**UNIVERSITY OF CAMBRIDGE COMPUTER LABORATORY**

**M.Phil in Advanced Computer Science**

**Summary List of Recommended Readings**

**September 2016**

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/1516/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)
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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.).

Baader, F. & Nipkow, T. (2008). *Term rewriting and all that.* Cambridge University Press 1998.

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.).

Bhatotia, P., et al. (2011) "Incoop: MapReduce for incremental computation". In *Proceedings of SoCC* 2011.

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`

Bundy, A. (1983). *The computer modelling of mathematical reasoning.* Academic Press (2nd ed.). Out of print but available on the web at `http://www.inf.ed.ac.uk/teaching/courses/ar/book/book-postcript/`

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.

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

Dally, W.J. & Towles, B. (2004). *Principles and practices of interconnection networks.* Morgan Kaufmann.

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

De Micheli, G. & Benini, L. (2006). *Networks on chips: technology and tools.* Morgan Kaufmann.

Duato, J., Yalamanchili, S. & Ni, L.M. (2003). *Interconnection networks: an engineering approach.* Morgan Kaufmann.

Easley, D. & Kleinberg, J. (2010). *Networks, crowds, and markets: reasoning about a highly connected world.* Cambridge University Press.

Fiore, M.P. & Hur, C.-K. (2010). "Second-order equational logic". In *Proceedings of CSL* 2010, pp. 320-335.

Fiore, M.P., Plotkin, G.D. & Turi, D. (1999). "Abstract syntax and variable binding". In *Proceedings of LICS* 1999, pp. 193-203.

Fiore, M.P. (2002). "Semantic analysis of normalisation by evaluation for typed lambda calculus". In *Proceedings of PPDP* 2010 pp. 26-37.

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.

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.).

Gondran, M. & Minoux, M. (2008). *Graphs, dioids and semirings.* Springer.

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

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.

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.

Hastie, T., Tibshirani, R. & Friedman, J. (2001). *The elements of statistical learning: data mining, inference and prediction.* Springer.

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.

Hyland, M., Plotkin, G.D. & Power, J. (2006). "Combining effects: Sum and tensor". *Theoretical Computer Science* 357(1-3), pp. 70-99.

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.

Jung & Tiuryn (1993). "A new characterization of lambda definability". In *Proceedings of TLCA* 1993, pp. 245-257.

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.

Kyrola, A. & Blelloch, G. (2012). "Graphchi: Large-scale graph computation on just a PC". In *Proceedings of OSDI* 2012, pp. 31-46.

Larus, J.R. & Rajwar, R. (2007). *Transactional memory.* Morgan and Claypool.

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.C. & Snyder, L. (2009). *Principles of parallel programming.* Addison Wesley.

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`.

Mattson, T., Sanders, B. & Massingill, B. (2004). *Patterns for parallel programming.* Pearson.

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

Moggi, E. (1991). "Notions of computation and monads". *Information and Computation* 93(1), pp. 55-92.

Moggi, E. (1989). "Computational lambda-calculus and monads". In *Proceedings of LICS* 1989, pp. 14-23.

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

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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

Peterson, L.L. & Davie, B.S. (2011). *Computer networks: a systems approach.* Morgan Kaufmann (5th ed.). ISBN 9780123850591

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

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Plotkin, G.D. & Power, J. (2003). "Algebraic operations and generic effects". *Applied Categorical Structures* 11(1), pp. 69-94.

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Quinn, M.J. (2004). *Parallel programming in C with MPI and OpenMP*. McGraw-Hill.

Roberts, S. & Ahkter, J. (2006). *Multi-core programming: increasing performance through software multithreading*. Intel.

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

Scott, D.S. (1980). "Relating theories of the lambda-calculus". In Seldin, J.P. & Hindley, J.R. (eds.), *To H.B. Curry: essays on combinatory logic, lambda calculus and formalism*. Academic Press.

Selinger, P. (2001). "Control categories and duality". *Mathematical Structures in Computer Science* 11(2), pp. 207-260.

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

Smyth, M.B. & Plotkin, G.D. (1982). "The category-theoretic solution of recursive domain equations". *SIAM Journal of Computing*. 11(4), pp. 761-783.

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

Thielecke, H. (1997). *Categorical structure of continuation passing style*. PhD thesis, University of Edinburgh. Available at `http://www.lfcs.inf.ed.ac.uk/reports/97/ECS-LFCS-97-376/index.html`

Weste, N. & Harris, D.F. (2005). *CMOS VLSI Design: a circuits and systems perspective*. Pearson.

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