NATIONAL UNIVERSITY OF SINGAPORE

School of Computing

C S S E M I N A R

Title: **Introduction to Ethereum and Blockchain Technology**

Speaker: Mr Vitalik Buterin
             Ethereum

Date/Time: 5 June 2015, Friday, 02:00 PM to 03:30 PM

Venue: SR2, COM1-02-04

Chaired by: Dr Griffith Virgil, Research Fellow, School of Computing
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Abstract:

Bitcoin has caught the world's attention over the past five years, as a fully decentralized "cryptocurrency" with no central issuer, no "intrinsic value" and no central point of control has risen in value from $0.001 to briefly hitting over $1000. Some consider it an impractical speculative toy, and yet others proclaim it the future of money. However, behind this currency is a piece of technology that has so far seen much less public attention: the blockchain, a highly fault-tolerant distributed database which processes transactions according to a built-in rule set while ensuring very high guarantees of security and authenticity and without involving any trusted third parties - arguably a breakthrough in computer science in its own right, with currency being only its first application. Ethereum is one of the leading projects trying to take the technology to the next level, by introducing a Turing-complete scripting language and an application development environment including an object-oriented programming model, a distributed hash table and a distributed messaging system in order to develop a paradigm of "decentralized applications" (dapps) - software that runs absolutely and entirely in a distributed cloud, without relying on any specific entities except to initially write the code. Additionally, the model can be applied to increase security in hybrid applications, such as legal contracts and recording transfers of land ownership, traditional securities, etc. However, because of its lack of trusted third parties, blockchain technology faces unique challenges, pulling together such diverse fields as computer science, financial controls theory, game theory, cryptography and law. What is the present and future that this technology offers, and what challenges still remain?

Biodata:

Vitalik Buterin is the long-time developer of blockchain and cryptocurrency technologies. After first discovering Bitcoin in 2011, he cofounded Bitcoin Magazine with Mihai Alisie

and served as head writer for two years. After two years researching existing blockchain technologies, he founded the Ethereum project in 2013, seeking to use a built in virtual-machine-like programming language in order to generalize the technology and make it useful for a variety of applications, including finance, timestamping, identity management and internet-of-things; he continues to serve as Chief Scientist of the project to this day. He is also a cofounder of the Cryptocurrency Research Group, an international cross-disciplinary effort seeking to advance the state of research in cryptographic and decentralized technologies.