
3. Lab Tour of Nokia Product R&D labs

Overall, the one-day workshop was an enriching experience for the students who attended it. They got a taste of currently trending fields of research such as 5G and IoT. The workshop saw enthusiastic participation from around 97 students representing 10 out of 11 IEEE sections of India. Students from IEEE Bengaluru, Delhi, Gujarat, Hyderabad, Kerala, Kolkatta, Madras, Mumbai, Pune and Uttar Pradesh Section under the umbrella of IEEE India Council took benefit of the opportunity, though the representation from local Bengaluru section was higher. The initiative has received a very good feedback, 5 on 5 on all three aspects, Experiential learning outcome, Hospitality and registration Process. Gautama Bhardwaj from Bengaluru and one of the participant quotes : ‘Thank you for the email and the participation letter. It was extremely well organized and exceeded all my expectations. I truly enjoyed the visit and learnt a lot. I'm really looking forward to further such events and collaborations which can help bridge the gap between industry and academia’.

Report by Dr. Rajashree Jain, rajashreejain@gmail.com



World's 1st AI humanoid robot artist can draw from 'sight': British inventor and art gallery owner Aidan Meller has co-created a robot Ai-Da, describing it as the "world's first ultra-realistic AI humanoid robot artist". Ai-Da is capable of drawing from 'sight' using cameras in the eyeballs and AI algorithms created by Oxford University scientists.

Amazon unveils drone to carry out 30-minute deliveries 'soon': Amazon unveiled a new autonomous, electric 'Prime Air' drone aimed to start delivering packages to customers in 30 minutes or less, "within months". The drone can fly for up to about 24 kms and carry up to about 2.3 kgs, representing a majority of its packages.

Apple's iOS 13 features option to 'silence unknown callers': When the 'Silence Unknown Callers' setting is turned on, iOS uses Siri intelligence to let calls from numbers in Contacts, Mail and Messages ring a user's phone. However, all other calls are automatically sent to voicemail.