BIOMETRICS COURSE

Dr. Terence Sim

Summer 2016

Instructor: Dr. Terence Sim

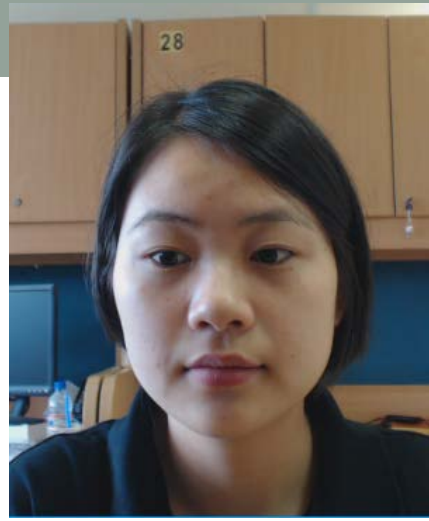
- Assoc. Prof., School of Computing, NUS
  - Face recognition, Biometrics
  - Computational photography
- President, PREMIA

PREMIA
Pattern Recognition and Machine Intelligence Association

- Ph.D. CMU, MSc. Stanford, S.B. MIT
- Contact: tsim@comp.nus.edu.sg or Google me

http://www.comp.nus.edu.sg/~tsim/

TA: Li Jing (李静)



- Ph.D student in the Computer Vision Lab of Computer Science Department, School of Computing, National University of Singapore. My research interest is mainly focused on biometrics. In particular, I worked on speaker recognition, face expression recognition and face identification. I have also explored continuous authentication and cancelable biometrics.

- Aug 2013 - Present, PhD Candidate, School of Computing, National University of Singapore, Singapore
- Sep 2009 - Jun 2013, B.S. in Computer Science, University of Science and Technology of China, P.R. China

