



CSC3150 – Operating System

Prof. Wei Chung Hsu

School of Data Science

Chinese University of Hong Kong, Shenzhen





Class Information

■ Instructor

- Wei Chung HSU (徐慰中) (hsuweichung@cuhk.edu.hk)
 - Office: Dao Yuan Building 道远楼 509a
 - Office Hours: Monday and Wednesday, 10:00 to 11:00AM

■ Course TA & USTF

- Lead TA: MA, Haotian (马浩天) (haotianma@link.cuhk.edu.cn)
- TA: SONG, Xiaozhuang (宋晓壮)
- USTF: 侯天赐, 杜五洲, 谢子钰:,

■ Lectures

- Tuesday 1:30 – 2:50 TB 103
- Thursday 1:30 – 2:50 TB 103

■ Tutorials and TA Office Hours

- Will be announced by TAs

■ Homepage

- bb.cuhk.edu.cn
- Note that the lecture slides posted on BB may be updated frequently.





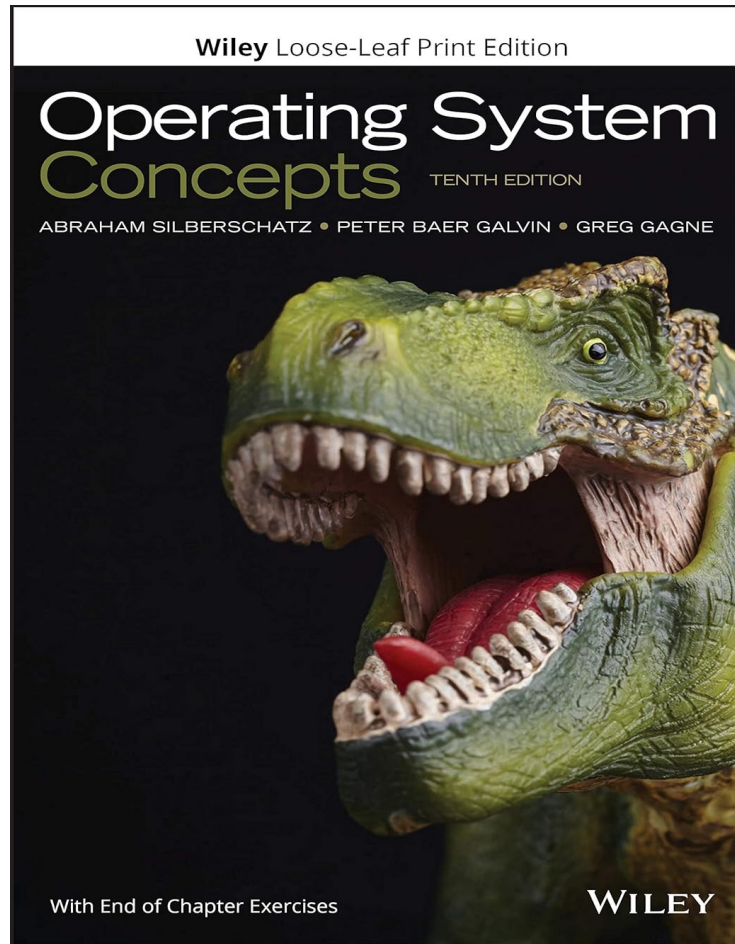
My Background in Computer Systems

- Computer Science PhD in Computer Systems (OS, PL/Compiler, Computer Architectures, DBMS) from UW-Madison
- Computer architect for Cray Supercomputers
- Compiler engineer for Cray-XMP/YMP, Cray-C90, Cray-2/Cray-3
- Tech lead of Hewlett Packard (HP) optimizing compilers
- One of the architects for the Intel/HP Itanium (IA-64) Processors
- Professor at U. of Minnesota. Research on Binary Translation (BT), and **Virtual Machines** (2000-2009)
- Professor at NCTU and NTU, Research on BT, Virtual Machines, and Finalizer for HSAIL (HSA Intermediate Language)
- Principal engineer at Intel, USA





Textbook & Reference



(Textbook)

