Supplementary Course Bibliography

1. Basic distributed algorithms

1.1. Vector timestamps

[1] Friedemann Mattern. Virtual time and global states of distributed systems. In Michel Cosnard et al., editors, *Parallel and Distributed Algorithms (Proceedings)*, pages 215–226. North Holland, 1989. (Reprinted in Z. Yang, T.A. Marsland (eds.), "Global States and Time in Distributed Systems", IEEE, 1994, pages 120-133. `theory.lcs.mit.edu/classes/6.852/01/papers/VirtTime_GlobState.pdf`.

[2] C. J. Fidge. Logical time in distributed computing systems. *IEEE Computer*, 24(8):28–33, August 1991.

1.2. Data consistency

[1] H. Attiya and J. L. Welch. Sequential consistency versus linearizability. *ACM Transactions on Computer Systems*, 12(1):91–122, May 1994. An earlier version appeared in *Proc. 3rd ACM Symposium on Parallel Algorithms and Architectures*, pages 304-315, Hilton Head, South Carolina, July 1991. `theory.lcs.mit.edu/classes/6.852/01/papers/AttiyaWelch-tocs94.ps`.

[2] Rivka Ladin, Barbara Liskov, Liuba Shrira, and Sanjay Ghemawat. Providing high availability using lazy replication. *ACM Transactions on Computer Science*, 10(4):360–391, 1992. `http://www.cs.brandeis.edu/~liuba/papers.html`.

[3] Alan Fekete, David Gupta, Victor Luchangco, Nancy Lynch, and Alex Shvartsman. Eventually-serializable data services. *Theoretical Computer Science*, 220(1):113-156, June 1999. Earlier version in *Proceedings of the Fifteenth Annual ACM Symposium on Principles of Distributed Computing*, pages 300–309, Philadelphia, PA, May 1996. `theory.lcs.mit.edu/classes/6.852/01/papers/esds-full.ps`.

1.3. Group mutual exclusion

[1] Yuh-Jzer Joung. Asynchronous group mutual exclusion. In Yehuda Afek, editor, *Proceedings of the Seventeenth ACM Symposium on Principles of Distributed Computing*, pages 51-60, June 1998. Full version in Distributed Computing, 13(4), 2000. `theory.lcs.mit.edu/classes/6.852/01/papers/distcomp00.ps.gz`.

[2] Patrick Keane and Mark Moir. A simple local-spin group mutual exclusion algorithm. In Jennifer Welch, editor, *Proceedings of the Eighteenth ACM Symposium on Principles of Distributed Computing*, May 1999. `theory.lcs.mit.edu/classes/6.852/01/papers/keane-moir-podc99.ps`.

[3] Vassos Hadzilacos. A note on group mutual exclusion. In Nir Shavit, editor, *Proceedings of the Twentieth ACM Symposium on Principles of Distributed Computing*, pages 100-106, Newport, Rhode Island, August, 2001. `theory.lcs.mit.edu/classes/6.852/01/papers/Hadzilacos-podc01.ps.gz`.

2. Fault-tolerant algorithms for a fixed set of processes

2.1. Failure detectors

[1] Tushar Deepak Chandra and Sam Toueg. Unreliable failure detectors for reliable distributed systems. *Journal of the ACM*, 43(2):225–267, March 1996. `theory.lcs.mit.edu/classes/6.852/01/papers/CT96-JACM.ps`.

[2] Tushar Deepak Chandra, Vassos Hadzilacos, and Sam Toueg. The weakest failure detector for solving consensus. *Journal of the ACM*, 43(4):685–722, July 1996. `theory.lcs.mit.edu/classes/6.852/01/papers/p685-chandra.pdf`.

[3] Wei Chen, Sam Toueg, and Marcos Kawazoe Aguilera. On the quality of service of failure detectors. In *International Conference on Dependable Systems and Networks (DSN)*, 2000. `http://www.cs.cornell.edu/home/sam/FDpapers/qos.ps`.

[4] Indranil Gupta, Tushar D. Chandra, and German S. Goldszmidt. On Scalable and Efficient Distributed Failure Detectors. In Nir Shavit, editor, *Proceedings of the Twentieth ACM Symposium on Principles of Distributed Computing*, pages 170-179, Newport, Rhode Island, August, 2001. `theory.lcs.mit.edu/classes/6.852/01/papers/GCG-podc01.ps`.

