

## SMU business school recognised among top three in Financial Times Masters in Finance Rankings 2017



SMU city campus skyline

**Singapore** – For the third time, Singapore Management University's (SMU) Lee Kong Chian School of Business (LKCSB) has been featured in Financial Times' (FT) Masters in Finance Pre-experience as well as Post-experience Rankings.

In the 2017 Rankings released by FT in June, the SMU MSc in Wealth

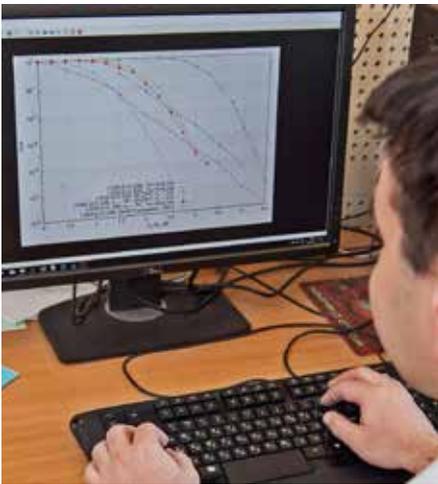
Management (MWM) was recognised for the third consecutive year as one of the top three finance master's programmes in the world by the Financial Times (FT) Masters in Finance Post-experience Ranking 2017. The SMU Lee Kong Chian School of Business remains the only institution in Asia to make it to the ranking, placed just after

London Business School and University of Cambridge's Judge Business School.

The SMU MWM programme has much to be proud of. Alumni of the programme reported a salary of US\$104,992, a 15% increase compared to the salary reported in last year's ranking. LKCSB is also ranked top in careers services support, a recognition of the effectiveness in areas like career counselling, personal development, networking events, and recruitment.

In addition, the business school also ranked 4th among Asian business schools and 44th in the world in the FT Masters in Finance Pre-experience Ranking 2017 for its Master of Science in Applied Finance (MAF). It is also the only institution in Singapore and South-Asia to be ranked.

## New channel coding method for 5G wireless systems



QS polar code

**Russia** – a new channel coding method for the fifth generation wireless systems (5G) has been proposed by the researchers of Peter the Great St. Petersburg Polytechnic University (SPbPU).

The task of channel coding is to introduce some redundancy into the data, so that it can be used to cope with errors, which occur during transmission over the wireless medium. The simplest example of channel coding is human speech. Indeed, not every combination of sounds or letters is a valid word. This enables people to communicate

even in a noisy environment. The task of engineers is to design simple and reliable channel coding techniques, which would enable gadgets, smartphones and computers to provide new kinds of services.

Although the history of coding theory starts from 1948, an important breakthrough was achieved recently by the Turkish scientist Erdal Arıkan, who suggested polar codes, the first class of error correcting codes, which in theory have low-complexity construction, encoding and decoding algorithms, and achieve the Shannon limit. But as a matter of actual practice the performance of polar codes turned out to be not very good. Many universities in the world are working on improving polar codes. Significant progress on this issue was achieved by SPbPU researchers.

An associate professor of the Higher School of Software Engineering at SPbPU Peter Trifonov said that SPbPU researchers were able to design codes, which surpassed state-of-the-art competitors in performance and decoding simplicity. He also added that they had generalised the construction of polar codes proposed by Arıkan and had obtained polar sub-codes; had excluded some code words from

Arıkan's polar codes, which could be easily mixed up by the receiver, and had introduced additional restrictions on the symbols of their code words in order to simplify the error correction task of the decoder.

Furthermore, the researchers of Polytechnic University proposed a computationally simple decoding algorithm for polar codes and sub-codes. Decoding process can be interpreted as searching for the shortest path in a labyrinth. By predicting the average number of errors at different decoding phases (in the labyrinth corridors), it was possible to significantly reduce decoding complexity. As a result, scientists of SPbPU obtained both improved performance compared to widely used low-density parity check (LDPC) codes and reduced decoding complexity.

Improved code performance enables communication systems to operate in more challenging environments, and support more users and higher data rates. Reduced decoding complexity, on the other hand, provides longer battery life in mobile devices. Currently, SPbPU researchers are working on implementing actual communication systems based on polar sub-codes.