Report on Overseas travel

India travel by Prof. Subhas Mukhopadhyay and Dr. Mohsen Asadnia, School of Engineering during September 14 to 30, 2019

I would like to express my heartiest thanks to the FSE for the travel award to take the initiative on engagement with Indian universities for higher degree research and collaboration. The travel took place between September 14 and 30, 2019. The journey started from Sydney on 14th September and we returned on 30th September.

The details on date-wise activities have been added in appendix – 1. A few pictures on our trip have been provided in appendix – 2.

The following institutions have been visited during the above duration.

**VIT, Vellore (Vellore Institute of Technology):** The VIT has a MOU with MQ. We visited the Computer Science Department and delivered seminars on research collaboration and research activities. We met the Dean and a few key academic staff. We had a separate meeting with other major academics where they expressed their interest and request to convey to our staff that they would like our involvement on AI, Machine Learning, Deep learning and other topics of research. They would like to invite our staff to visit VIT for a few weeks to few months to deliver a course as well as helping their research activities. We met the Associate Dean, International Relations. VIT has sent 20 students to ANU last year as 2+2 articulation programme. We had a long discussion with them on the similar arrangement. Recently VIT has been recognized as one of the IoE (Institute of Eminence) by the Government of India and the Chancellor of the VIT would like to give a strong emphasis to improve its international ranking. It may be an opportunity for MQ to explore different options to get involve with VIT more strongly.

**IITM, Chennai:** We visited IIT Madras, Chennai for two days. We have met the Dean (Academic), Dean (International Relations and Alumni) and many other academic staff. We had a long meeting with a few academic staff together on research collaboration and also a few short separate meetings with academic staff and visited their laboratories and research facilities and discussed research collaborations. The main point of the discussion was joint PhD through cotutelle programme. In general, the academic staff of IIT Madras are very interested to get involve with our joint PhD through cotutelle programme though they need some more clarification on the modality of execution of it. The Dean (IRA) would like to see that MQ is also sending students to IITM under the scheme. Usually the PhD programme at IITM are all funded by the Government of India and the students get scholarship up to 5 years. We need to find some modality to address the issues to match with 3-years PhD programme at MQ. Prof. Sakkie Pretorius and Dr. Kate Roth visited IITM during July 2019 and had a discussion with higher authority of IITM. MOU is under preparation for higher degree research collaboration. 5 academic staff are ready with their students to go for cotutelle PhD with MQ. The details of the staff with whom we have met and discussed are given in Appendix – 3. Prof. Kumar, Dean (Academic) proposed to have joint 2+2 UG programme with MQ in which the IITM will try to get foreign students from South East Asian countries and complete the first 2 years at IITM and then come to MQ for the completion of last 2 years. This may be something which MI needs to look into and I think it will be win-win for both sides.

**IITB, Mumbai:** We were with IIT Bombay in Mumbai on September 19 and 20. We met the Dean IR, Prof. Swati Patankar on September 19. She shared their different international activities with us. The most important and interesting on is the formation of IIT Bombay and Monash University Research academy in which currently 175 PhD students are conducting research in multiple and interdisciplinary
areas. Monash University supports around 0.5M$ every year and the successful PhD students are awarded PhD degree jointly, the VC of Monash makes himself available for the convocation. Prof. Soumyo Mukherji showed us the facilities especially on Nano-fabrication and start-up on explosive detection which are extremely useful for us to think of research collaboration. IITB has world class research facilities and a very nice green campus suitable for MQ to get engaged. We also delivered research seminars which were well attended and generated a lot of interest.

**IITD, Delhi:** We reached Delhi on Saturday, 21st September. A/Prof. Jahangir Hossain, a SPARK fellow is currently visiting IITD joined us during our stay in Delhi. We took the weekend opportunity to visit Qutub minar on the afternoon of 21st and travelled to Agra to see the Tajmahal on 22nd September. We met the Dean, IR of IITD on 23rd and came to know that they have MOU with many universities across the globe on international collaboration. The important one is with UQ, Australia. In this week the VC along with a team of higher authority delegates of UQ are visiting IITD. We delivered seminars on our research activities and met many academic staff to discuss research collaboration. We had the opportunity to meet Ms. Anuradha Gupta of MI to discuss a range of issues and had dinner together in Delhi.

**JMI, Delhi:** We visited Jamia Millia Islamia, a central university on 24th September. Prof. Tariqul Islam organized a half-day workshop on sensors for healthcare applications. We delivered seminars on research collaboration as well as on our research activities at the workshop. Around 90 students and over 10 staff attended the workshop and it was very interactive. We travelled to Hyderabad on the evening of 24th.

