UNIVERSITY OF CAMBRIDGE COMPUTER LABORATORY

M.Phil in Advanced Computer Science

Summary List of Recommended Readings

October 2017

This list is prepared once a year for the benefit of College Librarians and those purchasing course books for M.Phil students. As such it aims to list the most recently available editions of current course books. However, this list should be used in conjunction with those in the syllabus booklets, which give more information on the suitability of titles for each course. There is also a considerable overlap with the undergraduate reading lists.

Journal and conference papers are included in this list for the sake of completeness only. Most will be available online, or within the Computer Laboratory Library, and it is not expected that volumes of proceedings should be purchased for the sake of a single paper.

The syllabi for M.Phil modules can be found at:
`http://www.cl.cam.ac.uk/teaching/1718/acs.html`

The Computer Laboratory Library aims to keep at least one copy of each of the books in this list. Similarly, any journal or conference papers should be available within the University, possibly electronically.

Nicholas Cutler (Librarian)
`ncc25@cam.ac.uk`

Abadi, M., et. al. (2016). "TensorFlow: a system for large-scale machine learning". In *Proceedings of OSDI* 2016.

Aho, A.V., Sethi, R. & Ullman, J.D. (2007). *Compilers: principles, techniques and tools.* Addison-Wesley (2nd ed.).

Anderson, R. (2008). *Security engineering.* Wiley (2nd ed.). First edition (2001) available at `http://www.cl.cam.ac.uk/users/rja14/book.html`

Anderson, T. & Dahlin, M. (2014). *Operating systems: principles and practice.* Recursive Books (2nd ed.).

Ansel, J., et. al. (2014). "OpenTuner: an extensible framework for program autotuning". In *Proceedings of PACT* 2014, pp. 303-316.

Awodey, S. (2010). *Category theory.* Oxford University Press (2nd ed.).

Backhouse, R.C. & Carr, B.A. (1975). "Regular Algebra Applied to Path-Finding Problems". *Journal of the IMA* 15, pp. 161-186.

Bacon, J. & Harris, T. (2003). *Operating systems.* Addison-Wesley (3rd ed.).

Barber, D. (2012). *Bayesian reasoning and machine learning.* Cambridge University Press. ISBN 9780521518147.

Bishop, C. (2006). *Pattern recognition and machine learning.* Springer.

Bos, J. & Blackburn, P. (2005). *Representation and Inference for Natural Language and Working with Discourse Representation Theory.* CSLI Press. Available at `http://www.let.rug.nl/bos/comsem/book1.html`

Cairns, P. & Cox, A. (2008) *Research methods for human-computer interaction.* Cambridge University Press. ISBN 9780521690317

Cipola, R. & Giblin, P.J. (2000). *Visual motion of curves and surfaces.* Cambridge University Press.

Clark, S. & Curran, J.R. (2007). "Wide-coverage efficient statistical parsing with CCG and log-linear models". *Computational Linguistics* 33(4), pp.493-552.

Crole, R.L. (1994). *Categories for types.* Cambridge University Press.

Crovella, M. & Krishnamurthy, B. (2006). *Internet measurement: infrastructure traffic and applications.* Wiley.

Culler, D.E. & Singh, J.P. (1999). *Parallel computer architecture: a hardware/software approach.* Morgan Kaufmann. ISBN 1558603433.

Day, J. (2007). *Patterns in network architecture: a return to fundamentals.* Prentice Hall.

Dalibard, V., Schaarschmidt, M. & Yoneki, E. (2017). "BOAT: Building auto-tuners with structured Bayesian optimization". In *Proceedings of WWW* 2017, pp. 479-488.

Frank, R.H. (2008). *The economic naturalist: why economics explains almost everything.* EBury Publishing. ISBN 9780753513385

Gedik, B., et. al. (2008). "SPADE: the system S Declarative Stream Processing Engine". In *Proceedings of SIGMOD* 2008, pp. 1123-1134.

Ghenassia, F. (2010). *Transaction-level modeling with SystemC: TLM concepts and applications for embedded systems.* Springer.

Gog, I., et al. (2016). "Firmament: fast, centralized cluster scheduling at scale". In *Proceedings of OSDI* 2016, pp. 99-115.

