

UNIVERSITY OF CAMBRIDGE COMPUTER LABORATORY

M.Phil in Advanced Computer Science

Summary List of Recommended Readings

October 2019

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.

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

Abelson, H., et. al. (2015). “Keys under doormats: mandating insecurity by requiring government access to all data and communications”. *Journal of Cybersecurity* 1(1), pp. 69-79.

Aceto, L., et. al. (2007) *Reactive systems: modelling, specification and verification*. Cambridge University Press. ISBN 9780521875462

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

Anderson, R., et. al. (2012). “Measuring the cost of cybercrime”. In *Eleventh annual workshop on Economics and Information Security (WEIS12)*.

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.

Arbesman, S. (2017). *Overcomplicated: technology at the limits of comprehension*. Penguin. ISBN 9780143131304.

Arora, S. & Barak, B. (2009). *Computational complexity: a modern approach*. Cambridge University Press. ISBN 9780521424264.

- 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.).
- Boreskov, A. & Shikin, E. (2014). *Computer graphics: from pixels to programmable graphics hardware*. CRC Press (2nd ed.). ISBN 9781439867303
- 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>
- Brantingham, P.J. & Faust, F.L. (1976). “A conceptual model of crime prevention”. *Crime and delinquency* 22(3), pp. 284-296.
- Bundy, A. (1983). *The computer modelling of mathematical reasoning*. Academic Press. ISBN 0121412504.
- Cairns, P. & Cox, A. (2008) *Research methods for human-computer interaction*. Cambridge University Press. ISBN 9780521690317
- Clark, S. & Curran, J.R. (2007). “Wide-coverage efficient statistical parsing with CCG and log-linear models”. *Computational Linguistics* 33(4), pp.493-552.
- Clayton, R., Moore, T., & Christin, N. (2015). “Concentrating correctly on cybercrime concentration”. In *Proceedings of the Workshop on the economics of information security*.
- Crole, R.L. (1993). *Categories for types*. Cambridge University Press. ISBN 0521450926.
- Crovella, M. & Krishnamurthy, B. (2006). *Internet measurement: infrastructure traffic and applications*. Wiley.
- 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.
- Dean, J., et. al. (2012). “Large scale distributed deep networks”. In *Proceedings of Neural information processing systems 2012*.
- Ebbinghaus, H.-D. & Flum, J. (2006). *Finite model theory*. Springer. ISBN 3540287876.
- Eubanks, V. (2019). *Automating inequality: how high-tech tools profile police and punish the poor*. Picador. ISBN 9781250215789.
- Forsyth, D.A. & Ponce, J. (2012). *Computer vision : a modern approach*. Prentice Hall (2nd ed.). ISBN 9780273764144
- Frank, R.H. (2008). *The economic naturalist: why economics explains almost everything*. Ebury Publishing. ISBN 9780753513385
- 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. ISBN 0387754490.

