Reading List

Citations for Readings

Textbooks

- Andrew S. Tanenbaum. *Modern Operating Systems*. Prentice-Hall, 1992. ISBN 0-13-588187-0. (This book is *not* required, but is strongly recommended.)

- Stephen Ward and Robert H. Halstead. *Computation Structures*. McGraw Hill, 1990. ISBN 0-262-23139-5. (This book is the 6.004 text book and 6.033 will rely on it for the chapters 16 (memory architectures), 18 (processor and processor multiplexing), and 19 (process synchronization).

- Frederick P. Brooks, Jr. *The Mythical Man-Month*. Addison-Wesley, 1995. ISBN: 0-201-83595-9. (The 1974 edition is also usable in 6.033.)

Papers

Introduction to computer systems

1. Robert Lucky. Bozos on the bus. *IEEE Spectrum 33*, 7 (July, 1996) page 19.
2. Richard P. Gabriel. Worse is better. From LISP: good news, bad news, how to win BIG, *AI Expert 6*, 6 (June, 1991) pages 33-35.
3. Jerome H. Saltzer. The study of systems. Chapter 1 of *The Engineering of Computer Systems,* MIT Department of Electrical Engineering and Computer Science (in preparation, February, 1985).
4. Herbert A. Simon. The architecture of complexity. *Proceedings American Philosophical Society 106*, 6 (December, 1962) pages 467-482. Republished as Part 4, pages 84-118, of *The Sciences of the Artificial,* MIT Press, 1969. ISBN: 0-262-191051-6 (hardbound) 0-262-69023-3 (paperback).
5. George D. Gopen and Judith A. Swan. The science of scientific writing. *American Scientist 78,* 6 (November-December, 1990) pages 550-558.
6. Jerome H. Saltzer. Objectives of an information system. Chapter 2 of *The Engineering of Computer Systems,* MIT Department of Electrical Engineering and Computer Science (in preparation, February, 1985).
7. Nancy G. Leveson and Clark S. Turner. An investigation of the Therac-25 accidents. *Computer 26,* 7 (July, 1993) pages 18-41.
8. Butler W. Lampson. Hints for computer system design. *Proceedings of the Ninth ACM Symposium on Operating Systems Principles*, Bretton Woods, New Hampshire (October 10-13, 1983), pages 33-48. Published as *Operating Systems Review 17*, 5 (1983).

Computer system organization

9. Robert Scheifler and Jim Gettys. The X window system. *ACM Transactions on Graphics 5*, 2 (April, 1986) pages 79-109.
10. Dennis M. Ritchie and Ken L.Thompson. The UNIX time-sharing system. *Bell System Technical Journal* 57, 6, part 2 (1978) pages 1905-1930.
11. Andrew D. Birrell. An introduction to programming with threads. *SRC Technical Report 35*. Digital Equipment Corporation. Systems Research Center, Palo Alto, California, January 6, 1989.
12. Stefan Savage, Michael Burrows, Greg Nelson, Patrick Sobalvarro, and Thomas Anderson. Eraser: a dynamic race detector for multithreaded programs. *ACM Transaction on Computer Systems 15*, 4 (November 1997) pages 391-411. Also appeared in the *Proc. Sixteenth ACM Symposium on Operating Systems Principles* (October 1997).

Networking

13. Robert H. Halstead, Jr. 6.033 notes on networking and communication. MIT Department of Electrical Engineering and Computer Science, September, 1987.
14. Andrew D. Birrell and Bruce Jay Nelson. Implementing remote procedure calls. *ACM Transactions on Computer Systems 2*, 1 (February, 1984) pages 39-59.
15. Robert M. Metcalfe and David R. Boggs. Ethernet: Distributed packet switching for local computer networks. *Communications of the ACM 19*, 7 (July, 1976) pages 395-404.
16. Thomas E. Anderson, Susan S. Owicki, James B. Saxe, and Charls P. Thacker. High-speed switch scheduling for local-area networks. *Fifth International Conference on Architectural Support for Programming Languages and Operating Sysystems.* (September 1992), pages 98-110.
17. David B. Johnson. Scalable support for transparent mobile host Internetworking. *Mobile Computing*. Ed. T. Imielinski and H. Korth, Kluwer Academic Publishers, 1996. To appear.
18. Jerome H. Saltzer, David P. Reed, and David. D. Clark. End-to-end arguments in system design. *ACM Transactions on Computer Systems 2*, 4 (November, 1984) pages 277-288.