Gokcay, D. & Yildirim, G. (eds.) (2011). *Affective computing and interaction: psychological, cognitive and neuroscientific perspectives.* IGI Global.

Gollmann, D. (2010). *Computer security.* Wiley (3rd ed.).

Gonzalez, J.E., et al. (2012) "Powergraph: distributed graph-parallel computation on natural graphs". In *Proceedings of OSDI* 2012, pp. 17-30.

Gonzalez, R.C. & Woods, R.E. (2008). *Digital image processing.* Addison-Wesley (3rd ed). ISBN 9780135052679. [The second edition (1992) is as useful].

Goodfellow, I., Bengio, Y. & Courville, A. (2016). *Deep learning.* MIT Press. ISBN 9780262035613

Grama, A, Anshul, G., Karypis, G. & Kuman, V. (2004). *Introduction to parallel computing.* Addison-Wesley (2nd ed.).

Gregg, B. (2013) *Systems Performance: Enterprise and the Cloud.* Prentice Hall. ISBN 9780133390094.

Gregg, B. & Mauro, J. (2011). *DTrace: dynamic tracing in Oracle Solaris, Mac OS X and FreeBSD.* Prentice Hall.

Griffin, T.G. & Gurney, A. (2008).“Increasing Bisemigroups and Algebraic Routing”. In *Proceedings of RelMiCS* 2008.

Griffin, T.G. & Sobrinho, J.L. (2005). “Metarouting”. In *Proceedings of SIGCOMM* 2005.

Grotker, T., Liao, S., Martin, G. & Swan, S. (2002). *System design with SystemC.* Springer.

Gurney, A. & Griffin, T.G. (2007). “Lexicographic Products in Metarouting”. In *Proceedings of ICNP* 2007.

Hartley, R. & Zisserman, A. (2003). *Multiple view geometry.* Cambridge University Press (2nd ed.). ISBN 0521540518.

Hennessy, J. & Patterson, D. (2012). *Computer architecture: a quantitative approach.* Elsevier (5th ed.). ISBN 9780123838728.

Herlihy, M. & Sahvit, N. (2008). *The art of multiprocessor programming.* Morgan Kaufmann. ISBN 9780123705914.

Hong, S., et al. (2012). “A DSL for easy and efficient graph analysis”. In *Proceedings of ASPLOS* 2012.

Jain, A.K. (1989). *Fundamentals of digital image processing.* Prentice-Hall. ISBN 0133361659.

Jain, A.R. (1991). *The art of computer systems performance analysis.* Wiley.

James, G., Witten, D., Hastie, T. & Tibshirani, R. (2014). *An Introduction to Statistical Learning with Applications in R.* Springer.

Jurafsky, D. & Martin, J. (2008). *Speech and language processing.* Prentice Hall.

Kalet, I.J. (2013). *Principles of biomedical informatics.* Academic Press.

Keshav, S. (1997). *An engineering approach to computer networking.* Addison-Wesley. ISBN 0201634422.

Krauss, A. (2015). *Defining recursive functions in Isabelle/HOL.* Unpublished tutorial available at `https://www.cl.cam.ac.uk/research/hvg/Isabelle/dist/Isabelle2015/doc/functions.pdf`

Krishnamurthy, B. & Rexford, J. (2001). *Web protocols and practice: HTTP/1.1, networking protocols, caching, and traffic measurement.* Addison-Wesley.

Kulkarni, M., et. al. (2008). “Scheduling Strategies for Optimistic Parallel execution of irregular programs”. In *Proceedings of SPAA* 2008, pp. 217-228.

Lambek, J. & Scott, P.J. (1986). *Introduction to higher order categorical logic.* Cambridge University Press.

Leffler, S. (1989). *The design and implementation of the 4.3BSD Unix operating system.* Addison-Wesley.

Leskovec, J., Rajaraman, A. & Ullman, J. (2014). *Mining of massive datasets.* Cambridge University Press. Available at `http://www.mmds.org/#ver21`

Lin, Y.-L.S. (ed.) (2006). *Essential issues in SOC design: designing complex systems-on-chip.* Springer.

Lipianski, E. (2011). *Embedded systems hardware for software engineers.* McGraw-Hill.

