

NATIONAL UNIVERSITY OF SINGAPORE

School of Computing

C S S E M I N A R

Title: **A communication theoretic approach to molecular communication**

Speaker: Associate Professor Chun Tung Chou
School of Computer Science and Engineering
University of New South Wales

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Chaired by: Dr Chan Mun Choon, Associate Professor, School of Computing
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Abstract:

The study of molecular communication has its origin in biology and biophysics. Molecular communication is a vital mechanism in the living world, e.g. cells in the human body constantly communicate with other cells using molecular communication. With the development of synthetic biology, molecular communication may be used to enable communication between synthetic nanobio devices. This talk attempts to answer the following question: How is information conveyed in molecular communication from a communication theoretic point of view? To answer this question, we propose an optimal demodulation problem in diffusion-based molecular communication. We will present a solution based on Bayesian filtering and discuss the insights from the solution. Two key insights are: (1) Molecular communication uses events to convey information. (2) A continuous-time solution is warranted because uniform sampling leads to information loss.

Biodata:

Chun Tung Chou is an Associate Professor at the School of Computer Science and Engineering, University of New South Wales, Sydney, Australia. He received his BA in Engineering Science from University of Oxford and his Ph.D. in Control Engineering from the University of Cambridge. He has published over 150 articles on various topics, including, systems and control, wireless networks, and communications. His current research interests are molecular communication, nano-scale communication, compressive sensing and embedded networks.

URL:<http://www.cse.unsw.edu.au/~ctchou/index.html>