香港中文大學
The Chinese University of Hong Kong

CSCI2510 Computer Organization

Lecture 00: Course Information

Ming-Chang YANG

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Course Information

- **CSCI2510 Computer Organization**

- Course Time and Place
  - Lecture (*3)
    - MON 12:30~14:15 (ZOOM)
    - TUE 12:30~13:15 (ZOOM)
  - Tutorial (*1)
    - TUE 14:30~15:15 (ZOOM)
  - *Note: Password has been announced via BlackBoard.*

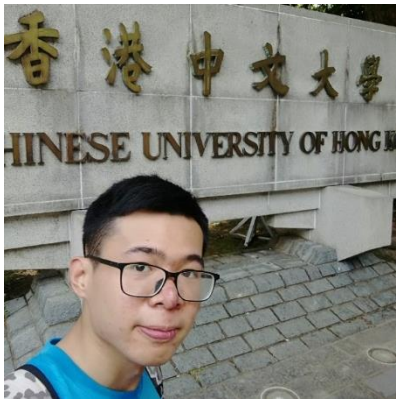
- Course Website
  - http://www.cse.cuhk.edu.hk/~mcyang/csci2510/2020F/csci2510.html

Course Instructor

- Prof. Ming-Chang YANG (楊明昌)
  - Office: SHB 906
  - Office Hours: TUE 14:30~15:30 (ZOOM)
  - mcyang@cse.cuhk.edu.hk

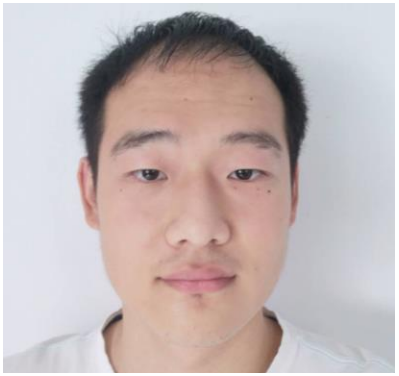
Teaching Assistants

- Yuhong LIANG (梁裕宏)
  - Office: SHB 101
  - Office Hours: TUE 16:00~17:00 (ZOOM)
  - yhliang@cse.cuhk.edu.hk



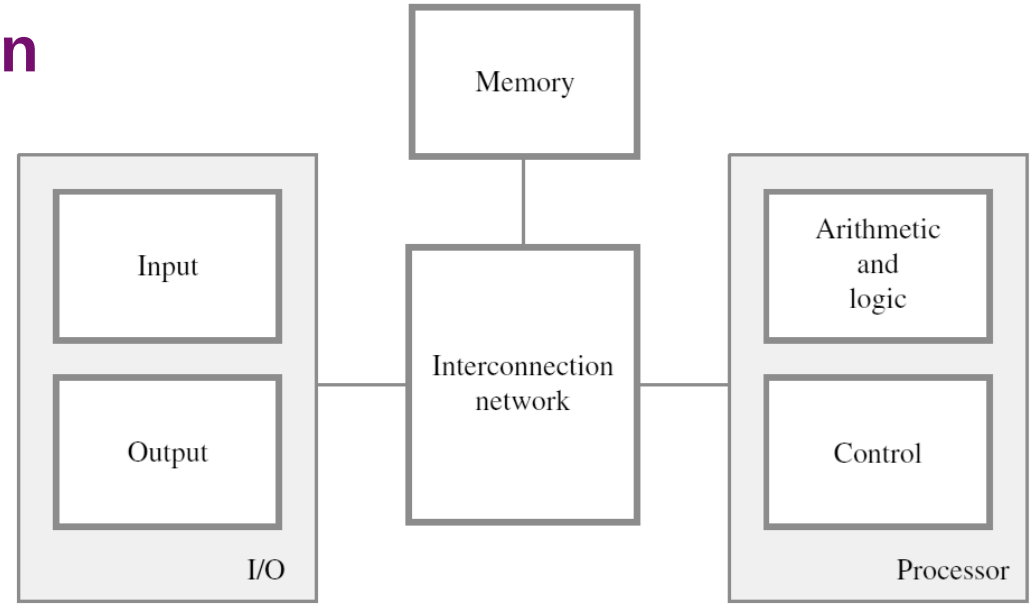
- Tsun-Yu YANG (楊尊宇)
  - Office: SHB 1005
  - Office Hours: FRI 16:00~17:00 (ZOOM)
  - yangty@cse.cuhk.edu.hk

- Chao WANG (王超)
  - Office: TBA
  - Office Hours: THU 16:00~17:00 (ZOOM)
  - cwang@cse.cuhk.edu.hk



Course Description

- This course is to understand how a computer works internally using assembly language.
  - **Computer Organization**
    - Processor (CPU)
    - Memory unit
    - Input/Output units
    - Interconnection buses



  - **Assembly Language Programming**
    - Internal coding of information
    - Number and character representation
    - Arithmetic operations
    - Flow of information within a microcomputer

