**Manifestation**

**of**

**IEEE Uttar Pradesh Section Young Professional Star for the Month of February 2021**

Dr. Somak Bhattacharyya has been selected IEEE Uttar Pradesh Section Young Professional Star for the month of April 2021. We congratulate Dr. Somak Bhattacharyya, IIT BHU, UP for the achievement. His perception about the IEEE, society and young professionals are reflected in this discussion. Here are the exerts of the interview with Somak Bhattacharyya made by Sumit Kumar Tiwari, IEEE UP Section Young Professionals Committee member.

**About Dr. Somak Bhattacharyya**

Somak Bhattacharyya has received Honours in Physics from Scottish Church College, Kolkata in 2003. Next to it, he has received both Bachelor of Technology and Master of Technology from Institute of Radiophysics and Electronics in University of Calcutta in 2006 and 2008 respectively. He had carried out the M.Tech thesis in Giant Metrewave Radio Telescope of Tata Institute of Fundamental Research. He is the recipient of University gold medal due to securing first position in M.Tech. He had also served as a Lecturer in Academy of Technology in 2009. He received his PhD degree in 2015 from Indian Institute of Technology, Kanpur, India. He had continued as Senior Project Engineer (Ad-hoc) in the Department of Electrical Engineering in Indian Institute of Technology, Kanpur for a brief period of 6 months after which he had joined Department of Electronics & Communication Engineering at Indian Institute of Information Technology, Allahabad in December 2015. Since 2016 December, he is working as Assistant Professor in the Department of Electronics Engineering at Indian Institute of Technology (Banaras Hindu University), Varanasi. He has published more than 40 International Journals and 90 reputed peer-reviewed International and national conference proceedings. He has received the prestigious Young Scientist Award from International Union of Radio Sciences (URSI) three times: Electromagnetic Theory Symposium 2013 in Hiroshima, Regional Radio Science Conference 2015 in New Delhi and Asia Pacific Radio Science Conference 2016 in Seoul. Owing to his contributions in the area of radio sciences, URSI has conferred him honorary lifetime membership. He has served as potential reviewers to more than 50 journals including IEEE Transactions on Antennas and Wave Propagation, IEEE Antennas & Wireless Propagation Letters, IEEE Microwave and Wireless Component Letters, IEEE Photonics Technology Letters, Electronics Letters, Nature Scientific Reports etc. He has organized 2020 URSI Regional Conference on Radio Science (URSI-RCRS 2020) in IIT (BHU) Varanasi where nearly 300 delegates were present all over India. Dr. Bhattacharyya is an IEEE senior member and has been elected as Life Fellow of The Optical Society of India. Recently, he has been elected as the Associate Fellow of West Bengal Academy of Science and Technology as well as Fellow of IETE. Since 2021, he is serving as the coordinator of IEEE Region 10 in the Young Professional Group of MTT Society. His current areas of interest lie in metasurface, periodic structures, opto-microwave devices, microwave photonics etc.

**1. What are your words of motivation?**

I belong to a Bengali middle class educated family from Kolkata while I have been staying in Uttar Pradesh for nearly 12 years owing to my PhD and professional careers. Hence, I carry the basic values of a typical middle class Bengali family. While I was a student, I had a few dreams which I could not accomplish as I feel that in many cases, I did not get the proper guidance. Still, I am very happy wherever I am today. Further, I believe that our students, who are the future of the country, should not be misguided as well as stopped from asking questions and raising issues at all. We should inspire them for the actual knowledge rather than getting more marks. Further, we should guide them to have basic moral senses, which I find missing including us also. It is very easy to blame the students; however, in most of the cases, we do not analyse ourselves. So, self-introspection is extremely necessary for improvement. I must also address the students that they should not get disappointed with their failure. Please remind that a brighter future is always awaiting. Furthermore, it is also to be noted that once any person moves up in the social pyramidal structure, more criticism waits for him. I wish all the very best to all of you for your future endeavours.