2.2. Fault-tolerant broadcasts

[1] Vassos Hadzilacos and Sam Toueg. Fault-tolerant broadcasts and related problems. In Sape Mullender, editor, *Distributed Systems*, chapter 5, pages 97–145. ACM Press and Addison-Wesley, 1993. Second Edition.

[2] Vassos Hadzilacos and Sam Toueg. A modular approach to the specification and implementation of fault-tolerant broadcasts.

[3] echnical Report TR94-1425. Department of Computer Science, Cornell University, Ithaca NY. May 1994. `theory.lcs.mit.edu/classes/6.852/01/papers/HadToueg.ps.gz`.

2.3. Distributed commit protocols

[1] D. Skeen and M. Stonebraker. A formal model of crash recovery in a distributed system. *IEEE Transactions on Software Engineering*, SE-9 NO.3, May 1983.

[2] R. Guerraoui. Revisiting the relationship between non-blocking atomic commitment and consensus. In Jean-Michel Hélary and Michel Raynal, editors, *9th International Workshop on Distributed Algorithms (WDAG)*, volume 972 of *Lecture Notes in Computer Science*, pages 87–100. Springer Verlag, September 1995. `theory.lcs.mit.edu/classes/6.852/01/papers/wdag95.ps.gz`.

[3] I. Keidar and D. Dolev. Efficient message ordering in dynamic networks. In *15th ACM Symposium on Principles of Distributed Computing (PODC)*, pages 68–76, May 1996. `www.cs.huji.ac.il/labs/transis/Abstracts/podc96.html`.

2.4. Distributed consensus

[1] L. Lamport. The part-time parliament. *ACM Transactions on Computer Systems*, 16(2):133–169, May 1998. Also Research Report 49, Digital Equipment Corporation Systems Research Center, Palo Alto, CA, September 1989. `http://www.acm.org/pubs/citations/journals/tocs/1998-16-2/p133-lamport/`.

[2] Idit Keidar and Sergio Rajsbaum. On the cost of fault-tolerant consensus when there are no faults- a tutorial. Technical Report MIT-LCS-TR-821, May 2001. Preliminary version in SIGACT News 32(2), Distributed Computing column, pages 45-63, June 2001. `http://theory.lcs.mit.edu/~idish/Abstracts/consensus-bounds.html`.

[3] Butler W. Lampson. The ABCD's of Paxos. In Nir Shavit, editor, *Proceedings of the Twentieth ACM Symposium on Principles of Distributed Computing (PODC'01)*, page 13, Newport, Rhode Island, August 2001. Invited presentation. `theory.lcs.mit.edu/classes/6.852/01/papers/PaxosX40.pdf`.

[4] Achour Mostefaoui, Sergio Rajsbaum, Michel Raynal, and Matthieu Roy. A hierarchy of conditions for consensus solvability. In Nir Shavit, editor, *Proceedings of the Twentieth ACM Symposium on Principles of Distributed Computing*, pages 151-160, Newport, Rhode Island, August, 2001.

2.5. Clock synchronization

[1] Leslie Lamport and P. M. Melliar-Smith. Byzantine clock synchronization. In *Proceedings of the Third Annual ACM Symposium on Principles of Distributed Computing*, pages 68–74, Vancouver, B.C., Canada, 1984.

[2] Joseph Y. Halpern, Barbara Simons, H. Raymond Strong, and Danny Dolev. Fault-tolerant clock synchronization. In *Proceedings of the Third Annual ACM Symposium on Principles of Distributed Computing*, pages 89–102, Vancouver, B.C., Canada, 1984.

[3] Michael J. Fischer, Nancy A. Lynch, and Michael Merritt. Easy impossibility proofs for distributed consensus problems. *Distributed Computing*, 1(1):26–39, January 1986.

[4] Hagit Attiya and Jennifer Welch. *Distributed Computing: Fundamentals, Simulations and Advanced Topics*. McGraw-Hill, 1998. Chapters 6.3, and 13.

[5] S. Biaz and J. L. Welch. Closed Form Bounds for Clock Synchronization Under Simple Uncertainty Assumptions. To appear in *Information Processing Letters*. `theory.lcs.mit.edu/classes/6.852/01/papers/Welchipl01.ps`.

2.6. Byzantine quorum systems

[1] Dahlia Malkhi and Michael Reiter. Byzantine quorum systems. *Journal of Distributed Computing*, 11(4):203–213, 1998.
`http://www.cs.huji.ac.il/labs/danss/pubs/bquorum-dc.ps.gz`.

