



Singapore-MIT Alliance for Research and Technology

News Release

First Batch of NUS and NTU Undergraduate Scholars Completed Research Internship at SMART

Singapore, 23 Sep 2009 – Undergraduates from the National University of Singapore (NUS) and the Nanyang Technological University (NTU) carried out research internships at the Singapore-MIT Alliance for Research and Technology (SMART) this summer. They are winners of this year's Singapore-MIT Undergraduate Research Fellows (SMURF) scholarship awarded by SMART. This is the first time undergraduate students from local universities participated in SMART's research programme. Another five undergraduate students from MIT were also awarded similar scholarships and carried out research in Singapore during the same period.

The scholars from the 2009 SMURF programme are Akshat Agarwal, Chu Wenhai, Dong Di, Ren Deyang, Delroy Fong, Sha Li and Xiong Jiaqing from NUS; Mihir Pant from NTU; and Ong Tian, Ooi Boon Teik, Natashi Plotkin, Touch Meng Heng and Yen Minmin from MIT.

Professor Rohan Abeyaratne, Director of SMART, believes that mentorship plays a critical role in the education of future generations of scientific and engineering leaders; and that engaging in research should begin at the undergraduate level. "SMURF offers these young scientists and engineers a unique opportunity to participate in an MIT faculty member's Singapore research project and interact with researchers and students from diverse international backgrounds. The students were assigned SMART Centre researchers as mentors to guide them through the programme." he said.

To create more undergraduate research opportunities, SMART is working with the NUS and NTU Faculties of Engineering to extend the originally summer internship programme to the entire academic year. SMART will continue to provide the facilities, resources and most importantly the mentorship by MIT faculty members.

"Extending SMURF to the entire academic year will enable more students to participate. The longer duration will also allow more flexibility for the students when they plan their academic and internship schedules and give them more time for their research project."

Each student will be attached to one of the three interdisciplinary research groups (IRG) at SMART: BioSystems and Micromechanics (BioSymb IRG), Center for Environmental Sensing and Modeling (CENSAM IRG) and Infectious Diseases (ID IRG).

"SMART's multinational and interdisciplinary research environment will provide the right catalyst to ignite the students' research potential and aspirations. SMART also provides an

excellent platform to introduce these young minds to Singapore's vibrant international research environment," said Professor Abeyaratne.

Last year's programme was a huge success as the MIT scholars had rich experiences that included intense interactions with SMART research mentors as well as eye opening opportunities for international travel and exposure to a new culture. For MyanoeZin Myint, the experience was unforgettable. She was a chemical engineering junior at MIT when she joined the SMURF programme last year. Her research was at SMART's ID IRG programme characterising primary and secondary immune signaling responses to provide a better understanding on how certain cells respond to pathogens. "Through SMART, I had the chance to work with extremely talented post-doctorals, graduate students and researchers from MIT and NUS. This trip has ignited a deep passion in me for research," said Myat.

In general, SMURF scholars express enthusiasm at the opportunity to not only pursue their research aspirations but also broaden their international exposure. Some of the 2009 SMURF interns shared their experiences after their sixty-day research programme.

Ms Dong Di, a third year Life Sciences student at NUS was based at the ID IRG working with Professor Chen Jianzhu and Dr. Maroun Khoury. "My research on the expansion of Hematopoietic Stem Cells (HSC) can have broad clinical applications such as transplantation or gene therapy since HSC can give rise to blood cells," she explained. "I find my research work at SMART very interesting. I hope to learn more about research work from the researchers from SMART and MIT."

Mr Delroy Fong, an NUS mechanical engineering sophomore, was attached to CENSAM IRG and working with Professor Andrew Whittle and Dr Ami Pries on "*Continuous Monitoring of Water Distribution Systems in Singapore*". The research aims to track the water state and water quality of the water network in Singapore. He said, "Although, I haven't quite decided on becoming a scientist yet, engineering is definitely what I want to pursue. Being able to work under the MIT brand name was definitely a huge draw for me. The experience has been really great. The level of creativity and dynamism runs really high here."

Mr Meng Heng Touch, worked under the supervision of Professor Leslie Norford and Dr Chang Chew Wai at CENSAM IRG to develop an optical system to produce high dynamic range all-sky images in Singapore. He is also working on processing the satellite image of the map of Singapore to identify different land usages, study the heat and reflective properties of land uses and the urban heat island effect in Singapore. "I decided on SMART for my research internship as CENSAM's research work interests me," said Mr Meng. He is a sophomore majoring in Aerospace/Astronautical Engineering at MIT and hopes to do a double major in Physics.

Mr Mihir Pant, an electrical and electronic major student at NTU studied studying protein-DNA interaction by using magnetic tweezers at BioSym IRG. On applying for SMART's SMURF programme, he said, "I chose SMART for my research internship because I wanted to work in a new area – namely biophysics. My experience has been very enriching, enabling me to learn about experimental work. I am highly inclined towards research as a career and

my experiences at SMART has provided me with a much better idea about the field I would like to pursue in the future.”

The SMURF programme is open to MIT, NUS and NTU undergraduate students who have successfully completed their first year. For the summer programme, all students will be paid a competitive stipend and those from MIT will also have their travel and accommodation paid for. Details of the academic year version of the programme are already being worked out. The programme is funded by SMART, NUS, NTU and a generous gift from Ms Dorothy Ng-Chan.

About the SMART Centre

The SMART Centre is a major new research enterprise established by the Massachusetts Institute of Technology (MIT) in partnership with the National Research Foundation of Singapore (NRF) in 2007. It is the first entity in the Campus for Research Excellence and Technological Enterprise (CREATE) being developed by NRF.

The SMART Centre serves as an intellectual hub for research interactions between MIT and Singapore. Cutting-edge research projects in areas of interest to both Singapore and MIT are undertaken at the SMART Centre. Interdisciplinary, experimental, computational and translational research are being conducted. Three interdisciplinary research groups (IRG) have been established to date: they are BioSystems and Micromechanics (BioSym), Center for Environmental Sensing and Modeling (CENSAM) and Infectious Disease (ID). Two more IRGs, as well as an Innovation Centre will be established at SMART Centre in the near future.

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