

NATIONAL UNIVERSITY OF SINGAPORE

School of Computing

C S S E M I N A R

Title: **Computer Aided Clinical Trials**

Speaker: Kuk Jin Jang
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 Department of Electrical and Systems Engineering
 University of Pennsylvania.

Date/Time: 24 August 2016, Wednesday, 03:00 PM to 04:00 PM

Venue: MR1, COM1-03-19

Chaired by: Dr Roychoudhury, Abhik, Professor, School of Computing
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Abstract:

Clinical trials in humans and animals cost between \$10-\$20 million, take between 4-6 years and suffer from a high failure rate. I will describe an early effort towards using computer modeling as regulatory-grade evidence for medical device certification. Starting from a database of 100's of real patient signal records, we develop and use a large in-silico cohort consisting of 10,000+ heart models to improve the planning and execution of a clinical trial for comparative analysis of algorithms in implantable cardiac devices. With our in-silico cohort we are able to provide early insight prior to a clinical trial by generating patient populations across a range of heart conditions and distributions and also feed the same signals to multiple devices with different configurations. This effort has the potential to provide regulatory-grade evidence to complement and supplement clinical trials for rapid software safety certification.

Biodata:

Kuk Jin Jang is a PhD candidate in the department of Electrical and Systems Engineering at the University of Pennsylvania. He holds an M.Eng degree from Princeton University and Sc.B from Brown University. From 2011 to 2013, he worked with the Korea Electronics Technology Institute on interface systems for biochemical sensors. His current research interests include modeling of physiological processes, design and verification of medical cyber physical systems, and experience design for Internet of Things. In 2014 he won First prize in the International section at the 12th annual World Embedded Software Contest held in South Korea.