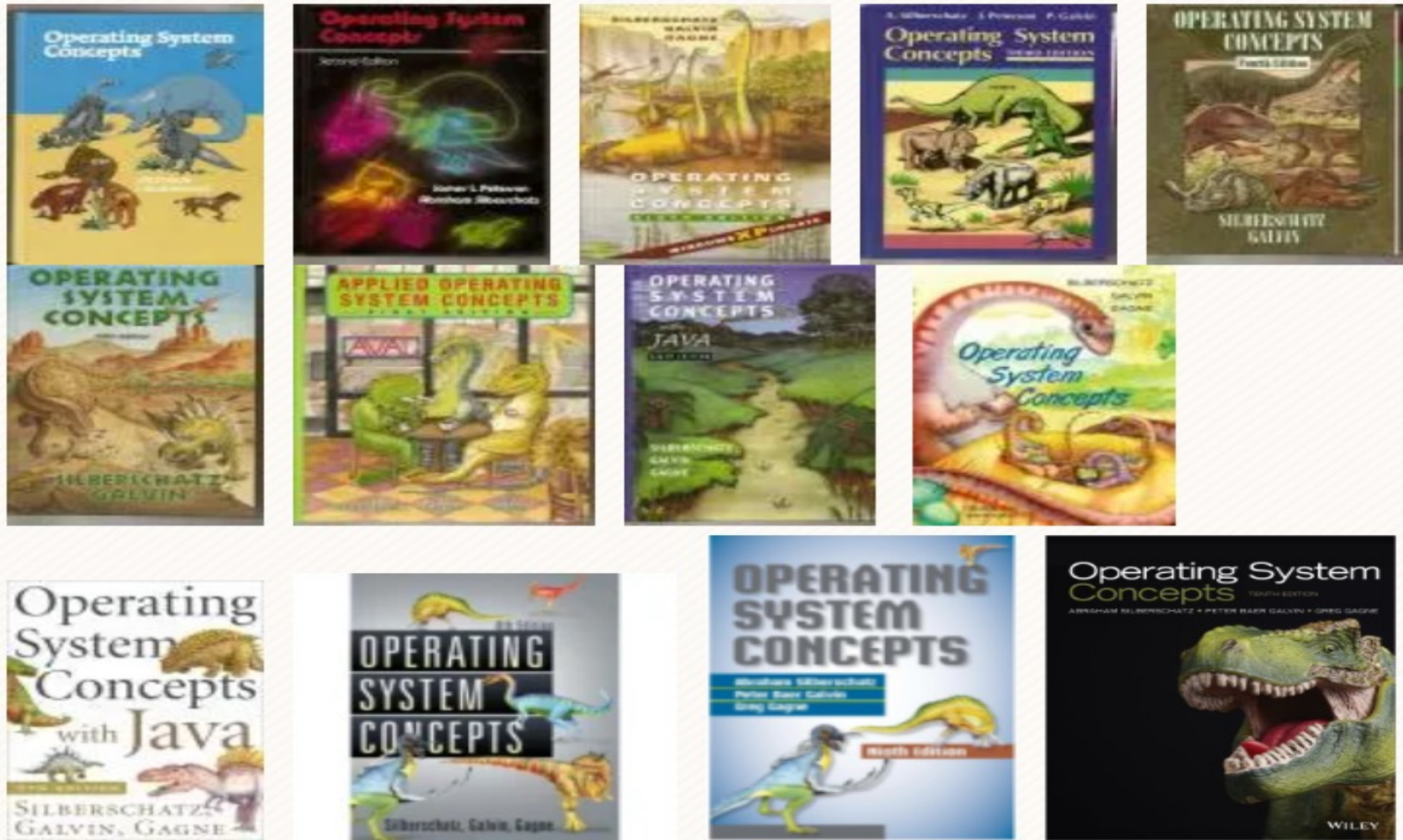
Operating System Concepts (10th edition)

A. Silberschatz, P. Galvin, and G. Gagne





Textbook & Reference



(Textbook)