[2] Dahlia Malkhi, Michael Reiter, and Rebecca Wright. Probabilistic quorum systems. In *Proceeding of the 16th Annual ACM Symposium on the Principles of Distributed Computing (PODC 97)*, pages 267–273, Santa Barbara, CA, August 1997.
`http://www.cs.huji.ac.il/labs/danss/pubs/pquorum-ftp.ps.gz`.

[3] Lorenzo Alvisi, Dahlia Malkhi, Evelyn Pierce, Michael Reiter, and Rebecca Wright. Dynamic byzantine quorum systems. In *International Conference on Dependable Systems and Networks (DSN, FTCS-30 and DCCA-8)*, New York, 2000.
`http://www.cs.huji.ac.il/labs/danss/pubs/AMPRW00.ps.gz`.

2.7. Replicated data management

[1] Leslie Lamport. Using time instead of timeout for fault-tolerant distributed systems. *ACM Transactions on Programming Languages and Systems*, 6(2):254–280, April 1984.

[2] F. B. Schneider. Replication management using the state-machine approach. In Sape Mullender, editor, *Distributed Systems*, chapter 7, pages 169–197. ACM Press and Addison-Wesley, 1993. Second Edition.

[3] Miguel Castro and Barbara Liskov. Practical Byzantine fault tolerance. In *Proceedings of the Third Symposium on Operating Systems Design and Implementation*, pages 173–186, New Orleans, Lousianna, USA, February 1999. USENIX Association. `theory.lcs.mit.edu/classes/6.852/01/papers/osdi99.ps`.

[4] G. Chockler, D. Malkhi, and M. Reiter. Backoff protocols for distributed mutual exclusion and ordering. In *21 IEEE International Conference on Distributed Computing Systems (ICDCS*, April 2001. `theory.lcs.mit.edu/classes/6.852/01/papers/CMR01.ps`.

2.8. Communication

[1] Mahesh Jayaram and George Varghese. Crash failures can drive protocols to arbitrary states. In *Proceedings of the Fifteenth Annual ACM Symposium on Principles of Distributed Computing*, pages 247–256, Philadelphia, PA, May 1996.
`http://www.acm.org/pubs/citations/proceedings/podc/248052/p247-jayaram/`.

[2] Kenneth Birman, Mark Hayden, Oznur Ozkasap, Zhen Xiao, Mihai Budiu, and Yaron Minsky. Bimodal multicast. *ACM Transactions on Computer Systems*, 17(2), May 1999. `http://www.acm.org/pubs/citations/journals/tocs/1999-17-2/p41-birman/`.

2.9. Group communication

[1] K. Birman and T. Joseph. Exploiting virtual synchrony in distributed systems. In *11th Symposium on Operating Systems Principles (SOSP)*, pages 123–138. ACM, November 1987.

[2] Y. Amir, L. E. Moser, P. M. Melliar-Smith, D. A. Agarwal, and P. Ciarfella. The Totem single-ring ordering and membership protocol. *ACM Transactions on Computer Systems*, 13(4), November 1995.
`http://www.beta.ece.ucsb.edu/ftp/TOTEM/tocssrp95.ps.Z`.

[3] Flaviu Cristian and Frank Schmuck. Agreeing on processor group membership in asynchronous distributed systems. Technical Report CSE95-428, University of California-San Diego, La Jolla, CA 92093-0114, 1995.
`http://porcupine.cs.washington.edu/membership/asyncmembership.ps`.

[4] Kenneth P. Birman. *Building Secure and Reliable Network Applications*. Manning Publications, Greenwich, CT, 1996.

[5] D. Dolev and D. Malki. The Transis approach to high availability cluster communications. *Communications of the ACM*, 39(4):64–70, 1996.
`http://www.cs.huji.ac.il/labs/danss/pubs/cacm96.ps`.

[6] Y. Amir, G. V. Chockler, D. Dolev, and R. Vitenberg. Efficient state transfer in partitionable environments. In *2nd European Research Seminar on Advances in Distributed Systems (ERSADS'97)*, pages 183–192. BROADCAST (ESPRIT WG 22455), Operating Systems Laboratory, Swiss Federal Institute of Technology, Lausanne, March 1997. `ftp://ftp.cs.huji.ac.il/users/transis/states.ps`. Full version available as Technical Report CS98-12, Institute of Computer Science, The Hebrew University, Jerusalem, Israel.