- Contact: lijing@comp.nus.edu.sg

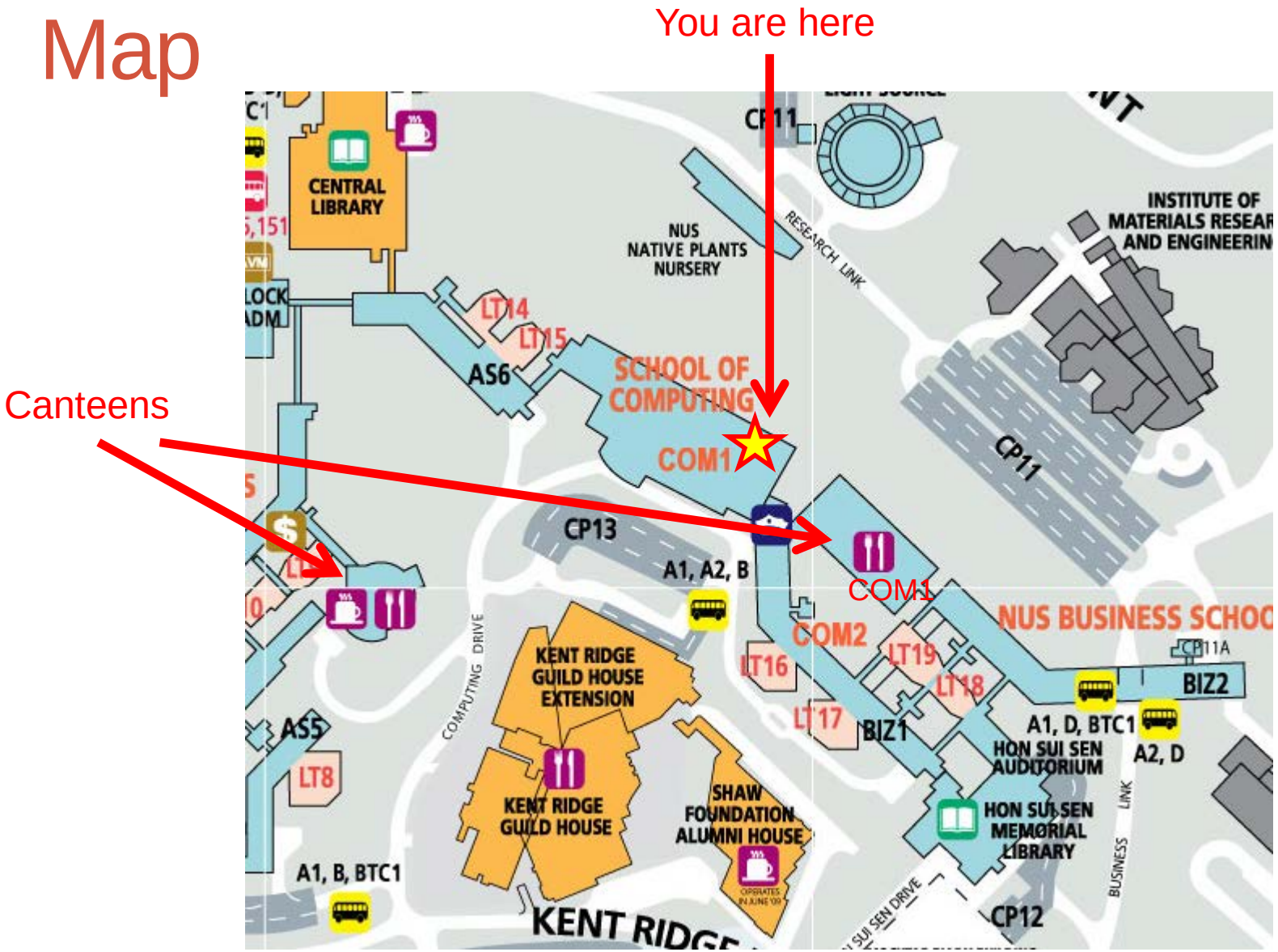
Basic rules

- Submit all 5 assignments on time
- Grades: A, B, C, etc.
- Certificate of completion will be given
- Keep labs and classroom clean. Clear out any trash.
- No food in labs/classrooms; beverages ok
- Be courteous and considerate
  - No phone calls in class
  - Silence your phone
- Lessons conducted in English

Daily Schedule

Time	Activity	Venue	Remarks
10:15am	Lecture	VC Room	
11:30am	*Break*		
11:45am	Lecture	VC Room	
1:00pm	*Lunch*		On your own
2:00pm	Hands-on	Media Lab 1 and 2A	
5:00pm	*End*		