Lubliner, D.J. (2015). *Biomedical informatics: an introduction to information systems and software in medicine and health.* CRC Press.

Malewicz, G., et al. (2010). "Pregel: A System for Large-Scale Graph Processing". In *Proceedings of SIGMOD* 2010, pp. 135-146.

Manning, C.D., Raghavan, P. & Schütze, H. (2008). *Introduction to information retrieval.* Cambridge University Press. Available at `http://www-csli.stanford.edu/~hinrich/information-retrieval-book .html`.

McKusick, M.K., Neville-Neil, G.V., & Watson, R.N.M. (2014). *The Design and implementation of the FreeBSD pperating system.* (2nd ed.). Pearson Education.

Minsky, Y., Madhavapeddy, A. & Hickey, J. (2013). *Real world OCaml.* O'Reilly. Available at `https://realworldocaml.org`

Mishra, K. (2013). *Advanced chip design: Practial examples in Verilog.* Createspace. ISBN 9781482593334

Mitzenmacher, M. & Upfal, E. (2017). *Probability and computing: randomized algorithms and probabilistic analysis.* Cambridge University Press (2nd ed.). ISBN 9781107154889.

Murphy, K.P. (2012). *Machine learning: a probabilistic perspective.* MIT Press. ISBN 9780262018029.

Murray, D.G., et al. (2013) "Naiad: A Timely Dataflow System", *Proceedings of SOSP* 2013, pp. 439-455.

Nalwa, V.S. (1993) *A Guided tour of computer vision.* Addison-Wesley.

Nipkow, T. (2015) *Programming and proving in Isabelle/HOL.* Unpublished tutorial available at `http://isabelle.in.tum.de/doc/prog-prove.pdf`

Nipkow, T., Paulson, L.C. & Wenzel, M. (2002). *A proof assistant for higher-order logic.* Springer.

Olukotun, K., Hammond, L. & Laudon, J. (2007). *Chip multiprocessor architecture.* Morgan Claypool. ISBN 9781598291223

Petrou, M. & Bosdogianni, P. (1999). *Image processing: the fundamentals.* Wiley.

Petta, P., Pelachaud, C. & Cowie, R. (eds.) (2011). *Emotion-oriented systems: the humaine handbook.* Springer.

Picard, R. (2000). *Affective Computing.* MIT Press.

Pierce, B.C. (2002). *Types and programming languages.* MIT Press. ISBN 0262162091

Pitts, A.M. (2000). "Categorical Logic". In S. Abramsky, D.M. Gabbay and T.S.E. Maibaum (eds.) *Handbook of logic in computer science*, Volume 5. Oxford University Press.

Preece, J., Rogers, Y. & Sharp, H. (2015). *Interaction design.* Wiley (4th ed.). ISBN 9781119020752

Salah, A.A. & Gevers, T. (eds.) (2011). *Computer analysis of human behavior.* Springer. ISBN 9780857299932

Shatkay, H. & Craven, M. (2012). *Mining the biomedical literature.* MIT Press.

Silberschatz, A., Peterson, J.L. & Galvin, P.C. (2008). *Operating systems concepts.* Wiley (8th ed.). ISBN 9780470128725

Sobrinho, J.L. (2002). "Algebra and algorithms for QoS path computation and hop-by-hop routing in the Internet". *IEEE/ACM Transactions on Networking* 10(4), pp. 541-550.

Sobrinho, J.L. (2003) "Network routing with path vector protocols: Theory and applications". In *SIGCOMM Proceedings* 2003, pp. 49-60.

Sobrinho, J.L. (2005) "An algebraic theory of dynamic network routing". *IEEE/ACM Transactions on Networking* 13(5), pp. 1160-1173.

Solomon, D. & Russinovich, M. (2005). *Windows internals*. Microsoft Press (4th ed.).

Tanenbaum, A.S. (2008). *Modern operating systems*. Prentice-Hall (3rd ed.).

Varghese, G. (2005). *Newtork algorithmics*. Morgan Kaufmann. ISBN 0120884771.

Zeitler, E. & Risch, T. (2011) "Massive scale-out of expensive continuous queries". In *Proceedings of VLDB* 4(11), pp. 1181-1188.