[7] G. V. Chockler, I. Keidar, and R. Vitenberg. Group Communication System Specifications: A Comprehensive Study. To appear in ACM Computing Surveys.
`http://theory.lcs.mit.edu/~idish/Abstracts/gcs-survey.html`.

[8] Idit Keidar and Roger Khazan. A client-server approach to virtually synchronous group multicast: Specifications and algorithms. In *IEEE 20th International Conference on Distributed Computing Systems (ICDCS)*, pages 344–355, Taipei, Taiwan, April 2000.
`http://theory.lcs.mit.edu/~idish/Abstracts/vs.html`.

[9] Alan Fekete, Nancy Lynch, and Alex Shvartsman. Specifying and using a partitionable group communication service. *ACM Transactions on Computer Systems*, 19(2):171–216, May 2001.
`http://www.acm.org/pubs/citations/journals/tocs/2001-19-2/p171-fekete/`.

2.10. Self-stabilization

[1] Edsger W. Dijkstra. Self-stabilizing systems in spite of distributed control. *Communication of the ACM*, 17(11):643–644, November 1974.

[2] Shlomi Dolev. *Self-Stabilization.* MIT Press, 2000.

3. Algorithms for a changing set of processes

3.1. Dynamic groups and dynamic configurations

[1] E. Yeger Lotem, I. Keidar, and Dolev D. Dynamic voting for consistent primary components. In *Proceedings of the Sixteenth Annual ACM Symposium on Principles of Distributed Computing*, pages 63–71, Santa Barbara, CA, August 1997. Also, Technical Report CS96-7, Institute of Computer Science, The Hebrew University of Jerusalem, Jerusalem, Israel, June 1996.
`theory.lcs.mit.edu/~idish/Abstracts/tr96-7.html.`

[2] R. De Prisco, A. Fekete, N. Lynch, and A. Shvartsman. A dynamic view-oriented group communication service. In *17th ACM Symposium on Principles of Distributed Computing (PODC)*, pages 227–236, June 1998.
`http://theory.lcs.mit.edu/tds/papers/DePrisco/dvs.html`.

[3] R. De Prisco, A. Fekete, N. Lynch, and A. Shvartsman. A dynamic primary configuration group communication service. In *13th International Symposium on DIStributed Computing (DISC)*, Lecture Notes in Computer Science, Bratislava, Slovak Republic, 1999. Springer-Verlag-Heidelberg.
`http://theory.lcs.mit.edu/tds/papers/Fekete/disc-paper.html`.

[4] Roberto DePrisco. *On Building Blocks for Distributed Systems.* PhD thesis, Department of Electrical Engineering and Computer Science, Massachusetts Institute of Technology, Cambridge, MA 02139, December 1999.
`theory.lcs.mit.edu/~robdep/PS/phdthesis.ps.gz.`

[5] Roberto DePrisco and Nancy Lynch. An algorithm for replicated atomic objects. Preprint. `theory.lcs.mit.edu/classes/6.852/01/papers/DepLynch.ps`.

3.2. Computing with an unknown set of processes

[1] M. Merritt and G. Taubenfeld. Computing with infinitely many processes: under assumptions on concurrency and participation. In *Proceedings of the 14th International Symposium on Distributed Computing (DISC 2000)*, Toledo, Spain, October 2000. Version May 25, 2001.
`theory.lcs.mit.edu/classes/6.852/01/papers/MerrittTaubenfeld.ps.`

[2] Eli Gafni, Michael Merritt, and Gadi Taubenfeld. The concurrency hierarchy, and algorithms for unbounded concurrency. In Nir Shavit, editor, *Proceedings of the Twentieth ACM Symposium on Principles of Distributed Computing*, pages 161-169. Newport, Rhode Island, August, 2001.

3.3. Multicast with an unknown set of processes

[1] Ziv Bar-Joseph, Idit Keidar, Tal Anker, and Nancy Lynch. QoS preserving totally ordered multicast. In *5th International Conference On Principles Of Distributed Systems (OPODIS)*, pages 143–162, Paris, France, December 2000. `http://theory.lcs.mit.edu/~idish/Abstracts/qos.html`.

[2] Ziv Bar-Joseph, Idit Keidar, and Nancy Lynch. A fault-tolerant dynamic atomic broadcast algorithm with Qos guarantees. MIT Technical Technical Report, December 2000. Work in progress. `http://theory.lcs.mit.edu/~idish/Abstracts/qos-dab.html`.