Operating System Concepts

A. Silberschatz, P. Galvin, and G. Gagne





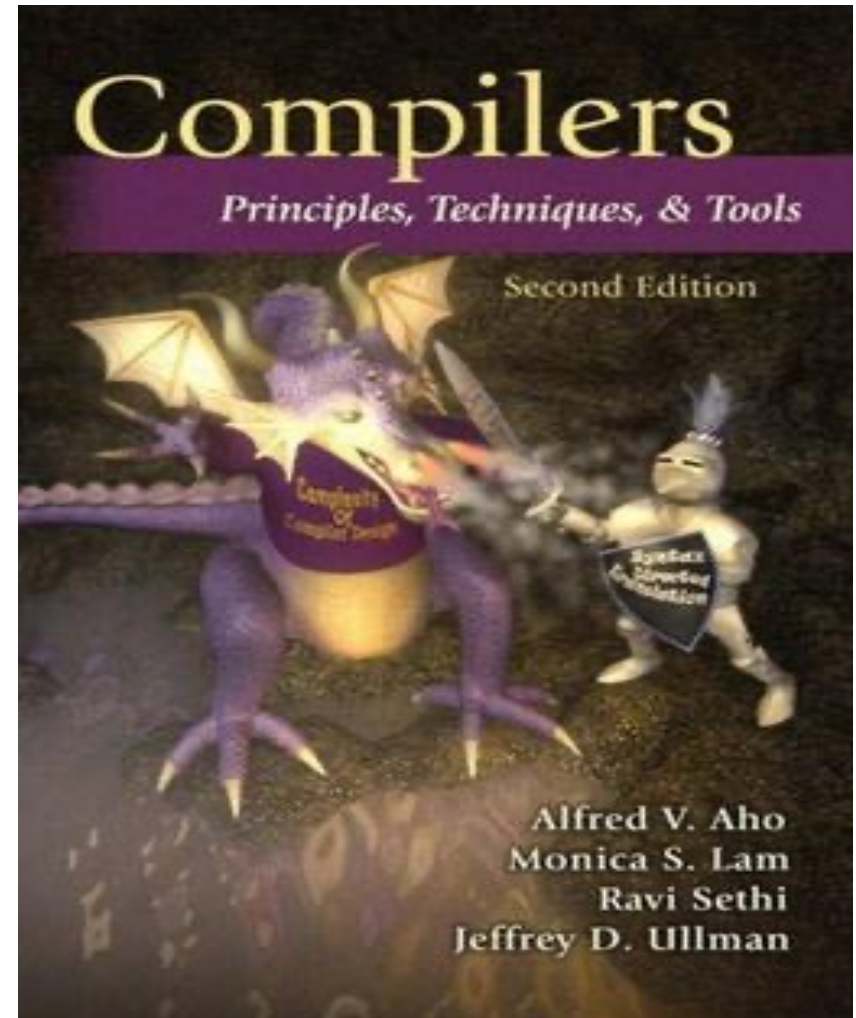
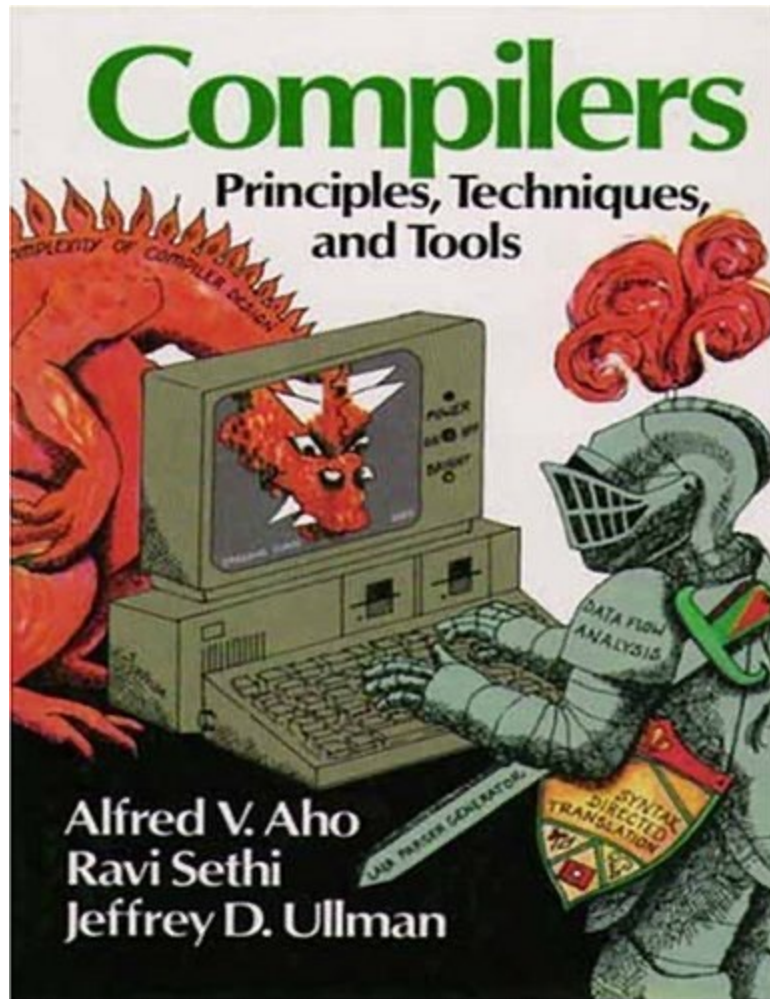
Why Dinosaurs

- The contrast between the ancient dinosaurs and modern operating systems underscores the evolutionary nature of software development and technology.
- It emphasizes how operating systems have developed from simple, rudimentary systems into complex and advanced ones, much like the evolution from dinosaurs to modern creatures.
- OS sizes
 - **Linux Kernel:** had over **27 million lines** of code as of the Linux Kernel version 5.6 release in March 2020.
 - **Windows:** it's estimated that Windows 10 could have around **50 to 60 million lines** of code.
- Compiler sizes
 - **GNU Compiler Collection (GCC):** The GCC codebase was estimated to have around **15 to 17 million lines** of code.
 - **LLVM Project:** The LLVM project, including the LLVM core and the Clang compiler, was estimated to be over **6 million lines** of code.





The Dragon Book





Course Assessment

- Class participation (x%)
- In Class Quizzes (25%)
- Homework: Programming Projects (50%)
 - System calls and services (10%)
 - Multi-threaded programming (10%)
 - Kernel modules and implementing mmap/mmumap (15%)
 - File system management techniques (15%)
- Final Exam (25%)
 - Open book, Open notes