**BITS, Pilani, Hyderabad:** We visited BITS, Pilani, Hyderabad on 25th September, a full day workshop was organized by Prof. Sanket Goel and Prof. Srinivas of BITS. Macquarie University already has a signed MOU with BITS. The morning sessions were focused on “Internet of Smart sensors things” and the afternoon talks were on “healthcare”. A few clinicians and doctors from local hospital, YOSHADA hospital of Hyderabad participated in the afternoon workshop and expressed their willingness to help us with their involvement to develop medical devices. We also visited the facilities of sensor and microfluidics research of BITS. We also met the executive committee members of the IEEE CAS Hyderabad chapter over dinner and discussed some networking.

**Central University, Hyderabad:** On 26th September we visited University of Hyderabad, a central university recently awarded as Institute of Eminence. We delivered seminars on our research activities and discussed the opportunities of collaborative research. We travelled to Kolkata in the evening of 26th September.

**IITKGP, Kharagpur:** We travelled to Kharagpur from Kolkata on the morning of 27th and had a meeting with Acting Dean and a few academic staff. The IITKGP has MOU with University of Melbourne, Swinburne and Wollongong. In general, the academic staff are interested to have joint PhD programme and we have already identified a few areas of complimentary expertise.

Overall, it was a very long and busy trip, we visited 8 institutes in 6 different cities covering different parts of India. Most of the visited institutes are highly ranked institution in India. It presented us a very good range of research capabilities of those institutions. The academic staff of all the institutions are very much willing to collaborate with MQ. IITB has a very good engagement with Monash, IITD with UQ. MQ may take the opportunity to aggressively engage with IITM though there are possibilities to get engaged with other institutions in future. There are some issues but it will be good to discuss to finalise the mode of engagement. We have already identified 5 students of 5 professors at IITM who are willing to come on cotutelle PhD programme.
Appendix – 1: Dates of India visit

Sep 14, 2019: Travelled from Sydney, Singapore Airlines, reached Chennai on 14th at around 10:00pm
Sep 15, 2019: Travelled to Vellore
Sep 16, 2019: VIT, research presentation and meeting (both Subhas and Mohsen delivered seminars, Subhas presented seminar on research engagement before research presentation)
Sep 16, 2019: Travelled to Chennai at Late afternoon
Sep 17 and 18, 2019: IITM, Chennai (Subhas presented seminar on research engagement)
Sep 19, 2019: Travelled to Mumbai in the morning
Sep 19 and 20, 2019: IIT Bombay, Mumbai (both Subhas and Mohsen delivered seminars, Subhas presented seminar on research engagement before research presentation)
Sep 21, 2019: Traveling to Delhi, sight-seeing in the afternoon
Sep 22, 2019: Free day (travelled to visit Tajmahal)
Sep 23, 2019: IITD, Delhi (both Subhas and Mohsen delivered seminars, Subhas presented seminar on research engagement before research presentation)
Sep 24, 2019: JMI, Delhi (both Subhas and Mohsen delivered seminars, Subhas presented seminar on research engagement before research presentation)
Sep 24, 2019: Traveling to Hyderabad
Sep 25, BITS Pilani, Hyderabad (both Subhas and Mohsen delivered seminars), Subhas presented seminar on research engagement before research presentation
Sep 26, 2019: Central University, Hyderabad (both Subhas and Mohsen delivered seminars, Subhas presented seminar on research engagement before research presentation)
Sep 26, 2019: Traveling to Kolkata
Sep 27, 2019: IITKGP, Kharagpur
Sep 28, 2019: Free day, went to visit Jadavpur University and a few places in Kolkata
Sep 29, 2019: Depart from Kolkata, India
Sep 30, 2019: Reached Sydney
Appendix – 2: A few pictures on our trip

Subhas delivering talk at VIT, Vellore  
Receiving a gift from Dean, VIT, Vellore

With Prof. Boby Goerge, IITM, Chennai  
With Prof. Ashis Sen, IITM, Chennai

At the lab of Prof. Mukherji, IITB  
With Prof. Islam, JMI, at Tajmahal
Dinner with Ms. Anuradha Gupta, MI, in Delhi  
With all attendees at JMI

Visit of research facilities at BITS, Hyderabad  
Meeting with IEEE Hyderabad Chapter

Delivering seminar at University of Hyderabad  
Meeting at IIT Kharagpur