

THE MEASURE OF SUCCESS

When asked about his work in A*STAR, Dr. Meng Yusong, a scientist at the National Metrology Centre (NMC) says nothing about measurements is set in stone.

Indeed, the study of metrology – the science of measurement – involves a great amount of uncertainty. Every measurement made can only be considered an estimate, and not an exact value. At the core of metrology lies the International System of Units (SI), encompassing familiar, interrelated units like the *kilogramme* or the *second*, which is the most accurate unit of measure out of the group. This system not only serves as an important point of reference for scientific research, but also for everyday life.

SEEKING ACCURACY

Yusong has made it his life’s work to pursue the absolute true value of measurements. Under the branch of electrical metrology at the NMC, he is responsible for developing, maintaining and disseminating the national measurement standards for radio frequency, microwave, and the millimetre-wave in Singapore. “The work is very exciting,” he says. “We conduct the experiments locally, but our contributions are also being reviewed and accepted by the international metrology committee.”

The call to pursue the truth through science for Yusong began from a very young age, when he would ask his teachers in school to explain the workings behind everyday phenomenon. “The pursuit of science allows me to understand, and to discover how science can answer the questions we have about the world,” he reveals.

Today, the nature of Yusong’s work in NMC requires him to collaborate closely with local SMEs to ensure that measurement standards are met, with intangible benefits that yield great success. One noteworthy collaboration was with Psiber Data, a company that specialises in delivering test and measurement solutions to the communication infrastructure market, which netted him the T-Up Excellence Award in 2015.

Under the T-Up scheme, Yusong’s secondment to Psiber Data enabled the company to develop a handheld cable analyzer capable of certifying 40Gbps Ethernet copper cabling systems. The first of its kind in the world, the instrument allows cable manufacturers to accurately test the functionality of high-speed cables. The analyzer benefits everyday users by allowing service providers like data centres to provide a quality experience for their customers.

The handheld cable analyzer was not the be-all and end-all of his achievement, as he finds his successes split wholly between invention and innovation. “For this project, we’re not just providing a physical device,” he explains. “We are collaborating with companies to participate in international standards committees, and to also push our contributions into the international field.”

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ESTABLISHING THE CONNECTION

Yusong also lends his metrological expertise to the industry as a whole, as he is a technical assessor for the Singapore Accreditation Council – Singapore Laboratory Accreditation Scheme (SAC-SINGLAS). The scheme, managed by SPRING Singapore, ensures that laboratories in the industry observe international standards. “It’s not just about checking the quality of operations, but it is also about ensuring that all the products are consistent, of similar and high quality,” commenting on the confluence of factors that goes into ensuring the laboratories of SMEs succeed.

It was the quest for knowledge that drew Yusong into the field of metrology in the first place. A member of the Institute of Electrical and Electronics Engineers (IEEE) and IEEE Microwave Theory and Techniques Society, he is keen to work with other like-minded scientists in the field for scientific achievement. “My work lies mainly in the fields of science and technology, where there is always a very quick renewal of technology,” he says, referring to the humble evolution of the mobile phone. “What was previously new a few years ago can quickly become outdated today.” To him, learning and staying ahead is success in and of itself.

LEARNING ON THE JOB AND BEYOND

Yusong finds his work at A*STAR immensely meaningful. Having graduated from Nanyang Technological University (NTU), where his only previous point of reference was his professors, who provided a more academic view, he finds working in A*STAR provides a direct connection between science and industry. “The work at A*STAR enables interaction between research, scientific issues, and industry requirements, which will eventually help the industry to improve their competency,” he added.

This urge to learn continuously extends to outside of his work too. Yusong is an avid fan of documentaries, especially those based on events in history. “Many lessons can be learned from mistakes made in the past, in order to improve the future,” he says.

Yusong sums up his overarching philosophy of real world learning with, “There is no end to learning.” It is due to the possibility of learning something new that he looks forward to work every day.

Ultimately, Yusong aims to strive for accuracy and recognition for his work — culminating in an ongoing push for Singapore to measure up to international standards.



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Comparative testing with Psiber’s handheld network analyzers in NMC’s lab

