



## Fall 2016 Colloquium

Department of Computer and Information Sciences

*Robust & Secure Mobile Image Recognition/Retrieval System*

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**Abstract:** In recent years, image recognition related applications has become very popular especially after Google popularized the technology with Google Goggles in 2010. Image recognition is used in many new technologies such as self-driving cars, e-commerce e.g. searching and buying similar apparel based on a snapshot. However, several challenges remain if we want highly accurate image recognition anywhere anytime using mobile devices. Traditional object recognition algorithms operate robustly only in controlled environments but exhibit high variation in accuracy for more generic mobile environments. Some key reasons are (i) visual domain shift, e.g., changes in image resolution, lighting, background, viewpoint often causes performance degradation, (ii) hard to predict all objects to be recognized. We will present an adaptive mobile object recognition framework (joint research with IBM researchers) which allows deep learning techniques to be used successfully in mobile environments. In addition, the images involved in some application scenarios are sensitive e.g. homeland security related applications and hence a secure image retrieval system needs to be designed. Thus, we will also describe how to design such a secure mobile image retrieval system.

**Bio:** Mooi Choo Chuah is a Professor in Computer Science & Engineering Department at Lehigh University. Her research interests include mobile computing, mobile healthcare, network security, secure cyber physical systems, Internet of Things, and designing next generation networks. She received her Ph.D. degree in Electrical Engineering from University of California San Diego. Prior to joining Lehigh, she was a Distinguished Member of Technical Staff and Technical Manager at Lucent Bell Laboratories, NJ. Based on her research work at Bell Laboratories, she has been awarded 62 US patents and 15 international patents related to mobility management, 3G and next generation wireless system design, etc. She has served as a technical co-chair for IEEE INFOCOM 2010, symposium co-chair for IEEE Globecom Next Generation Networking Symposium 2013, and Associate Editors of IEEE Transaction for Mobile Computing and IEEE Transactions on Parallel & Distributed Systems. She is an IEEE Fellow. Her research has been supported by DARPA, NSF, DOE, PITA.