



This is a chapter from the book

## System Design, Modeling, and Simulation using Ptolemy II

This work is licensed under the Creative Commons Attribution-ShareAlike 3.0 Unported License. To view a copy of this license, visit:

<http://creativecommons.org/licenses/by-sa/3.0/>,

or send a letter to Creative Commons, 444 Castro Street, Suite 900, Mountain View, California, 94041, USA. Permissions beyond the scope of this license may be available at:

<http://ptolemy.org/books/Systems>.

**First Edition, Version 1.0**

**Please cite this book as:**

Claudius Ptolemaeus, Editor,  
*System Design, Modeling, and Simulation using Ptolemy II*, Ptolemy.org, 2014.  
<http://ptolemy.org/books/Systems>.

---

# Bibliography

- Agha, G. A., I. A. Mason, S. F. Smith, and C. L. Talcott, 1997: A foundation for actor computation. *Journal of Functional Programming*, **7**(1), 1–72.
- Allen, F. E., 1970: Control flow analysis. *SIGPLAN Notices*, **5**(7), 1–19.
- Alur, R., S. Kannan, and M. Yannakakis, 1999: Communicating hierarchical state machines. In *26th International Colloquium on Automata, Languages, and Programming*, Springer, vol. LNCS 1644, pp. 169–178.
- Andalam, S., P. S. Roop, and A. Girault, 2010: Predictable multithreading of embedded applications using PRET-C. In *Formal Methods and Models for Codesign (MEMOCODE)*, IEEE/ACM, Grenoble, France, pp. 159–168. doi:10.1109/MEMCOD.2010.5558636.
- André, C., 1996: SyncCharts: a visual representation of reactive behaviors. Tech. Rep. RR 95–52, revision: RR (96–56), University of Sophia-Antipolis. Available from: <http://www-sop.inria.fr/members/Charles.Andre/CA%20Publis/SYNCCHARTS/overview.html>.
- André, C., F. Mallet, and R. d. Simone, 2007: Modeling time(s). In *Model Driven Engineering Languages and Systems (MoDELS/UML)*, Springer, Nashville, TN, vol. LNCS 4735, pp. 559–573. doi:10.1007/978-3-540-75209-7\_38.

- Arbab, F., 2006: A behavioral model for composition of software components. *L'Object, Lavoisier*, **12(1)**, 33–76. doi:10.3166/objet.12.1.33-76.
- Arvind, L. Bic, and T. Ungerer, 1991: Evolution of data-flow computers. In Gaudiot, J.-L. and L. Bic, eds., *Advanced Topics in Data-Flow Computing*, Prentice-Hall.
- Baccelli, F., G. Cohen, G. J. Olster, and J. P. Quadrat, 1992: *Synchronization and Linearity, An Algebra for Discrete Event Systems*. Wiley, New York.
- Baier, C. and M. E. Majster-Cederbaum, 1994: Denotational semantics in the CPO and metric approach. *Theoretical Computer Science*, **135(2)**, 171–220.
- Balarin, F., H. Hsieh, L. Lavagno, C. Passerone, A. L. Sangiovanni-Vincentelli, and Y. Watanabe, 2003: Metropolis: an integrated electronic system design environment. *Computer*, **36(4)**.
- Baldwin, P., S. Kohli, E. A. Lee, X. Liu, and Y. Zhao, 2004: Modeling of sensor nets in Ptolemy II. In *Information Processing in Sensor Networks (IPSN)*, Berkeley, CA, USA. Available from: <http://ptolemy.eecs.berkeley.edu/publications/papers/04/VisualSense/>.
- , 2005: Visualsense: Visual modeling for wireless and sensor network systems. Technical Report UCB/ERL M05/25, EECS Department, University of California. Available from: <http://ptolemy.eecs.berkeley.edu/publications/papers/05/visualsense/index.htm>.
- Basu, A., M. Bozga, and J. Sifakis, 2006: Modeling heterogeneous real-time components in BIP. In *International Conference on Software Engineering and Formal Methods (SEFM)*, Pune, pp. 3–12.
- Benveniste, A. and G. Berry, 1991: The synchronous approach to reactive and real-time systems. *Proceedings of the IEEE*, **79(9)**, 1270–1282.
- Benveniste, A., P. Caspi, P. Le Guernic, and N. Halbwachs, 1994: Data-flow synchronous languages. In Bakker, J. W. d., W.-P. d. Roever, and G. Rozenberg, eds., *A Decade of Concurrency Reflections and Perspectives*, Springer-Verlag, Berlin, vol. 803 of *LNCS*, pp. 1–45.
- Benveniste, A. and P. Le Guernic, 1990: Hybrid dynamical systems theory and the SIGNAL language. *IEEE Tr. on Automatic Control*, **35(5)**, 525–546.

- Berry, G., 1976: Bottom-up computation of recursive programs. *Revue Franaise dAutomatique, Informatique et Recherche Oprationnelle*, **10(3)**, 47–82.
- , 1999: *The Constructive Semantics of Pure Esterel - Draft Version 3*. Book Draft. Available from: <http://www-sop.inria.fr/meije/esterel/doc/main-papers.html>.
- , 2003: The effectiveness of synchronous languages for the development of safety-critical systems. White paper, Esterel Technologies. Available from: <http://www.esterel-technologies.com>.
- Berry, G. and G. Gonthier, 1992: The Esterel synchronous programming language: Design, semantics, implementation. *Science of Computer Programming*, **19(2)**, 87–152. Available from: <http://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.17.5606>.
- Bhattacharya, B. and S. S. Bhattacharyya, 2000: Parameterized dataflow modeling of DSP systems. In *International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, Istanbul, Turkey, pp. 1948–1951.
- Bhattacharyya, S. S., J. T. Buck, S. Ha, and E. Lee, 1995: Generating compact code from dataflow specifications of multirate signal processing algorithms. *IEEE Transactions on Circuits and Systems I: Fundamental Theory and Applications*, **42(3)**, 138–150. doi:10.1109/81.376876.
- Bhattacharyya, S. S., J. T. Buck, S. Ha, and E. A. Lee, 1993: A scheduling framework for minimizing memory requirements of multirate DSP systems represented as dataflow graphs. In *VLSI Signal Processing VI*, IEEE, Veldhoven, The Netherlands, pp. 188–196. doi:10.1109/VLSISP.1993.404488.
- Bhattacharyya, S. S. and E. A. Lee, 1993: Scheduling synchronous dataflow graphs for efficient looping. *Journal of VLSI Signal Processing Systems*, **6(3)**, 271–288. doi:10.1007/BF01608539.
- Bhattacharyya, S. S., P. Murthy, and E. A. Lee, 1996a: APGAN and RPMC: Complementary heuristics for translating DSP block diagrams into efficient software implementations. *Journal of Design Automation for Embedded Systems*, **2(1)**, 33–60. doi:10.1023/A:1008806425898.
- Bhattacharyya, S. S., P. K. Murthy, and E. A. Lee, 1996b: *Software Synthesis from Dataflow Graphs*. Kluwer Academic Publishers, Norwell, Mass.