- Grabosky, P.N. (2001). “Virtual criminality: Old wine in new bottles?”. *Social and legal studies* 10(2), pp. 243-249.
- Gradel, E., et al. (2007). *Finite model theory and its applications*. Springer. ISBN 9783540004288.
- 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*.
- Gurney, A. & Griffin, T.G. (2007). “Lexicographic Products in Metarouting”. In *Proceedings of ICNP 2007*.
- Hainich, R.R. & Bimber, O. (2017) *Displays: fundamentals and applications*. CRC Press (2nd ed.). ISBN 9781498765688.
- Hennessy, J. & Patterson, D. (2012) *Computer architecture: a quantitative approach*. Elsevier (5th ed.). ISBN 9780123838728.
- Herley, C. & Florêncio, D. (2010). “Nobody sells gold for the price of silver: dishonesty, uncertainty and the underground economy”. In Moore T., Pym D. & Ioannidis C. (eds.) *Economics of Information Security and Privacy*. Springer.
- Herlihy, M. & Sahvit, N. (2008). *The art of multiprocessor programming*. Morgan Kaufmann. ISBN 9780123705914.
- Holt, T.J., Burruss, G.W. & Bossler, A.M. (2018). “An examination of English and Welsh constables’ perceptions of the seriousness and frequency of online incidents”. *Policing and Society*. Online only <https://doi.org/10.1080/10439463.2018.1450409>.
- Hutchings, A. & Holt, T.J. (2015). “A crime script analysis of the online stolen data market”. *British Journal of Criminology* 55(3), pp. 596-614.
- Hutchings, A. & Clayton, R. (2016). “Exploring the provision of online booter services”. *Deviant Behavior* 37(10), pp. 1163-1178.
- Hutchings, A., Clayton, R., & Anderson, R. (2016). “Taking down websites to prevent crime”. In *Proceedings of Electronic Crime Research (eCrime) 2016*.
- Immerman, N. (1999). *Descriptive complexity*. Springer. ISBN 0387986006.
- Jain, A.R. (1991). *The art of computer systems performance analysis*. Wiley.
- Jurafsky, D. & Martin, J. (2008). *Speech and language processing*. Prentice Hall.
- Keshav, S. (1997). *An engineering approach to computer networking*. Addison-Wesley. ISBN 0201634422.
- Kleppmann, M. (2017). *Designing data-intensive applications*. O’Reilly. ISBN 9781449373320.
- 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.
- Lambek, J. & Scott, P.J. (1986). *Introduction to higher order categorical logic*. Cambridge University Press.
- Lessig, L. (1999). *Code and other laws of cyberspace*. Basic Books. ISBN 0465039138.
- Libkin, L. (2004). *Elements of finite model theory*. Springer. ISBN 3540212027.
- Lusthaus, J. (2013). “How organised is organised cybercrime?”. *Global Crime* 14(1), pp. 52-60.
- Lyons, R.G. (2010). *Understanding digital signal processing*. Prentice Hall (3rd ed.). ISBN 9780132119375
- Malewicz, G., et al. (2010). “Pregel: A System for Large-Scale Graph Processing”. In *Proceedings of SIGMOD 2010*, pp. 135-146.
- MacKay, D.J. (2003) *Information theory, inference and learning algorithms*. Cambridge University Press. ISBN 0521642981.
- McKusick, M.K., Neville-Neil, G.V., & Watson, R.N.M. (2014). *The Design and implementation of the FreeBSD operating system*. (2nd ed.). Pearson Education.
- Mesbahi, M. & Egerstedt, M. (2010) *Graph theoretic methods in multiagent networks*. Princeton University Press. ISBN 9780691140612
- Milner, R. (1989) *Communication and concurrency*. Prentice Hall. ISBN 0131149849
- Milner, R. (1999) *Communicating mobile systems: the Pi-calculus*. Cambridge University Press. ISBN 0521643201
- Mirhoseini, A., et. al. (2017). “Device placement optimization with reinforcement learning”. In *Proceedings of ICML 2017*, pp. 2430-2439.
- Mondada, F. & Mordechai B. (2018) *Elements of Robotics*. Springer. ISBN 9783319625324
- Murray, D.G., et al. (2013) “Naiad: A Timely Dataflow System”, *Proceedings of SOSP 2013*, pp. 439-455.
- 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.
- O’Neil, C. (2017) *Weapons of math destruction: how big data increases inequality and threatens democracy*. Penguin. ISBN 9780451497338.
- Oppenheim, A.V. & Schafer, R.W. (2007). *Discrete-time digital signal processing*. Prentice Hall (3rd ed.).
- Pasquale, B. (2015) *Black box society: the secret algorithms that control money and information*. Harvard University Press. ISBN 9780674736061.
- Pastrana, S., et. al. (2018). “Characterizing eve: analysing cybercrime actors in a large underground forum”. In Bailey, M., et. al. (eds.) *Research in attacks, intrusions and defenses 2018*, pp. 207-227.
- Patterson, D. & Hennessy, J. (2017) *Computer organisation and design*. Morgan Kaufmann (RISC-V ed.). ISBN 9780128122761

- 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 humane handbook*. Springer.
- Picard, R. (2000). *Affective Computing*. MIT Press.
- 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.
- Reinhard, E., et. al. (2010). *High dynamic range imaging*. Morgan Kaufmann (2nd ed.). ISBN 9780123749147
- Salah, A.A. & Gevers, T. (eds.) (2011). *Computer analysis of human behavior*. Springer. ISBN 9780857299932
- Schaarschmidt, M., et. al. (2019). “RLgraph: modular computation graphs for deep reinforcement learning”. In *Proceedings of SysML 2019*.
- Schneier, B. (2012). *Liars and outliers: enabling the trust that society needs to thrive*. Wiley.
- Shapiro, L. & Stockman, G. (2001). *Computer vision*. Prentice Hall.
- Siciliano, B. & Khatib, O. (2016) *Springer handbook of robotics*. Springer (2nd ed.). ISBN 9783319325507
- Siegwart, R., Nourbakhsh, I.R. & Scaramuzza, D. (2004) *Autonomous mobile robots*. MIT Press (2nd ed.). ISBN 9780262015356
- Silberschatz, A., Peterson, J.L. & Galvin, P.C. (2008). *Operating systems concepts*. Wiley (8th ed.). ISBN 9780470128725
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- Sobrinho, J.L. (2005) “An algebraic theory of dynamic network routing”. *IEEE/ACM Transactions on Networking* 13(5), pp. 1160-1173.
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- Tanenbaum, A.S. (2008). *Modern operating systems*. Prentice-Hall (3rd ed.).
- Tcherni, M., et. al. (2016). “The dark figure of online property crime: Is cyberspace hiding a crime wave?”. *Justice quarterly* 33(5), pp. 890-911.
- Thrun, S., Burgard, W. & Fox, D. (2005). *Probabilistic robotics*. MIT Press. ISBN 0262201623
- Van Aken, D., et. al. (2017) “Automatic database management system tuning through large-scale machine learning”. In *SIGMOD Conference 2017*, pp. 1009-1024.
- Varghese, G. (2005). *Network algorithmics*. Morgan Kaufmann. ISBN 0120884771.

- Wall, D.S. (2007). “Policing cybercrimes: Situating the public police in networks of security within cyberspace”. *Police practice and research* 8(2), pp. 183-205.
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