E3 World Spoke to Three EEE Graduate Students

Assistant Professor Joanne W. McClure

PBGs and the underlying device physics, I have designed a novel in-plane optical planar MEMS switch that overcomes traditional blocking-state constraints while retaining the benefits of its in-plane architecture. Currently, a key challenge in the area remains in the realization of such nano, deep sub-340m2 scaled devices. Through numerous process technology developments, I have successfully realized very high aspect ratio PBGs with ultra low process effects together with precise optical “defects” of high resolution through CMOS compatible process technology. Although the challenges required for this technology were overwhelming initially, I have been extremely encouraged by the feedback from fellow researchers and professors during my presentations at international conferences. For instance, through an entire flow of theoretical modeling, fabrication process and initial experiments and verifications, I was able to present my research in Photonic Crystal Technology at the Symposium of Microwaves, 2004 where about 85 research projects were showcased, to receive the “Best Paper Award”. Besides the satisfaction of achieving good results, participation in such scientific symposiums and exhibitions have also provided numerous insights that have aided the growth of my research work. At the same time, being able to share the results of my research work with the research community through international journal publications has been another enjoyable motivation in which I take pride.

Describe your postgraduate experience in terms of its challenge to your personal growth and development.

Selin Teo: Undoubtedly, this postgraduate experience has been one of great impact to both my personal and professional growth and development. Of the many challenges that it entailed, I would consider the management of time as the greatest consideration. Firstly, there is a natural tendency for one to consume all their time on a subject that they are very interested in researching. However, a balance of time for family and other aspects of the scientific community working in my area. Secondly, while necessary conditions may take their time to materialize, one is required to quickly make contingency plans for unforeseen events. Finally, an objective mind is also essential for effective focus and efficient use of research time and effort. Hence, training in these aspects enables variety in the application of the daily stressors and demands of the different aspects of life.

Could you describe any one event that has contributed to your progress in your research study life or research area?

Selin Teo: During my first international presentation for the “Design, Test, Integration and Packaging (DTP)” conference for IME, Paris, last year, I had the great fortune to receive numerous positive feedback and suggestions for my work from many other researchers of the scientific community working in my area. Besides this, the encouragement and motivations that were gained, the global exposure gave me many interesting avenues to approach beyond my previous constraints to explore reality of possibility internally and externally as necessary for the achievement of good results. Currently, I am looking forward to presenting the latest progress in my research at the top PBG conferences, the IEEE Summer LEOS Tropical 2004 in California (USA) where I will be reading two papers.

In your opinion what qualities are needed to be a good research student?

Selin Teo: Very generally, I feel that the basic requirements for a good research student is that of genuine interest, willingness to commit hard work, time and effort; the discipline to work independently; and the integrity to ensure quality of research. Finally, the sound quality of a holistic mind cannot be overemphasized, as the importance of a capacity to synthesize disparate fields of knowledge is critical for research.

Cheong Lai Hong

Cheong Lai Hong, looking back at your personal learning journey, is there any one event/ experience that you feel stands out as important to your learning? Tell me about your educational journey.

Cheong Lai Hong: When I failed in my first Further Mathematics common test in Junior College, I was quite shocked because mathematics has always been my best subject. Then I reflected on it and gained a better understanding of my learning strategies. Answering questions from classmates who have difficulties in various subjects was the main mode of learning in my secondary school years. Through answering questions from classmates, my understanding of the subject matter was enhanced and much time was saved by not repeating the approaches/solutions that had been proven wrong by them. One of the reasons I failed that common test because the new junior college classmates did not ask me questions! Nevertheless, as we get closer, ‘business’ questions asked by classmates increased.

I feel that I am blessed in my educational journey. I am delighted to have been educated in good schools. I would like to mention their names as my appreciation to them: Pei Chun Public School, The Chinese High School, Raffles Junior College, and the Department of Information Systems and Computer Science (now the School of Computing) in NUS.

Why did you choose to further your studies to the PhD level in EEE?

Cheong Lai Hong: To me, studying and teaching are hobbies. Furthering my studies to PhD level is natural to me. More importantly, I am more comfortable in the academic world and believe I can contribute more to the betterment of the society through my research. Also, I believe in the benefit of multi-disciplinary approaches to solving problems. Entering the world of engineering in EEE has widened my views. Coming from a computer science background, it has been an interesting and discovering experience for me in EEE. Engineers have an abundance of solutions and combinations to select from when tackling practical problems. The mode of thought and perception on problems from people with different backgrounds are different, and this has the potential to spark off new solutions to problems.