- Bilsen, G., M. Engels, R. Lauwereins, and J. A. Peperstraete, 1996: Cyclo-static dataflow. *IEEE Transactions on Signal Processing*, **44(2)**, 397–408. doi:10.1109/78.485935.
- Bock, C., 2006: SysML and UML 2 support for activity modeling. *Systems Engineering*, **9(2)**, 160–185.
- Booch, G., I. Jacobson, and J. Rumbaugh, 1998: *The Unified Modeling Language User Guide*. Addison-Wesley.
- Boussinot, F., 1991: Reactive c: An extension to c to program reactive systems. *Software Practice and Experience*, **21(4)**, 401–428.
- Box, G. E. P. and N. R. Draper, 1987: *Empirical Model-Building and Response Surfaces*. Wiley Series in Probability and Statistics, Wiley.
- Brock, J. D. and W. B. Ackerman, 1981: Scenarios, a model of non-determinate computation. In *Conference on Formal Definition of Programming Concepts*, Springer-Verlag, vol. LNCS 107, pp. 252–259.
- Broenink, J. F., 1997: Modelling, simulation and analysis with 20-Sim. *CACSD*, **38(3)**, 22–25.
- Brooks, C., C. Cheng, T. H. Feng, E. A. Lee, and R. von Hanxleden, 2008: Model engineering using multimodeling. In *International Workshop on Model Co-Evolution and Consistency Management (MCCM)*, Toulouse, France. Available from: <http://chess.eecs.berkeley.edu/pubs/486.html>.
- Brooks, C., E. A. Lee, X. Liu, S. Neuendorffer, Y. Zhao, and H. Zheng, 2004: Heterogeneous concurrent modeling and design in Java. Tech. Rep. Technical Memorandum UCB/ERL M04/16, University of California. Available from: <http://ptolemy.eecs.berkeley.edu/papers/04/ptIIDesignSoftware/>.
- Brooks, C. H. and E. A. Lee, 2003: Ptolemy II coding style. Tech. Rep. Technical Memorandum UCB/ERL M03/44, University of California at Berkeley. Available from: <http://ptolemy.eecs.berkeley.edu/publications/papers/03/codingstyle/>.
- Broy, M., 1983: Applicative real time programming. In *Information Processing 83, IFIP World Congress*, North Holland Publ. Company, Paris, pp. 259–264.

- Broy, M. and G. Stefanescu, 2001: The algebra of stream processing functions. *Theoretical Computer Science*, **258**, 99–129.
- Bryant, V., 1985: *Metric Spaces - Iteration and Application*. Cambridge University Press.
- Buck, J. T., 1993: Scheduling dynamic dataflow graphs with bounded memory using the token flow model. Ph.D. Thesis Tech. Report UCB/ERL 93/69, University of California, Berkeley. Available from: <http://ptolemy.eecs.berkeley.edu/publications/papers/93/jbuckThesis/>.
- Buck, J. T., S. Ha, E. A. Lee, and D. G. Messerschmitt, 1994: Ptolemy: A framework for simulating and prototyping heterogeneous systems. *Int. Journal of Computer Simulation, special issue on "Simulation Software Development"*, **4**, 155–182. Available from: <http://ptolemy.eecs.berkeley.edu/publications/papers/94/JEurSim/>.
- Burch, J. R., R. Passerone, and A. L. Sangiovanni-Vincentelli, 2001: Overcoming heterophobia: Modeling concurrency in heterogeneous systems. In *International Conference on Application of Concurrency to System Design*, p. 13.
- Buss, A. H. and P. J. Sanchez, 2002: Building complex models with LEGOs (listener event graph objects). *Winter Simulation Conference (WSC 02)*, **1**, 732–737.
- Cardelli, L., 1997: Type systems. In Tucker, A. B., ed., *The Computer Science and Engineering Handbook*, CRC Press, chap. 103, pp. 2208–2236, <http://lucacardelli.name/Papers/TypeSystems>
- Cardelli, L. and P. Wegner, 1985: On understanding types, data abstraction, and polymorphism. *ACM Computing Surveys (CSUR)*, **17(4)**, 471 – 523.
- Carlioni, L. P., R. Passerone, A. Pinto, and A. Sangiovanni-Vincentelli, 2006: Languages and tools for hybrid systems design. *Foundations and Trends in Electronic Design Automation*, **1(1/2)**. doi:10.1561/1000000001.
- Caspi, P., P. Raymond, and S. Tripakis, 2007: Synchronous Programming. In Lee, I., J. Leung, and S. Son, eds., *Handbook of Real-Time and Embedded Systems*, Chapman & Hall, pp. 14–1 — 14–21. Available from: <http://www-verimag.imag.fr/~tripakis/papers/handbook07.pdf>.
- Cassandras, C. G., 1993: *Discrete Event Systems, Modeling and Performance Analysis*. Irwin.

- Cataldo, A., E. A. Lee, X. Liu, E. Matsikoudis, and H. Zheng, 2006: A constructive fixed-point theorem and the feedback semantics of timed systems. In *Workshop on Discrete Event Systems (WODES)*, Ann Arbor, Michigan. Available from: <http://ptolemy.eecs.berkeley.edu/publications/papers/06/constructive/>.
- Chandy, K. M. and J. Misra, 1979: Distributed simulation: A case study in design and verification of distributed programs. *IEEE Trans. on Software Engineering*, **5(5)**, 440–452.
- Clarke, E. M., O. Grumberg, and D. A. Peled, 2000: *Model checking*. MIT Press, ISBN 0-262-03270-8.
- Coffman, E. G., Jr. (Ed), 1976: *Computer and Job Scheduling Theory*. Wiley.
- Conway, M. E., 1963: Design of a separable transition-diagram compiler. *Communications of the ACM*, **6(7)**, 396–408.
- Corbett, J. C., J. Dean, M. Epstein, A. Fikes, C. Frost, J. Furman, S. Ghemawat, A. Gubarev, C. Heiser, P. Hochschild, W. Hsieh, S. Kanthak, E. Kogan, H. Li, A. Lloyd, S. Melnik, D. Mwaura, D. Nagle, S. Quinlan, R. Rao, L. Rolig, Y. Saito, M. Szymaniak, C. Taylor, R. Wang, and D. Woodford, 2012: Spanner: Googles globally-distributed database. In *OSDI*.
- Cousot, P. and R. Cousot, 1977: Abstract interpretation: A unified lattice model for static analysis of programs by construction or approximation of fixpoints. In *Symposium on Principles of Programming Languages (POPL)*, ACM Press, pp. 238–252.
- Creeger, M., 2005: Multicore CPUs for the masses. *ACM Queue*, **3(7)**, 63–64.
- Davey, B. A. and H. A. Priestly, 2002: *Introduction to Lattices and Order*. Cambridge University Press, second edition ed.
- de Alfaro, L. and T. Henzinger, 2001: Interface automata. In *ESEC/FSE 01: the Joint 8th European Software Engineering Conference and 9th ACM SIGSOFT International Symposium on the Foundations of Software Engineering*.
- Dennis, J. B., 1974: First version data flow procedure language. Tech. Rep. MAC TM61, MIT Laboratory for Computer Science.

- Derler, P., E. A. Lee, and S. Matic, 2008: Simulation and implementation of the ptides programming model. In *IEEE International Symposium on Distributed Simulation and Real Time Applications (DS-RT)*, Vancouver, Canada.
- Dijkstra, E. W., 1968: Go to statement considered harmful (letter to the editor). *Communications of the ACM*, **11**(3), 147–148.
- Edwards, S. A. and E. A. Lee, 2003a: The semantics and execution of a synchronous block-diagram language. *Science of Computer Programming*, **48**(1), 21–42. doi: [10.1016/S0167-6423\(02\)00096-5](https://doi.org/10.1016/S0167-6423(02)00096-5).
- , 2003b: The semantics and execution of a synchronous block-diagram language. *Science of Computer Programming*, **48**(1), 21–42. Available from: <http://ptolemy.eecs.berkeley.edu/papers/03/blockdiagram/>.
- Eidson, J. C., 2006: *Measurement, Control, and Communication Using IEEE 1588*. Springer. doi: [10.1007/1-84628-251-9](https://doi.org/10.1007/1-84628-251-9).
- Eidson, J. C., E. A. Lee, S. Matic, S. A. Seshia, and J. Zou, 2012: Distributed real-time software for cyber-physical systems. *Proceedings of the IEEE (special issue on CPS)*, **100**(1), 45–59. doi: [10.1109/JPROC.2011.2161237](https://doi.org/10.1109/JPROC.2011.2161237).
- Eker, J. and J. W. Janneck, 2003: Cal language report: Specification of the cal actor language. Tech. Rep. Technical Memorandum No. UCB/ERL M03/48, University of California, Berkeley, CA. Available from: <http://ptolemy.eecs.berkeley.edu/papers/03/Cal/index.htm>.
- Eker, J., J. W. Janneck, E. A. Lee, J. Liu, X. Liu, J. Ludvig, S. Neuendorffer, S. Sachs, and Y. Xiong, 2003: Taming heterogeneity—the Ptolemy approach. *Proceedings of the IEEE*, **91**(2), 127–144. Available from: <http://www.ptolemy.eecs.berkeley.edu/publications/papers/03/TamingHeterogeneity/>.
- Encyclopedia Britannica, 2010: Ockham’s razor. *Encyclopedia Britannica Online*, Retrieved June 24, 2010. Available from: <http://www.britannica.com/EBchecked/topic/424706/Ockhams-razor>.
- Falk, J., J. Keiner, C. Haubelt, J. Teich, and S. S. Bhattacharyya, 2008: A generalized static data flow clustering algorithm for mpsoC scheduling of multimedia applications. In *Embedded Software (EMSOFT)*, ACM, Atlanta, Georgia, USA.



- Faustini, A. A., 1982: An operational semantics for pure dataflow. In *Proceedings of the 9th Colloquium on Automata, Languages and Programming (ICALP)*, Springer-Verlag, vol. Lecture Notes in Computer Science (LNCS) Vol. 140, pp. 212–224.
- Feng, T. H., 2009: Model transformation with hierarchical discrete-event control. PhD Thesis UCB/EECS-2009-77, EECS Department, UC Berkeley. Available from: <http://www.eecs.berkeley.edu/Pubs/TechRpts/2009/EECS-2009-77.html>.
- Feng, T. H. and E. A. Lee, 2008: Real-time distributed discrete-event execution with fault tolerance. In *Real-Time and Embedded Technology and Applications Symposium (RTAS)*, IEEE, St. Louis, MO, USA. Available from: <http://chess.eecs.berkeley.edu/pubs/389.html>.
- Feng, T. H., E. A. Lee, H. D. Patel, and J. Zou, 2008: Toward an effective execution policy for distributed real-time embedded systems. In *14th IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS)*, St. Louis, MO, USA. Available from: <https://chess.eecs.berkeley.edu/pubs/402>.
- Feng, T. H., E. A. Lee, and L. W. Schruben, 2010: Ptera: An event-oriented model of computation for heterogeneous systems. In *EMSOFT*, ACM Press, Scottsdale, Arizona, USA. doi:10.1145/1879021.1879050.
- Feredj, M., F. Boulanger, and A. M. Mbobi, 2009: A model of domain-polymorph component for heterogeneous system design. *The Journal of Systems and Software*, **82**, 112–120.
- Fitzgerald, J., P. G. Larsen, K. Pierce, M. Verhoef, and S. Wolff, 2010: Collaborative modelling and co-simulation in the development of dependable embedded systems. In *Integrated Formal Methods (IFM)*, Springer-Verlag, vol. LNCS 6396, pp. 12–26. doi:10.1007/978-3-642-16265-7\_2.
- Fitzgerald, J. S., P. G. Larsen, and M. Verhoef, 2008: Vienna development method. In *Wiley Encyclopedia of Computer Science and Engineering*, John Wiley & Sons, Inc. doi:10.1002/9780470050118.ecse447.
- Foley, J., A. van Dam, S. Feiner, and J. Hughes, 1996: *Computer Graphics, Principles and Practice*. Addison-Wesley, 2nd ed.
- Friedman, D. P. and D. S. Wise, 1976: CONS should not evaluate its arguments. In *Third Int. Colloquium on Automata, Languages, and Programming*, Edinburg University Press.

- Fritzson, P., 2003: *Principles of Object-Oriented Modeling and Simulation with Modelica 2.1*. Wiley.
- Fuhrmann, H. and R. v. Hanxleden, 2010: Taming graphical modeling. In *Model Driven Engineering Languages and Systems (MODELS) 13th International Conference, MODELS 2010, Oslo, Norway, October 3-8, 2010*, Springer, Oslo, Norway, vol. 6394, pp. 196–210. doi:10.1007/978-3-642-16145-2\_14.
- Fuhrmann, H. and R. von Hanxleden, 2008: On the pragmatics of model-based design. In *Foundations of Computer Software. Future Trends and Techniques for Development – Monterey Workshop*, Springer, Budapest, Hungary, vol. LNCS 6028, pp. 116–140. doi:10.1007/978-3-642-12566-9\_7.
- Fujimoto, R., 2000: *Parallel and Distributed Simulation Systems*. John Wiley and Sons.
- Gaderer, G., P. Loschmidt, E. G. Cota, J. H. Lewis, J. Serrano, M. Cattin, P. Alvarez, P. M. Oliveira Fernandes Moreira, T. Wlostowski, J. Dedic, C. Prados, M. Kreider, R. Baer, S. Rauch, and T. Fleck, 2009: The white rabbit project. In *Int. Conf. on Accelerator and Large Experimental Physics Control Systems*, Kobe, Japan.
- Galletly, J., 1996: *Occam-2*. University College London Press, 2nd ed.
- Ganter, B. and R. Wille, 1998: *Formal Concept Analysis: Mathematical Foundations*. Springer-Verlag, Berlin.
- Geilen, M. and T. Basten, 2003: Requirements on the execution of Kahn process networks. In *European Symposium on Programming Languages and Systems*, Springer, LNCS, pp. 319–334. Available from: <http://www.ics.ele.tue.nl/~tbasten/papers/esop03.pdf>.
- Geilen, M., T. Basten, and S. Stuijk, 2005: Minimising buffer requirements of synchronous dataflow graphs with model checking. In *Design Automation Conference (DAC)*, ACM, Anaheim, California, USA, pp. 819–824. doi:10.1145/1065579.1065796.
- Geilen, M. and S. Stuijk, 2010: Worst-case performance analysis of synchronous dataflow scenarios. In *CODES+ISSS*, ACM, Scottsdale, Arizona, USA, pp. 125–134.
- Girault, A., B. Lee, and E. A. Lee, 1999: Hierarchical finite state machines with multiple concurrency models. *IEEE Transactions On Computer-aided Design Of Integrated Circuits And Systems*, **18**(6), 742–760.

- Goderis, A., C. Brooks, I. Altintas, E. A. Lee, and C. Goble, 2009: Heterogeneous composition of models of computation. *Future Generation Computer Systems*, **25(5)**, 552–560. doi:doi:10.1016/j.future.2008.06.014.
- Goessler, G. and A. Sangiovanni-Vincentelli, 2002: Compositional modeling in Metropolis. In *Second International Workshop on Embedded Software (EMSOFT)*, Springer-Verlag, Grenoble, France.
- Golomb, S. W., 1971: Mathematical models: Uses and limitations. *IEEE Transactions on Reliability*, **R-20(3)**, 130–131. doi:10.1109/TR.1971.5216113.
- Gu, Z., S. Wang, S. Kodase, and K. G. Shin, 2003: An end-to-end tool chain for multi-view modeling and analysis of avionics mission computing software. In *Real-Time Systems Symposium (RTSS)*, pp. 78 – 81.
- Ha, S. and E. A. Lee, 1991: Compile-time scheduling and assignment of dataflow program graphs with data-dependent iteration. *IEEE Transactions on Computers*, **40(11)**, 1225–1238. doi:10.1109/12.102826.
- Halbwachs, N., P. Caspi, P. Raymond, and D. Pilaud, 1991: The synchronous data flow programming language LUSTRE. *Proceedings of the IEEE*, **79(9)**, 1305–1319.
- Hardebolle, C. and F. Boulanger, 2007: ModHel’X: A component-oriented approach to multi- formalism modeling. In *MODELS 2007 Workshop on Multi- Paradigm Modeling*, Elsevier Science B.V., Nashville, Tennessee, USA.
- Harel, D., 1987: Statecharts: A visual formalism for complex systems. *Science of Computer Programming*, **8(3)**, 231–274.
- Harel, D., H. Lachover, A. Naamad, A. Pnueli, M. Politi, R. Sherman, A. Shtull-Trauring, and M. Trakhtenbrot, 1990: STATEMATE: A working environment for the development of complex reactive systems. *IEEE Transactions on Software Engineering*, **16(4)**, 403 – 414. doi:10.1109/32.54292.
- Harel, D. and A. Pnueli, 1985: On the development of reactive systems. In Apt, K. R., ed., *Logic and Models for Verification and Specification of Concurrent Systems*, Springer-Verlag, vol. F13 of *NATO ASI Series*, pp. 477–498.
- Henzinger, T. A., 2000: The theory of hybrid automata. In Inan, M. and R. Kurshan, eds., *Verification of Digital and Hybrid Systems*, Springer-Verlag, vol. 170 of *NATO ASI Series F: Computer and Systems Sciences*, pp. 265–292.

- Henzinger, T. A., B. Horowitz, and C. M. Kirsch, 2001: Giotto: A time-triggered language for embedded programming. In *EMSOFT 2001*, Springer-Verlag, Tahoe City, CA, vol. LNCS 2211, pp. 166–184.
- Herrera, F. and E. Villar, 2006: A framework for embedded system specification under different models of computation in SystemC. In *Design Automation Conference (DAC)*, ACM, San Francisco.
- Hewitt, C., 1977: Viewing control structures as patterns of passing messages. *Journal of Artificial Intelligence*, **8(3)**, 323–363.
- Hoare, C. A. R., 1978: Communicating sequential processes. *Communications of the ACM*, **21(8)**, 666–677.
- Hopcroft, J. and J. Ullman, 1979: *Introduction to Automata Theory, Languages, and Computation*. Addison-Wesley, Reading, MA.
- Hsu, C.-J., F. Keceli, M.-Y. Ko, S. Shahparnia, and S. S. Bhattacharyya, 2004: DIF: An interchange format for dataflow-based design tools. In *International Workshop on Systems, Architectures, Modeling, and Simulation*, Samos, Greece.
- Hu, T. C., 1961: Parallel sequencing and assembly line problems. *Operations Research*, **9(6)**, 841–848.
- Ingalls, R. G., D. J. Morrice, and A. B. Whinston, 1996: Eliminating canceling edges from the simulation graph model methodology. In *WSC '96: Proceedings of the 28th conference on Winter simulation*, IEEE Computer Society, Washington, DC, USA, ISBN 0-7803-3383-7, pp. 825–832.
- Jantsch, A., 2003: *Modeling Embedded Systems and SoCs - Concurrency and Time in Models of Computation*. Morgan Kaufmann.
- Jantsch, A. and I. Sander, 2005: Models of computation and languages for embedded system design. *IEE Proceedings on Computers and Digital Techniques*, **152(2)**, 114–129.
- Jefferson, D., 1985: Virtual time. *ACM Trans. Programming Languages and Systems*, **7(3)**, 404–425.
- Johannessen, S., 2004: Time synchronization in a local area network. *IEEE Control Systems Magazine*, 61–69.

- Johnston, W. M., J. R. P. Hanna, and R. J. Millar, 2004: Advances in dataflow programming languages. *ACM Computing Surveys*, **36(1)**, 1–34.
- Kahn, G., 1974: The semantics of a simple language for parallel programming. In *Proc. of the IFIP Congress 74*, North-Holland Publishing Co., pp. 471–475.
- Kahn, G. and D. B. MacQueen, 1977: Coroutines and networks of parallel processes. In Gilchrist, B., ed., *Information Processing*, North-Holland Publishing Co., pp. 993–998.
- Karsai, G., A. Lang, and S. Neema, 2005: Design patterns for open tool integration. *Software and Systems Modeling*, **4(2)**, 157–170. doi:10.1007/s10270-004-0073-y.
- Kay, S. M., 1988: *Modern Spectral Estimation: Theory & Application*. Prentice-Hall, Englewood Cliffs, NJ.
- Kiczales, G., J. Lamping, A. Mendhekar, C. Maeda, C. V. Lopes, J.-M. Loingtier, and J. Irwin, 1997: Aspect-oriented programming. In *ECOOP, European Conference in Object-Oriented Programming*, Springer-Verlag, Finland, vol. LNCS 1241.
- Kienhuis, B., E. Deprettere, P. van der Wolf, and K. Vissers, 2001: A methodology to design programmable embedded systems. In Deprettere, E., J. Teich, and S. Vassiliadis, eds., *Systems, Architectures, Modeling, and Simulation (SAMOS)*, Springer-Verlag, vol. LNCS 2268.
- Kodosky, J., J. MacCrisken, and G. Rymar, 1991: Visual programming using structured data flow. In *IEEE Workshop on Visual Languages*, IEEE Computer Society Press, Kobe, Japan, pp. 34–39.
- Kopetz, H., 1997: *Real-Time Systems : Design Principles for Distributed Embedded Applications*. Springer.
- Kopetz, H. and G. Bauer, 2003: The time-triggered architecture. *Proceedings of the IEEE*, **91(1)**, 112–126.
- Lamport, L., R. Shostak, and M. Pease, 1978: Time, clocks, and the ordering of events in a distributed system. *Communications of the ACM*, **21(7)**, 558–565.
- Landin, P. J., 1965: A correspondence between Algol 60 and Church’s lambda notation. *Communications of the ACM*, **8(2)**, 89–101.

- Le Guernic, P., T. Gauthier, M. Le Borgne, and C. Le Maire, 1991: Programming real-time applications with SIGNAL. *Proceedings of the IEEE*, **79(9)**, 1321 – 1336. doi: [10.1109/5.97301](https://doi.org/10.1109/5.97301).
- Lee, E. A., 1986: A coupled hardware and software architecture for programmable digital signal processors. PhD Thesis UCB/ERL M86/54, University of California. Available from: <http://ptolemy.eecs.berkeley.edu/publications/papers/86/LeePhDThesis/>.
- , 1999: Modeling concurrent real-time processes using discrete events. *Annals of Software Engineering*, **7**, 25–45. doi: [10.1023/A:1018998524196](https://doi.org/10.1023/A:1018998524196).
- , 2006: The problem with threads. *Computer*, **39(5)**, 33–42. doi: [10.1109/MC.2006.180](https://doi.org/10.1109/MC.2006.180).
- , 2008a: Cyber physical systems: Design challenges. In *International Symposium on Object/Component/Service-Oriented Real-Time Distributed Computing (ISORC)*, IEEE, Orlando, Florida, pp. 363 – 369. doi: [10.1109/ISORC.2008.25](https://doi.org/10.1109/ISORC.2008.25).
- , 2008b: ThreadedComposite: A mechanism for building concurrent and parallel Ptolemy II models. Technical Report UCB/EECS-2008-151, EECS Department, University of California, Berkeley. Available from: <http://www.eecs.berkeley.edu/Pubs/TechRpts/2008/EECS-2008-151.html>.
- , 2009: Finite state machines and modal models in Ptolemy II. Tech. Rep. UCB/EECS-2009-151, EECS Department, University of California, Berkeley. Available from: <http://www.eecs.berkeley.edu/Pubs/TechRpts/2009/EECS-2009-151.html>.
- , 2010a: CPS foundations. In *Design Automation Conference (DAC)*, ACM, Anaheim, California, USA, pp. 737–742. doi: [10.1145/1837274.1837462](https://doi.org/10.1145/1837274.1837462).
- , 2010b: Disciplined heterogeneous modeling. In Petriu, D. C., N. Rouquette, and O. Haugen, eds., *Model Driven Engineering, Languages, and Systems (MODELS)*, IEEE, pp. 273–287. Available from: <http://chess.eecs.berkeley.edu/pubs/679.html>.
- Lee, E. A., E. Goei, H. Heine, and W. Ho, 1989: Gabriel: A design environment for programmable DSPs. In *Design Automation Conference (DAC)*, Las Vegas, NV, pp. 141–146. Available from: <http://ptolemy.eecs.berkeley.edu/publications/papers/89/gabriel/>.

- Lee, E. A. and S. Ha, 1989: Scheduling strategies for multiprocessor real-time DSP. In *Global Telecommunications Conference (GLOBECOM)*, vol. 2, pp. 1279–1283. doi:[10.1109/GLOCOM.1989.64160](https://doi.org/10.1109/GLOCOM.1989.64160).
- Lee, E. A., X. Liu, and S. Neuendorffer, 2009a: Classes and inheritance in actor-oriented design. *ACM Transactions on Embedded Computing Systems (TECS)*, **8(4)**, 29:1–29:26. doi:[10.1145/1550987.1550992](https://doi.org/10.1145/1550987.1550992).
- Lee, E. A., S. Matic, S. A. Seshia, and J. Zou, 2009b: The case for timing-centric distributed software. In *IEEE International Conference on Distributed Computing Systems Workshops: Workshop on Cyber-Physical Systems*, IEEE, Montreal, Canada, pp. 57–64. Available from: <http://chess.eecs.berkeley.edu/pubs/607.html>.
- Lee, E. A. and E. Matsikoudis, 2009: The semantics of dataflow with firing. In Huet, G., G. Plotkin, J.-J. Lévy, and Y. Bertot, eds., *From Semantics to Computer Science: Essays in memory of Gilles Kahn*, Cambridge University Press. Available from: <http://ptolemy.eecs.berkeley.edu/publications/papers/08/DataflowWithFiring/>.
- Lee, E. A. and D. G. Messerschmitt, 1987a: Static scheduling of synchronous data flow programs for digital signal processing. *IEEE Transactions on Computers*, **C-36(1)**, 24–35. doi:[10.1109/TC.1987.5009446](https://doi.org/10.1109/TC.1987.5009446).
- , 1987b: Synchronous data flow. *Proceedings of the IEEE*, **75(9)**, 1235–1245. doi:[10.1109/PROC.1987.13876](https://doi.org/10.1109/PROC.1987.13876).
- Lee, E. A. and S. Neuendorffer, 2000: MoML - a modeling markup language in XML. Tech. Rep. UCB/ERL M00/12, UC Berkeley. Available from: <http://ptolemy.eecs.berkeley.edu/publications/papers/00/moml/>.
- Lee, E. A., S. Neuendorffer, and M. J. Wirthlin, 2003: Actor-oriented design of embedded hardware and software systems. *Journal of Circuits, Systems, and Computers*, **12(3)**, 231–260. Available from: <http://ptolemy.eecs.berkeley.edu/papers/03/actorOrientedDesign/>.
- Lee, E. A. and T. M. Parks, 1995: Dataflow process networks. *Proceedings of the IEEE*, **83(5)**, 773–801. doi:[10.1109/5.381846](https://doi.org/10.1109/5.381846).
- Lee, E. A. and A. Sangiovanni-Vincentelli, 1998: A framework for comparing models of computation. *IEEE Transactions on Computer-Aided Design of Circuits and Systems*,

- 17(12)**, 1217–1229. Available from: <http://ptolemy.eecs.berkeley.edu/publications/papers/98/framework/>.
- Lee, E. A. and S. A. Seshia, 2011: *Introduction to Embedded Systems - A Cyber-Physical Systems Approach*. LeeSeshia.org, Berkeley, CA. Available from: <http://LeeSeshia.org>.
- Lee, E. A. and S. Tripakis, 2010: Modal models in Ptolemy. In *3rd International Workshop on Equation-Based Object-Oriented Modeling Languages and Tools (EOOLT)*, Linköping University Electronic Press, Linköping University, Oslo, Norway, vol. 47, pp. 11–21. Available from: <http://chess.eecs.berkeley.edu/pubs/700.html>.
- Lee, E. A. and P. Varaiya, 2011: *Structure and Interpretation of Signals and Systems*. LeeVaraiya.org, 2nd ed. Available from: <http://LeeVaraiya.org>.
- Lee, E. A. and H. Zheng, 2005: Operational semantics of hybrid systems. In Morari, M. and L. Thiele, eds., *Hybrid Systems: Computation and Control (HSCC)*, Springer-Verlag, Zurich, Switzerland, vol. LNCS 3414, pp. 25–53. doi:10.1007/978-3-540-31954-2\_2.
- , 2007: Leveraging synchronous language principles for heterogeneous modeling and design of embedded systems. In *EMSOFT*, ACM, Salzburg, Austria, pp. 114 – 123. doi:10.1145/1289927.1289949.
- Leung, M.-K., T. Mandl, E. A. Lee, E. Latronico, C. Shelton, S. Tripakis, and B. Lickly, 2009: Scalable semantic annotation using lattice-based ontologies. In *International Conference on Model Driven Engineering Languages and Systems (MODELS)*, ACM/IEEE, Denver, CO, USA. Available from: <http://chess.eecs.berkeley.edu/pubs/611.html>.
- Lickly, B., 2012: Static model analysis with lattice-based ontologies. PhD Thesis Technical Report No. UCB/EECS-2012-212, EECS Department, University of California, Berkeley. Available from: <http://www.eecs.berkeley.edu/Pubs/TechRpts/2012/EECS-2012-212.html>.
- Lickly, B., C. Shelton, E. Latronico, and E. A. Lee, 2011: A practical ontology framework for static model analysis. In *International Conference on Embedded Software (EMSOFT)*, ACM, pp. 23–32. Available from: <http://chess.eecs.berkeley.edu/pubs/862.html>.



- Lin, Y., R. Mullenix, M. Woh, S. Mahlke, T. Mudge, A. Reid, and K. Flautner, 2006: SPEX: A programming language for software defined radio. In *Software Defined Radio Technical Conference and Product Exposition*, Orlando. Available from: <http://www.eecs.umich.edu/~sdrp/publications.php>.
- Liskov, B. and S. Zilles, 1974: Programming with abstract data types. *ACM Sigplan Notices*, **9(4)**, 50–59. doi:10.1145/942572.807045.
- Liu, J., B. Wu, X. Liu, and E. A. Lee, 1999: Interoperation of heterogeneous CAD tools in Ptolemy II. In *Symposium on Design, Test, and Microfabrication of MEMS/MOEMS*, Paris, France. Available from: <http://ptolemy.eecs.berkeley.edu/publications/papers/99/toolinteraction/>.
- Liu, X. and E. A. Lee, 2008: CPO semantics of timed interactive actor networks. *Theoretical Computer Science*, **409(1)**, 110–125. doi:10.1016/j.tcs.2008.08.044.
- Liu, X., E. Matsikoudis, and E. A. Lee, 2006: Modeling timed concurrent systems. In *CONCUR 2006 - Concurrency Theory*, Springer, Bonn, Germany, vol. LNCS 4137, pp. 1–15. doi:10.1007/11817949\_1.
- Lynch, N., R. Segala, F. Vaandrager, and H. Weinberg, 1996: Hybrid I/O automata. In Alur, R., T. Henzinger, and E. Sontag, eds., *Hybrid Systems III*, Springer-Verlag, vol. LNCS 1066, pp. 496–510.
- Lzaro Cuadrado, D., A. P. Ravn, and P. Koch, 2007: Automated distributed simulation in Ptolemy II. In *Parallel and Distributed Computing and Networks (PDCN)*, Acta Press.
- Maler, O., Z. Manna, and A. Pnueli, 1992: From timed to hybrid systems. In *Real-Time: Theory and Practice, REX Workshop*, Springer-Verlag, pp. 447–484.
- Malik, S., 1994: Analysis of cyclic combinational circuits. *IEEE Transactions on Computer Aided Design of Integrated Circuits and Systems*, **13(7)**, 950–956.
- Manna, Z. and A. Pnueli, 1992: *The Temporal Logic of Reactive and Concurrent Systems*. Springer, Berlin.
- , 1993: Verifying hybrid systems. In *Hybrid Systems*, vol. LNCS 736, pp. 4–35.
- Maraninchi, F. and T. Bhouhadiba, 2007: 42: Programmable models of computation for a component-based approach to heterogeneous embedded systems. In *6th ACM International Conference on Generative Programming and Component Engineering (GPCE)*, Salzburg, Austria, pp. 1–3.

- Maraninchi, F. and Y. Rémond, 2001: Argos: an automaton-based synchronous language. *Computer Languages*, **(27)**, 61–92.
- Matic, S., I. Akkaya, M. Zimmer, J. C. Eidson, and E. A. Lee, 2011: Prides model on a distributed testbed emulating smart grid real-time applications. In *Innovative Smart Grid Technologies (ISGT-EUROPE)*, IEEE, Manchester, UK. Available from: <http://chess.eecs.berkeley.edu/pubs/857.html>.
- Matsikoudis, E., C. Stergiou, and E. A. Lee, 2013: On the schedulability of real-time discrete-event systems. In *International Conference on Embedded Software (EMSOFT)*, ACM, Montreal, Canada.
- Matthews, S. G., 1995: An extensional treatment of lazy data flow deadlock. *Theoretical Computer Science*, **151(1)**, 195–205.
- Messerschmitt, D. G., 1984: A tool for structured functional simulation. *IEEE Journal on Selected Areas in Communications*, **SAC-2(1)**.
- Mills, D. L., 2003: A brief history of NTP time: confessions of an internet timekeeper. *ACM Computer Communications Review*, **33**.
- Milner, R., 1978: A theory of type polymorphism in programming. *Journal of Computer and System Sciences*, **17**, 348–375.
- , 1980: *A Calculus of Communicating Systems*, vol. 92 of *Lecture Notes in Computer Science*. Springer.
- Misra, J., 1986: Distributed discrete event simulation. *ACM Computing Surveys*, **18(1)**, 39–65.
- Modelica Association, 2009: Modelica®- a unified object-oriented language for physical systems modeling: Language specification version 3.1. Report. Available from: <http://www.Modelica.org>.
- Moir, I. and A. Seabridge, 2008: *Aircraft Systems: Mechanical, Electrical, and Avionics Subsystems Integration*. AIAA Education Series, Wiley, third edition ed.
- Moreira, O., T. Basten, M. Geilen, and S. Stuijk, 2010: Buffer sizing for rate-optimal single-rate dataflow scheduling revisited. *IEEE Transactions on Computers*, **59(2)**, 188–201. doi:10.1109/TC.2009.155.

- Morris, J. H. and P. Henderson, 1976: A lazy evaluator. In *Conference on the Principles of Programming Languages (POPL)*, ACM.
- Mosterman, P. J. and H. Vangheluwe, 2004: Computer automated multi-paradigm modeling: An introduction. *Simulation: Transactions of the Society for Modeling and Simulation International Journal of High Performance Computing Applications*, **80(9)**, 433–450.
- Motika, C., H. Fuhrmann, and R. v. Hanxleden, 2010: Semantics and execution of domain specific models. In *Workshop Methodische Entwicklung von Modellierungswerkzeugen (MEMWe 2010) at conference INFORMATIK 2010*, Bonner Köllen Verlag, Leipzig, Germany, vol. GI-Edition – Lecture Notes in Informatics (LNI),.
- Murata, T., 1989: Petri nets: Properties, analysis and applications. *Proceedings of IEEE*, **77(4)**, 541–580. doi:10.1109/5.24143.
- Murthy, P. K. and S. S. Bhattacharyya, 2006: *Memory Management for Synthesis of DSP Software*. CRC Press.
- Murthy, P. K. and E. A. Lee, 2002: Multidimensional synchronous dataflow. *IEEE Transactions on Signal Processing*, **50(8)**, 2064–2079. doi:10.1109/TSP.2002.800830.
- Object Management Group (OMG), 2007: A UML profile for MARTE, beta 1. OMG Adopted Specification ptc/07-08-04, OMG. Available from: <http://www.omg.org/omgmarte/>.
- , 2008a: System modeling language specification v1.1. Tech. rep., OMG. Available from: <http://www.sysmlforum.com>.
- , 2008b: A UML profile for MARTE, beta 2. OMG Adopted Specification ptc/08-06-09, OMG. Available from: <http://www.omg.org/omgmarte/>.
- Olson, A. G. and B. L. Evans, 2005: Deadlock detection for distributed process networks. In *ICASSP*.
- Parks, T. M., 1995: Bounded scheduling of process networks. Ph.D. Thesis Tech. Report UCB/ERL M95/105, UC Berkeley. Available from: <http://ptolemy.eecs.berkeley.edu/papers/95/parksThesis>.
- Parks, T. M. and D. Roberts, 2003: Distributed process networks in Java. In *International Parallel and Distributed Processing Symposium*, Nice, France.

- Patel, H. D. and S. K. Shukla, 2004: *SystemC Kernel Extensions for Heterogeneous System Modelling*. Kluwer.
- Pino, J. L., T. M. Parks, and E. A. Lee, 1994: Automatic code generation for heterogeneous multiprocessors. In *International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, Adelaide, Australia, pp. 445–448. doi:10.1109/ICASSP.1994.389626.
- Pree, W. and J. Templ, 2006: Modeling with the timing definition language (TDL). In *Automotive Software Workshop San Diego (ASWSD) on Model-Driven Development of Reliable Automotive Services*, Springer, San Diego, CA, LNCS.
- Press, W. H., S. Teukolsky, W. T. Vetterling, and B. P. Flannery, 1992: *Numerical Recipes in C: the Art of Scientific Computing*. Cambridge University Press.
- Prochnow, S. and R. von Hanxleden, 2007: Statechart development beyond WYSIWYG. In *International Conference on Model Driven Engineering Languages and Systems (MoDELS)*, ACM/IEEE, Nashville, TN, USA.
- Ramadge, P. and W. Wonham, 1989: The control of discrete event systems. *Proceedings of the IEEE*, **77(1)**, 81–98.
- Reed, G. M. and A. W. Roscoe, 1988: Metric spaces as models for real-time concurrency. In *3rd Workshop on Mathematical Foundations of Programming Language Semantics*, London, UK, pp. 331–343.
- Rehof, J. and T. A. Mogensen, 1996: Tractable constraints in finite semilattices. In *SAS '96: Proceedings of the Third International Symposium on Static Analysis*, Springer-Verlag, London, UK, ISBN 3-540-61739-6, pp. 285–300.
- Rehof, J. and T. . Mogensen, 1999: Tractable constraints in finite semilattices. *Science of Computer Programming*, **35(2-3)**, 191–221.
- Ritchie, D. M. and K. L. Thompson, 1974: The UNIX time-sharing system. *Communications of the ACM*, **17(7)**, 365 – 375.
- Rodiers, B. and B. Lickly, 2010: Width inference documentation. Technical Report UCB/EECS-2010-120, EECS Department, University of California. Available from: <http://www.eecs.berkeley.edu/Pubs/TechRpts/2010/EECS-2010-120.html>.

- Sander, I. and A. Jantsch, 2004: System modeling and transformational design refinement in ForSyDe. *IEEE Transactions on Computer-Aided Design of Circuits and Systems*, **23(1)**, 17–32.
- Schruben, L. W., 1983: Simulation modeling with event graphs. *Communications of the ACM*, **26(11)**, 957–963.
- , 1995: Building reusable simulators using hierarchical event graphs. In *Winter Simulation Conference (WSC 95)*, IEEE Computer Society, Los Alamitos, CA, USA, ISBN 0-7803-3018-8, pp. 472–475.
- Shapiro, F. R., 2006: *The Yale Book of Quotations*. Yale University Press.
- Sih, G. C. and E. A. Lee, 1993a: A compile-time scheduling heuristic for interconnection-constrained heterogeneous processor architectures. *IEEE Transactions on Parallel and Distributed Systems*, **4(2)**, 175–187. doi:10.1109/71.207593.
- , 1993b: Declustering : A new multiprocessor scheduling technique. *IEEE Transactions on Parallel and Distributed Systems*, **4(6)**, 625–637. doi:10.1109/71.242160.
- Simitci, H., 2003: *Storage Network Performance Analytics*. Wiley.
- Smith, N. K., 1929: *Immanuel Kant's Critique of Pure Reason*. Macmillan and Co. Available from: <http://www.hkbu.edu.hk/~ppp/cpr/toc.html>.
- Som, T. K. and R. G. Sargent, 1989: A formal development of event graph models as an aid to structured and efficient simulation programs. *ORSA Journal on Computing*, **1(2)**, 107–125.
- Spönemann, M., H. Fuhrmann, R. v. Hanxleden, and P. Mutzel, 2009: Port constraints in hierarchical layout of data flow diagrams. In *17th International Symposium on Graph Drawing (GD)*, Springer, Chicago, IL, USA, vol. LNCS. Available from: <http://rtsys.informatik.uni-kiel.de/~biblio/downloads/papers/gd09.pdf>.
- Srini, V., 1986: An architectural comparison of dataflow systems. *Computer*, **19(3)**.
- Sriram, S. and S. S. Bhattacharyya, 2009: *Embedded Multiprocessors: Scheduling and Synchronization*. CRC press, 2nd ed.

- Stark, E. W., 1995: An algebra of dataflow networks. *Fundamenta Informaticae*, **22(1-2)**, 167–185.
- Stephens, R., 1997: A survey of stream processing. *Acta Informatica*, **34(7)**.
- Stuijk, S., M. C. Geilen, and T. Basten, 2008: Throughput-buffering trade-off exploration for cyclo-static and synchronous dataflow graphs. *IEEE Transactions on Computers*, **57(10)**, 1331–1345. doi:10.1109/TC.2008.58.
- Thies, W., M. Karczmarek, and S. Amarasinghe, 2002: StreamIt: A language for streaming applications. In *11th International Conference on Compiler Construction*, Springer-Verlag, Grenoble, France, vol. LNCS 2304. doi:10.1007/3-540-45937-5\_14.
- Thies, W., M. Karczmarek, J. Sermulins, R. Rabbah, and S. Amarasinghe, 2005: Teleport messaging for distributed stream programs. In *Principles and Practice of Parallel Programming (PPoPP)*, ACM, Chicago, USA. doi:10.1145/1065944.1065975.
- Tripakis, S., C. Stergiou, C. Shaver, and E. A. Lee, 2013: A modular formal semantics for Ptolemy. *Mathematical Structures in Computer Science*, **23**, 834–881. Available from: <http://chess.eecs.berkeley.edu/pubs/999.html>, doi:10.1017/S0960129512000278.
- Turjan, A., B. Kienhuis, and E. Deprettere, 2003: Solving out-of-order communication in Kahn process networks. *Journal on VLSI Signal Processing-Systems for Signal, Image, and Video Technology*, **40**, 7 – 18. doi:10.1007/s11265-005-4935-5.
- University of Pennsylvania MoBIES team, 2002: HSIF semantics (version 3, synchronous edition). Tech. Rep. Report, University of Pennsylvania.
- von der Beeck, M., 1994: A comparison of Statecharts variants. In Langmaack, H., W. P. de Roever, and J. Vytopil, eds., *Third International Symposium on Formal Techniques in Real-Time and Fault-Tolerant Systems*, Springer-Verlag, Lübeck, Germany, vol. 863 of *Lecture Notes in Computer Science*, pp. 128–148.
- von Hanxleden, R., 2009: SyncCharts in C - A proposal for light-weight deterministic concurrency. In *ACM Embedded Software Conference (EMSOFT)*, pp. 11–16. doi:10.1145/1629335.1629366.
- Wiener, N., 1948: *Cybernetics: Or Control and Communication in the Animal and the Machine*. Librairie Hermann & Cie, Paris, and MIT Press, Cambridge, MA.

- Xiong, Y., 2002: An extensible type system for component-based design. Ph.D. Thesis Technical Memorandum UCB/ERL M02/13, University of California, