

# NATIONAL UNIVERSITY OF SINGAPORE

School of Computing

## C S S E M I N A R

**Title:**        **5G and Beyond: The Road to Next-Generation Broadband**

**Speaker:**    Eugene Chai  
                  Researcher  
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                  NEC Laboratories America

**Date/Time:**  17 October 2016, Monday, 02:00 PM to 03:00 PM

**Venue:**       SR9, COM1-02-09

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

5G is the vision for a future ubiquitous, fully-connected environment. The goal of 5G extends from improving mobile cellular capacity, to supporting massive numbers of IoT devices, virtual reality and highly reliable public safety communications. While 5G encompasses the entire network architecture, wireless access technologies plays an outsized role in realizing last-mile connectivity to the vast majority of future connected devices.

In this talk, I will draw upon some of our recent works that push the envelope in evolving our current broadband infrastructure to 5G. I will highlight two key areas in 5G: unlicensed LTE and large-scale MIMO. These works address two of the most important areas in future broadband networks: the unification of licensed and unlicensed spectrum to provide the coverage and connectivity needed for next-generation broadband; and a massive improvement in spectral efficiency to make the most of the bandwidth that we have today. I will also highlight my experience in prototyping these solutions and the future directions of this work.

### Biodata:

Eugene Chai is a researcher in the Mobile Communications and Networking department of NEC Laboratories America. He received his M.S. and Ph.D. from the University of Michigan, Ann Arbor, and his B.S. from the National University of Singapore. Before his Ph.D., he was a Research Assistant under Professor Chan Mun Choon. His research interest broadly lies in the area of wireless mobile networks, cloud RANs, mobile computing and sensing with a focus on cellular networks and systems. He has published in numerous conferences and journals such as ACM MobiCom, MobiHoc, IEEE INFOCOM, ICNP etc.