**2. What was the specific reason, if any, which made you, join IEEE?**

While I was in the final year of my B.Tech course in Institute of Radio Physics & Electronics in University of Calcutta, Kolkata, I can recall that there was an offer for free IEEE student membership provided there were at least 50 applicants. Needless to say, at that age, everyone became member without knowing the actual purpose and/or goal of IEEE. In the following year, when I had entered into the first year of the M.Tech program at the same institute, I have been requested by many members including the faculty advisor to take the lead role to serve as Secretary of IEEE Calcutta University Student Branch. Once graduated from there, when I had joined IIT Kanpur, I felt the importance to take the membership of Antennas and Propagation Society and Microwave Theory & Techniques Society too in addition to the IEEE Student Membership as I realize that I can attend a number of events with discounted rate. Further, I can get the opportunity to connect with the people in my area so that I can get exposed to the jobs and opportunities in India as well as abroad. Later, when I joined IIT (BHU), Varanasi, I have taken the membership of IEEE Photonics Society too as I am working in some interdisciplinary research field.

**3. As a Young Professional, how do you position your interest in your own field with the activities and services you perform as an IEEE member/ volunteer?**

After I have joined as Assistant Professor in IIT (BHU), Varanasi, I had also taken the membership of IEEE Photonics Society apart from the existing ones of IEEE AP and MTT Societies.The first step I had taken was to form an IEEE MTT-S Student Branch Chapter in IIT (BHU), Varanasi where I had observed that many research scholars were working brilliantly, but somehow they were missing the proper guidance. With the formation of the society, we started various events with the enthusiasm from the founding members. I especially want to thank Dr. Bhagirath Sahu, the founding chairperson who had taken a key role to establish the society. As the time progresses, we came to know about the Chapter Chair’s meeting where we used to decide in an open forum the representative of the society in National and International forums. I must thank our previous chairpersons Dr. Bhagirath Sahu and Dr. Anshu Sharan who sacrificed their respective travel grants (they availed it from other sources) so that other members could avail the travel grant and represent our activities in IMaRC, the most reputed conference of IEEE MTT Society in India. I always feel that we should involve every student members to take any decision so that no one feels bad.

In the 2019 version of IMaRC, I was the chair of student activities and IEEE MTT-S had provided travel grant to nearly 40 students globally where 8 members of IEEE MTT-S Student Branch Chapter got selected to showcase their research in IIT Bombay and interact with the stalwarts in this field. In the student activities program in IMaRC, Simultaneously, 4 students from the society had received partial support to showcase their research work in APMC 2019 held in Singapore, the largest conference of the MTT Society in Asia. I along with other faculty members from various institutes in IMaRC 2019 used to form few groups of students with heterogeneous mixing and assigned them the task to come out with a new research idea with a 3 minute presentation inspired from the 3 minute presentation event held in IMS, the largest event of IEEE MTT Society. The then education committee chairs Dr. Ramesh Gupta and Prof. Rashaunda Henderson applauded the effort and the first three groups were honoured. It generated potential interests among students and I must appreciate the efforts from IEEE MTT Society to provide the opportunity to the students as getting funds especially for the Indian students nowadays becomes challenging.

**4. What are your thoughts about IEEE membership and its paybacks? Whether the IEEE membership benefited you at any time in your career growth? If so, how?**

The most important aspect of having the IEEE membership is an excellent professional networking. Further, with an IEEE membership, one can avail the discounted rate to register for both technically as well as financially sponsored IEEE conferences. URSI (International Union of Radio Sciences) is a sister organization of IEEE and has a MoU with IEEE AP-Society. In my life, I have been selected as Young Scientist in three distinct URSI conferences; viz., EMTS 2013 in Hiroshima, RCRS 2015 in New Delhi and AP-RASC 2016 in Seoul. In all these conferences, I was funded completely and attended the conferences and thereby got the chance to visit Japan and South Korea.

