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NUS Computing forms academic blockchain think tank

A new academic research centre from the laboratory that created Zilliqa and Kyber Network looks to solve big issues in blockchain

The National University of Singapore (NUS) School of Computing today announced the creation of the CRYSTAL (Cryptocurrency Strategy, Techniques, and Algorithms) Centre, an academic research laboratory and think tank aiming to lead as one of the world's foremost centres for research on blockchains. Assistant Professor Prateek Saxena and Associate Professor Keith Carter, who are from the Department of Computer Science and Department of Information Systems and Analytics at NUS Computing respectively, will co-direct the Centre. The CRYSTAL Centre, founded by NUS Computing faculty members, has a goal of providing scientific clarity in shaping technical ideas in the blockchain and cryptocurrency space. The team of experts has been responsible for several academically grounded spin-offs over the last two years in the blockchain ecosystem.

The CRYSTAL Centre, located at NUS Computing, will initially comprise between 5 and 10 faculty members and several scholars working in different research sub-areas. This includes experts in program language design and verification (Asst Prof Aquinas Hobor and Asst Prof Ilya Sergey), distributed computing algorithms (Assoc Prof Haifeng Yu), security (Asst Prof Min Suk Kang and Asst Prof Prateek Saxena), and market economics (Assoc Prof Keith Carter). The Centre will conduct research on scalable consensus protocols, verification and testing techniques, privacy-preserving computation, safe programming language design, blockchain applications, fundamentals of trading cryptocurrency, analysis of cryptocurrency economics, and highly available peer-to-peer (P2P) network designs. These topics touch on many challenges that the blockchain and cryptocurrency space currently faces.

"We hope to make debates in the community more scientifically-grounded. The goal is improve interaction between those armed with intuition and those with scientific rigour. We also hope to draw attention to unforeseen scientific challenges, both near-term and long-term," said Asst Prof Saxena.

The CRYSTAL Centre will engage in productive interaction with the industry to draw up new research problems and propose solutions to them. The research centre also plans to host a series of structured events to facilitate interaction with the wider community. An annual workshop with three tracks – including technical research, business and entrepreneurship – is under works.

Dr Loi Luu, CEO of Kyber Network, said, "We at Kyber Network understand the importance of building secure blockchain systems that will eventually make great social and academic impact. There are still several key technical challenges for blockchain to achieve mainstream adoption, and the CRYSTAL Centre is in one of the best positions to facilitate this."

In all, the Centre hopes to foster an open/public technical community of thought leaders and experts in the blockchain space, all working to further the ideation in blockchain research globally. In April 2018, the team created the Blockchain Technical Reading Group in Singapore as the first step towards bringing attention to important technical topics. One take away from the reading group was that there is a gap in the understanding of security underpinning current blockchain designs. The CRYSTAL Centre will work to close this gap through collaborative research.

Mr Frank Xiang Wang of the X-Order Institute. said. "CRYSTAL Centre is one of the first labs in the world