# SWS3004: Cloud Computing with Big Data

**School of Computing Summer Workshop: 12 July to 1 August 2018**


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# My Interests

**Research**: modelling (simulation and performance modelling), parallel computing (cloud, edge)

**Teach**: Parallel Computing, Cloud Computing, Computer Systems Performance Analysis, …

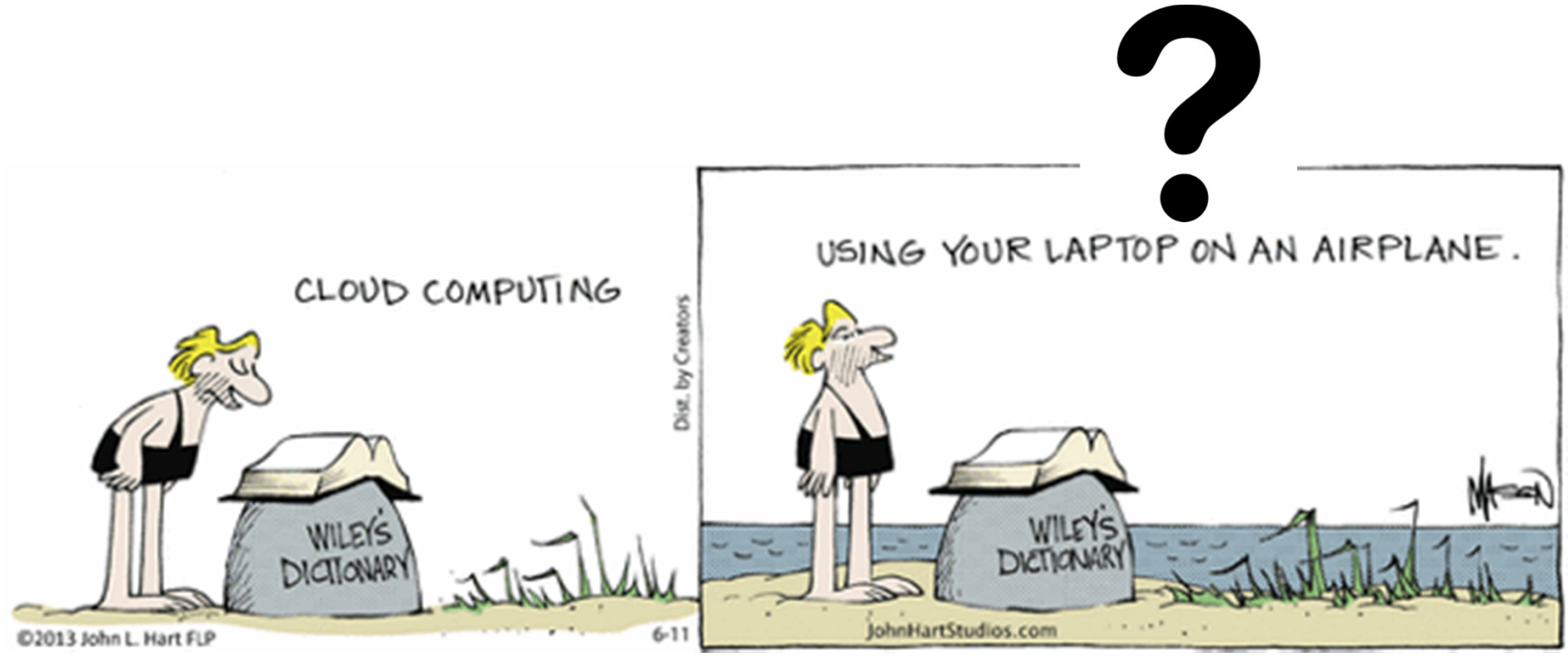
## Best Paper Awards

1. L. Birdsey, C. Szabo and Y.M. Teo, **Twitter Knows: Understanding the Emergence of Topics in Social Networks,** Proc of Winter Simulation Conference, IEEE Computer Society Press, US, Dec 6-9, 2015. [**WSC 2015 Best Paper Award**]
2. M. Mihailescu and Y.M. Teo, **Strategic-Proof Dynamic Resource Pricing of Multiple Resource Types on Federated Clouds,** Proc of 10th International Conference on Algorithms and Architectures for Parallel Processing, Busan, Korea, May 21-23, 2010. [**Best Paper Award**]
3. C. Szabo, Y.M. Teo and S. See, **A Time-based Formalism for the Validation of Semantic Composability,** Proc of the Winter Simulation Conference, pp 1411-1422, IEEE Computer Society Press, Austin, Texas, USA, December 13-16, 2009. [**ACM SIGSIM Best PhD Student Paper Award**]