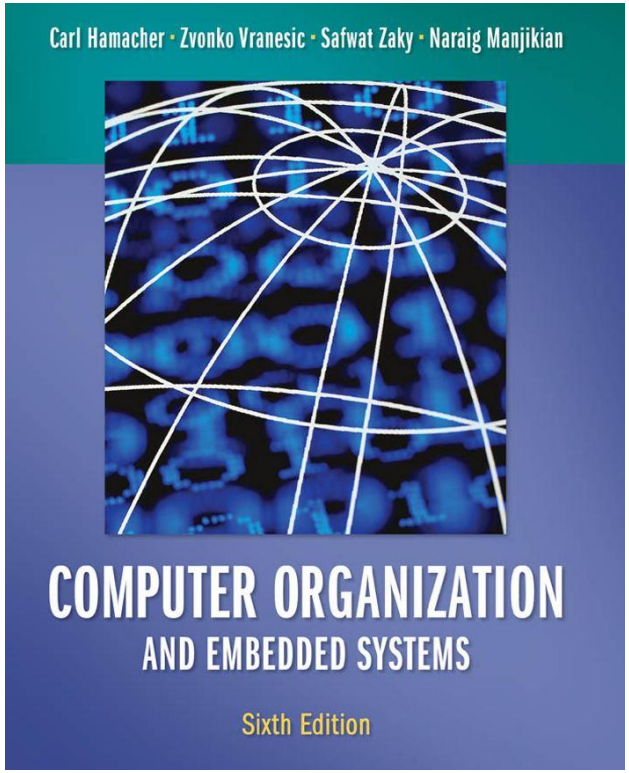
```
mov ecx, ebx
mov esp, edx
mov edx, r9d
mov rax, rdx
```

Programming Tool

- **Microsoft Macro Assembler v14** (within Microsoft Visual Studio 2015)
  - Community Edition:
    - Free for Genuine Windows users
    - Full-featured industrial-grade software
  - Usage Guideline:
    - Install Visual Studio Community 2015
      - https://www.visualstudio.com/
    - Create C/C++ Project and accept default MASM/ML build rule (step-by-step instructions to be provided in Tutorials!)

Textbook

- Textbook
  - **Computer Organization and Embedded Systems**
    - Carl Hamacher, Zvonko Vranesic, Safwat Zaky, and Naraig Manjikian
    - Sixth Edition
    - McGraw Hill, 2012



Course Assessment

- Grading
  - Assignments 40%
    - Hand-written Exercises
    - Programming Assignments (using MASM)
  - Midterm Exam 20%
  - Final Exam 40%
  - ~~Class Participation 0%~~ (subject to change!)
  - Bonus 5% (extra!)

- Notes
  - **Late submission** of assignments is **NOT** acceptable.

Course Schedule (*subject to change*)

W	Date	Lecture	Tutorial / Note
1	Sep 7, 8	Lec01 Basic Structure of Computers	**No Tutorial on Sep 8**
2	Sep 14, 15	Lec02 Number & Character Representation	Tut01 MASM Environment Setup
3	Sep 21, 22	Lec03 Memory Basics	Tut02 MASM Basics, **HW1**
4	Sep 28, 29	Lec04 Machine Instructions	Tut03 MASM Addressing Modes
5	Oct 5, 6	Lec05 Program Execution	Tut04 Stack & Queue Implementations, **HW2**
6	Oct 12, 13	Lec06 Memory Hierarchy	Tut05 MASM Subroutines
7	Oct 19, 20	Lec07 Cache in Action	Tut06 Reviews for Midterm Exam
8	Oct **26**, **27**	• **No Class on Oct 26 (Public Holiday)** • **Midterm Exam (Lec01~05, Tut01~06)** ➢ **12:30~13:30 (Lecture) on Oct 27**	**No Tutorial on Oct 27**
9	Nov 2, 3	Lec08 Cache Performance	Tut07 MASM Advanced Instructions
10	Nov 9, 10	Lec09 Virtual Memory	Tut08 Cache Implementations (I) , **HW3**
11	Nov 16, 17	Lec10 Basic Processing Unit	Tut09 Cache Implementations (II)
12	Nov 23, 24	Lec11 Control Unit & Instruction Encoding	Tut10 Exercises for Basic Processing Unit
13	Nov 30, Dec 1	Lec12 Pipelining & Lec13 Basic I/O	Tut11 Reviews for Final Exam
	Dec ?? (TBA)	**Final Exam (Lec06~13, Tut07~Tut11)**	

Important Notes

- **Plagiarism** will **NOT** be tolerated!
  - Do **NOT** copy!
  - Do **NOT** let other(s) copy!
  - **Can** discuss but write up the solutions by yourself!

- **Honesty** in Academic Work:
  - http://www.cuhk.edu.hk/policy/academichonesty/

The best way to learn is through PRACTICE