Map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NUS NATIVE PLANTS NURSERY
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INSTITUTE OF MATERIALS RESEAR AND ENGINEERIN
CP11
LT14
LT15
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SCHOOL OF COMPUTING
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A1, A2, B
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BIZ2
A1, D, BTC1
A2, D
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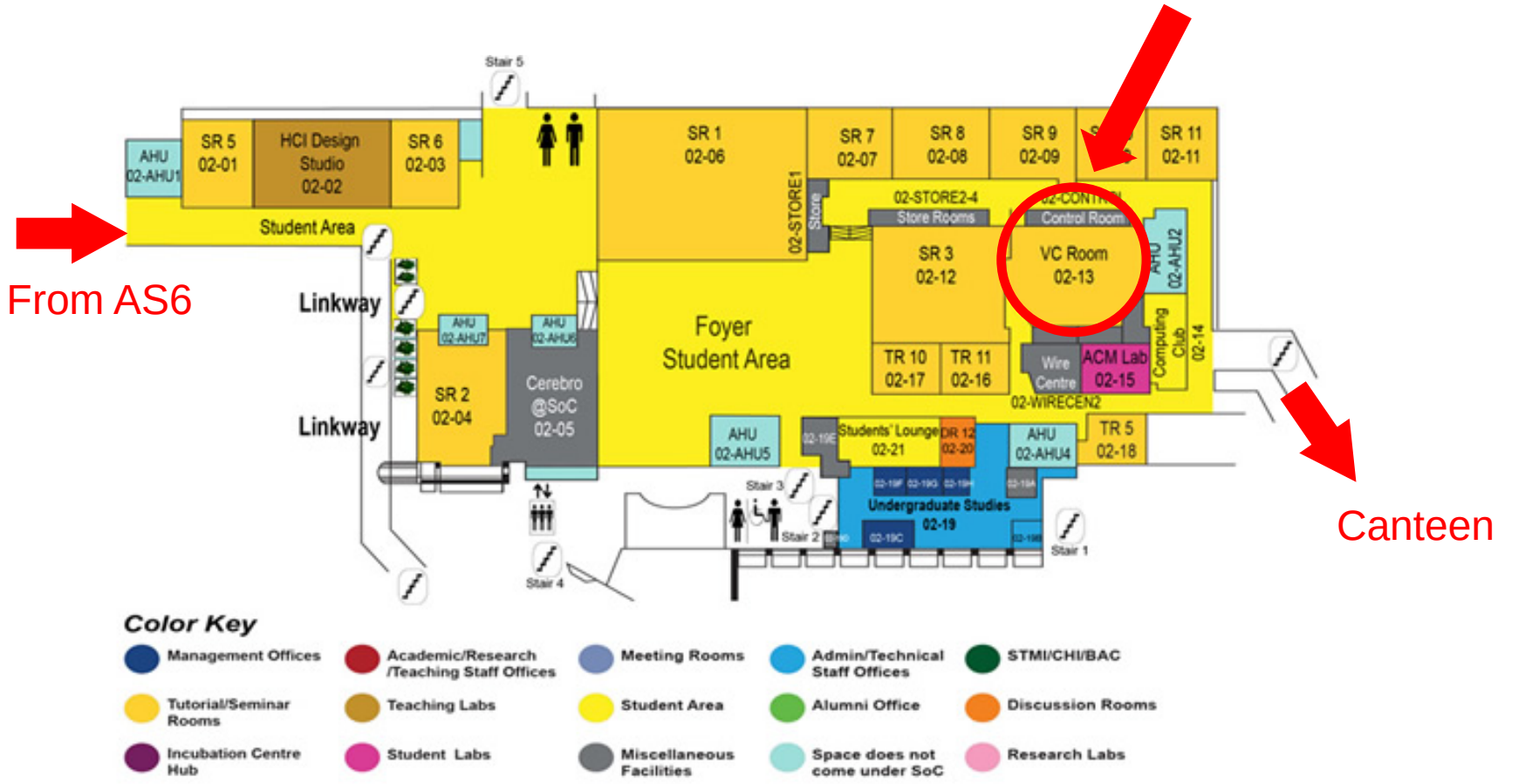
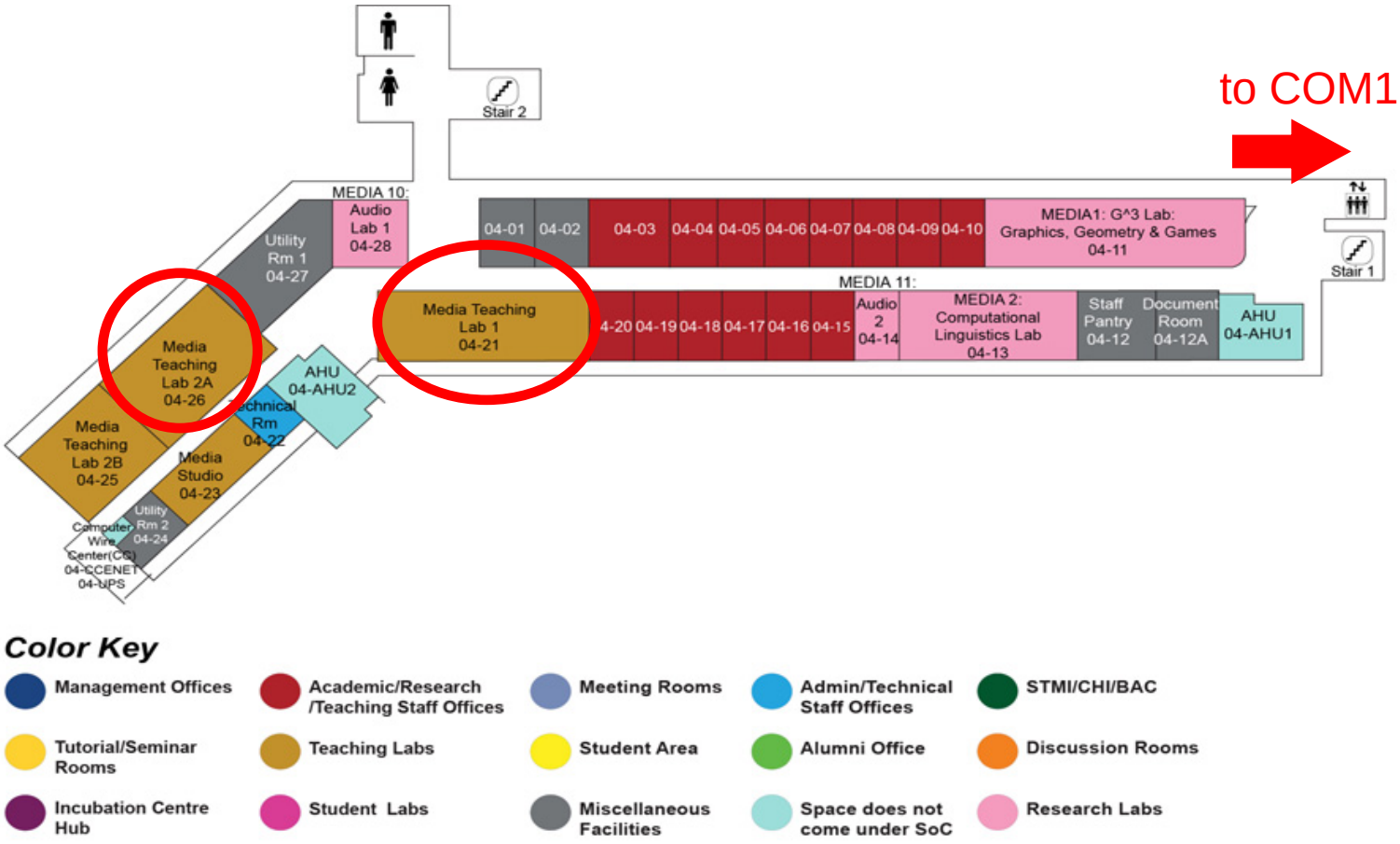
HON SUI SEN MEMORIAL LIBRARY
BUSINESS LINK
AS5
LT8
COMPUTING DRIVE
KENT RIDGE GUILD HOUSE EXTENSION
KENT RIDGE GUILD HOUSE
SHAW FOUNDATION ALUMNI HOUSE
A1, B, BTC1
KENT RIDGE
HON SUI SEN DRIVE
CP12