# Outline

- Learning Objectives
- Lectures
- Course Schedules & Webpage
- Main Text
- Module Assessments

# Cloud Computing with Big Data



# Learning Objectives

1. Explains and discusses fundamental aspects of cloud computing concepts, models, technologies and applications; cloud-enabled data analytics with discussion on big data architecture and patterns

2. Project
   - design and implement a cloud application with data analytics
   - deliverable: functional prototype with source code
   - IBM Bluemix Cloud, Watson (AI) services, etc

# Lectures

Lectures on 19 & 20 July

- L01: Introduction
- L02: Concepts & Models
- L03: Technologies behind Cloud Computing
- L04: Applications & Paradigms
- L05: IBM Bluemix Cloud Services
- L06: Projects
- Quiz 1 and 2 (closed book) 20%

Project Lectures on 23 & 24 July

- P01: Big Data Architecture & Patterns
- P02: IBM Cloud Services (PaaS, SaaS) with Hands-o
- Lab, 4 milestones + peer evaluation (80%)

# Lecture – 19 & 20 Jul

0900-1030 lecture
1030-1045 break
1045-1200 lecture

1200-1400 lunch

1400-1445 lecture
1445-1500 break
1500-1545 lecture

1600-1700 assessment

# Some Example Projects

1. Cloud-based recommendation system
2. Personal Internet footprint
3. Cloud-based automatic data visualization
4. Combining cloud provider machine learning classifiers
5. Performance of  cloud-based convolution neural networks
6. Facial expression recognition
7. Personalized cycling route
8. Comfortable bus commute
9. Personality insight analytics
10. ...

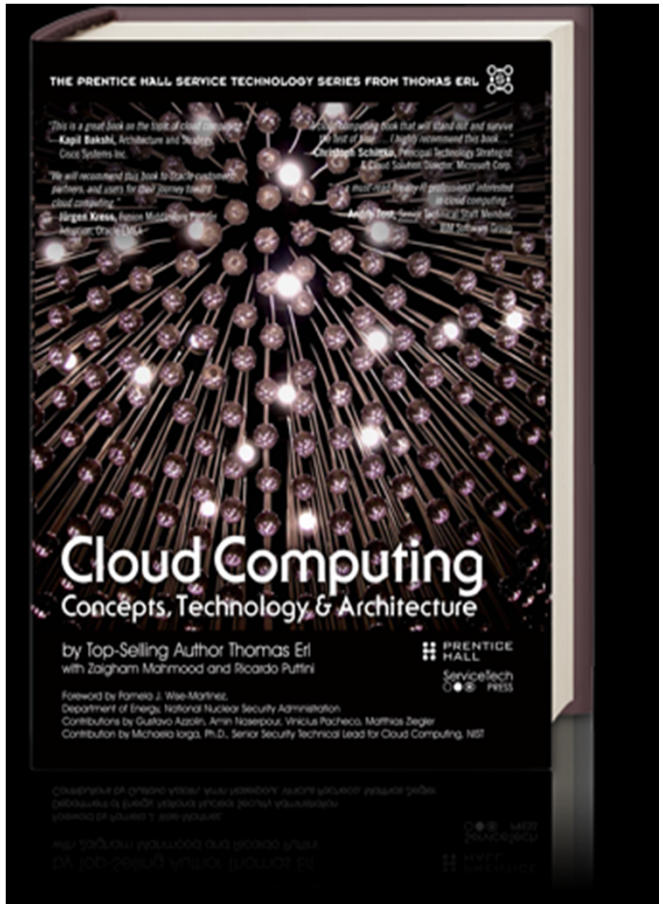
# Course Schedule & Webpage

- Lecture: 19 Jul & 20 Jul – 9-12noon, 2-5pm
- Tutor: Sunimal Rathnayake (Com 2, #B1-01)
  Zhang Han (Com2, #B1-01)

- Consultation:
  - see schedule in course page
- Webpage:
  - IVLE for course announcement
  - www.comp.nus.edu.sg/~teoym/sws3004-18 for lecture slides, assignments, etc.

# Main Text

- *Cloud Computing: Concepts, Technology & Architecture,* Thomas Erl, et al., Prentice-Hall, 2013, 2 copies available for loan



# Module Assessment

- Seminars
  - Quiz 1 and 2 (closed book) 20%

- Project
  - Lab (20%)
  - Project (60%)
    - Milestone 1: Pitch and Buy-in 10% + 5%(peer evaluation)
    - Milestone 2: Design Walkthrough 10%
    - Milestone 3: Prototyping Walkthrough 10%
    - Milestone 4: Poster Presentation & Demo 15% + 10%(peer evaluation)