In 2019, I had organized a special session in TENCON held at Kochi, which is considered the largest gathering in IEEE Region 10. I got the chance to meet many professionals in my area of interest as well as in other areas so that I can get a good platform for making networks. Later, in 2020 February, just before the pandemic, I had organized URSI-RCRS 2020 (<https://conferences.iitbhu.ac.in/URSI-RCRS2020/>) in my own institute where nearly 300 delegates were present and proved to be a successful event. The conference had received sponsorship from top government organizations as well as private industries apart from the technical sponsorships from IEEE and IEEE AP Society. There was sponsorship from IEEE GRSS Society too. The event was later published in IEEE Antennas and Propagation magazine (<https://ieeexplore.ieee.org/abstract/document/9214935>).

Later in the year, as the pandemic has started and affected our daily life badly, a few months later, the volunteers of the IEEE MTT-S Student Branch Chapter IITBHU Varanasi under the able leadership of Dr. Vineet Singh, the then chairperson had resumed the activities where a number of webinars were organized on various aspects of microwave engineering. All these webinars were praised by the attendees as all the speakers were well known and expert in their field of research.

**5. As a Young Professional, what are the changes or developments you would like to see in evolving this professional body as a group devoted to humanity and its causes?**

In 2021, I have become a part of the Young Professional Society of IEEE MTT Society where I am serving as one of the 10 global volunteers. I have been given the responsibility in Region 10 to enhance the professional activities. I believe that in India, we lag the proper industry-academia programs. Hence, I welcome more people from leading industries to take part and enhance the curriculum. As an example, I have seen that among the 10 volunteers in IEEE MTT-S YP, 5 are from industries while the rest 5 are from academia, thereby maintaining a good balance. I want to introduce this in India too. Moreover, given the opportunity, I am very much interested to organize workshops so that the new generation will be immensely benefited. Already, we had organized an executive committee meeting of the student branch and planned a series of events for the near future. I must add that while forming any committee, there should be a proper heterogeneous mixture from all the organizations with efficient leadership. Unfortunately, in most of the cases, I have seen that this is missing and people used to do monopoly. This aspect must be considered and complied accordingly so that proper harmony can be maintained.

**6. What are your suggestions and recommendations for those young professionals who may aspire to join IEEE?**

I must say please get updated and inspire the students to take the membership so that under the big umbrella of IEEE, we can flourish together. I always believe that we can only survive as a group rather than individual one where IEEE provides this opportunity.

**7. As a Young Professional and a young researcher in the field, how do you consider the prospects of scientific research in this field for the benefit of humanity?**

In India, we do not have sufficient amount of funding to carry out cutting edge scientific researches in my opinion. However, the students are extremely hard working and thriving their best to accomplish the target. Even in the lockdown, I have observed that students have worked hard and many papers have been published by them. Unfortunately, in India, as I have mentioned earlier, we do not have proper industry-academia collaboration. Further, the competition is very high among the professionals. Hence, the students should be more encouraged and IEEE should consider funding some prospective researchers based upon certain credentials.

**8. What is your recent exciting research works that may have significant societal impact?**

One of my research problems is on terahertz devices, which can be used for spectroscopic applications. If fabricated, they may be extremely useful for futuristic communication applications. Further, they have some potential applications in biomedical sectors too. In another side, I work in the area of detection of objects which is useful in ground penetrating radar applications.

**9. What’s the advice you would give to a young professional who is just starting his/ her career?**

I must say that some activities like organizing quality webinars should be taken up so that the upcoming generation can get the motivation and can feel the importance of joining IEEE. I should add that they should take challenging problems instead of an easier one and try really hard for accomplishing the target. One should target to publish their work in the highly reputed journals so that they can get useful comments to improve the manuscript quality. Moreover, I shall invite them to please apply for different schemes of grants of Government of India to initiate your research.

**10. Anything else that you would like to add?**

Please note that knowledge should be transferred in an efficient way from older generation to the newer one. We have that responsibility and we should abide by these. The final and the foremost point is whatever we are doing we should do it honestly. Jai Hind!