COM1 2nd floor



AS6 4th floor



Day	Topics	Remarks
Day 1		
am	Intro to biometrics + pattern recognition; identification vs verification; different types of biometrics;	Lecture1-1 to Lecture1-5
pm	Pattern recognition tutorial + hands-on	PR-handson
Day 2		
am	Python overview, basic grammar and usage	Lecture2_Python
pm	hands-on, some basic examples or tutorial, how to read/write image, plot figures	Assignment1: Python
Day 3		
am	Image processing, image filtering, median filtering, average filtering, de-noise; histogram equalization; convolution	Lecture3_ImageProcessing
pm	hands-on: programing assignment of basic image processing	Assignment2: Image processing
Day 4		
am	linear algebra review and statistic review	Lecture 4,5,6
pm	hands-on: linear algebra tutorial	Assignment 3: Linear algebra + SVD
Day 5		
am	homogeneous coordinates, geometric transformation	Lecture7
pm	hands-on	Assignment 4: Image mosaicing
Day 6		
am	comparing biometrics; performance: far, frr, roc, auc; pattern recognition	Lecture 8-1, 8-2
pm	hands-on: mosaicing continued	Assignment 4 continued
Day 7		
am	feature extraction(PCA)	Lecture9
pm	hands-on: continued	Assignment 5: Face Recognition
Day 8		
am	feature extraction(LDA, NMF, CCA, LPP)	Lecture10
pm	hands-on: fisher-face, pca vs lda	Assignment 5
Day 9		
am	fusion methods	Lecture notes
pm		Assignment 5
Day 10		
am	defeating biometrics; trends	Lecture 11-1, 11-2
pm		

Questions? Comments?