Naming

19. Paul V. Mockapetris and Kevin J. Dunlap. Development of the Domain Name System. *Proc. of SIGCOMM 1988 Symposium*, pages 123-133. Also published as *ACM Computer Communications Review 18*, 4 (August, 1988).
20. David K. Gifford, Pierre Jouvelot, Mark Sheldon, and James O'Toole. Semantic File Systems. *Proc. of the 12th ACM Symposium on Operating Systems Principles*, October 1991, pages 16-25.

Security and society

21. Eugene H. Spafford. Crisis and aftermath. *Communications of the ACM 32,* 6 (June, 1989) pages 678-687.
22. Steven R. Lerman, James D. Bruce, and Jerome H. Saltzer. Teaching students about responsible use of computers. *Communications of the ACM 32,* 6 (June, 1989) page 704. The publication omits the names of the first two authors.

Note: A more timely set of society-impact papers will be handed out later.

Security

23. Steven P. Miller, B. Clifford Neuman, Jeffrey I. Schiller, and Jerome H. Saltzer. Kerberos authentication and authorization system. Section E.2.1 of *Athena Technical Plan,* MIT Project Athena, October 27, 1988.
24. Ross. J. Anderson. Why cryptosystems fail. *Communications of the ACM 37*, 11 (November 1994) pages 32-40.
25. Jerome H. Saltzer and Michael D. Schroeder. The protection of information in computer systems. Chapter 6 of *The Engineering of Computer Systems,* MIT Department of Electrical Engineering and Computer Science (in preparation, July, 1975). Also published, omitting appendix 6-A, in *Proceedings of the IEEE 63,* 9 (September, 1975) pages 1278-1308.

Failure recovery, coordination, and atomicity

26. Henry Petroski. Engineering: History and failure. *American Scientist 80,* 6 (November-December, 1992) pages 523-526.
27. Phillip J. Plauger. Chocolate. *Embedded Systems Programming 7,* 3 (March, 1994) pages 81-84.
28. Jim Gray and Daniel P. Sieworek. High-availability computer systems. *Computer 24,* 9 (September, 1991) pages 39-48.
29. Randy H. Katz, Garth A. Gibson, and David A. Patterson. Disk system architectures for high performance computing. *Proceedings of the IEEE 77,* 12 (December, 1989) pages 1842-1857.
30. Alfred Spector and David Gifford. The space shuttle primary computer system. *Communications of the ACM 27,* 9 (September, 1984) pages 874-900.
31. Jim Gray, Paul McJones, Bruce Lindsay, Raymond Lorie, Tom Price, Franco Putzolu, and Irving Traiger. The recovery manager of the System R database manager. *ACM Computing Surveys 13*, 2 (June, 1981) pages 223-242.
32. David Gifford and Alfred Spector. The CIRRUS banking network. *Communications of the ACM 28,* 8 (August, 1985) pages 798-807.
33. James J. Kistler and Mahadarev Satyanarayanan. Disconnected operation in the Coda file system. *Proceedings of the Thirteenth ACM Symposium on Operating Systems Principles,* October 13-16, 1991, Pacific Grove, California. In *Operating Systems Review 25,* 5 (December, 1991) pages 213-225.

Performance

34. Mendel Rosenblum and John K. Ousterhout. The design and implementation of a log-structured file system. *Proceedings of the Thirteenth ACM Symposium on Operating Systems Principles,* Pacific Grove, California (October 13-16, 1991) pages 1-15. Published as *Operating Systems Review 25,* 5 (1991). Also appeared in *ACM Transactions on Computer Systems 10,* 1 (February, 1992) pages 26-52.
35. B. Bershad, T. Anderson, E. Lazowska and H. Levy. ‘‘Lightweight Remote Procedure Call.’’ *Proc. Twelfth ACM Symposium on Operating Systems Principles* (December 1989). Also appeared in *ACM Transactions on Computer Systems* 8, 1 (February 1990) pp. 37-55.

More complexity

36. Communications of the ACM 37, 10 (October 1994) pages 29-36.
37. James L. Woodward. What makes business programming hard? *BYTE* 7, 10 (October, 1982) pages 68-72.

Historical perspective

38. Larry Press. Before the Altair: The history of personal computing. *Communications of the ACM 36,* 9 (September, 1993) pages 27-33.
8. Butler W. Lampson. Hints for computer system design. *Proceedings of the Ninth ACM Symposium on Operating Systems Principles*, Bretton Woods, New Hampshire (October 10-13, 1983), pages 33-48. Published as *Operating Systems Review 17*, 5 (1983).
   Note: we suggest you read this paper twice: once at the beginning of the term and once at the end.