3.4. Location services

[1] Frank Dabek, Emma Brunskill, M. Frans Kaashoek, David Karger, Robert Morris, Ion Stoica, and Hari Balakrishnan. Building peer-to-peer systems with Chord, a distributed lookup service. In *Proceedings of the 8th Workshop on Hot Topics in Operating Systems (HotOS-VIII)*, Schloss Elmau, Germany, May 2001. `theory.lcs.mit.edu/classes/6.852/01/papers/hotos8.ps`.

[2] Ion Stoica, Robert Morris, David Karger, M. Frans Kaashoek, and Hari Balakrishnan. Chord: A scalable peer-to-peer lookup service for internet applications. In *Proceedings of the ACM SIGCOMM '01 Conference*, San Diego, California, August 2001. `theory.lcs.mit.edu/classes/6.852/01/papers/chordsigcomm.ps`.

4. Algorithms for mobile networks

4.1. Location services

[1] Jinyang Li, John Jannotti, Douglas S. J. De Couto, David R. Karger, and Robert Morris. A scalable location service for geographic ad hoc routing. In *ACM Mobicom 2000*, Boston, MA, 2000. `http://www.pdos.lcs.mit.edu/papers/grid:mobicom00/`.

4.2. Communication

[1] Li Li, Joseph Y. Halpern, Paramvir Bahl, Yi-Min Wang, and Roger Wattenhofer. Analysis of a cone-based distributed topology control algorithm for wireless multi-hop networks. In Nir Shavit, editor, *Proceedings of the Twentieth ACM Symposium on Principles of Distributed Computing*, pages 264-273, Newport, Rhode Island, August, 2001.

[2] Ioannis Chatzigiannakis, Sotiris Nikoletseas, and Paul Spirakis. On the average and worst-case efficiency of some new distributed communication and control algorithms for ad-hoc mobile networks. *Proceedings of the First Annual ACM Workshop on Principles of Mobile Computing*, pages 1-19, Newport, Rhode Island, August, 2001.

[3] Sandeep K. S. Gupta. A distributed and adaptive core selection and migration method for bandwidth-efficient multicast routing in mobile ad hoc networks. *Proceedings of the First Annual ACM Workshop on Principles of Mobile Computing*, pages 67-74, Newport, Rhode Island, August, 2001.

[4] Xiangchuan Chen and Amy L. Murphy. Enabling disconnected transitive communication in mobile ad hoc networks. *Proceedings of the First Annual ACM Workshop on Principles of Mobile Computing*, pages 21-27, Newport, Rhode Island, August, 2001.

4.3. Leader election and token circulation

[1] N. Malpani, Vaidya N., and J. L. Welch. Distributed token circulation in mobile ad hoc networks. In *Proc. 9th International Conference on Network Protocols (ICNP)*, November 2001. To appear.

[2] Navneet Malpani, Jennifer L. Welch, and Nitin Vaidya. Leader election algorithms for mobile ad hoc networks. In *Fourth International Workshop on Discrete Algorithms and Methods forMobile Computing and Communications (DIAL-M)*, Boston, MA, August 2000. `http://www.cs.tamu.edu/faculty/welch/papers/dialm00.ps`.

4.4. Mutual exclusion

[1] Jennifer Walter, Jennifer L. Welch, and Nitin Vaidya. A mutual exclusion algorithm for ad hoc mobile networks. To appear in a special issue of *Telecommunication Systems Journal*, 2001. Also, In *Second International Workshop on Discrete Algorithms and Methods for Mobile Computing and Communications (DIAL-M workshop)*, Dallas, Texas, October, 1998). `http://www.cs.tamu.edu/faculty/welch/papers/wnet01.ps`.

[2] Jennifer Walter, Guangong Cao, and Mitrabhanu Mohanty. A K-Mutual Exclusion Algorithm for Wireless Ad Hoc Networks. *Proceedings of the First Annual ACM Workshop on Principles of Mobile Computing*, pages 29-39, Newport, Rhode Island, August, 2001.

4.5. Group communication

[1] Marc-Olivier Killijian, Raymond Cunningham, Rene Meier, Laurent Mazare, and Vinny Cahill. Towards group communication for mobile participants. *Proceedings of the First Annual ACM Workshop on Principles of Mobile Computing*, pages 75-82, Newport, Rhode Island, August, 2001.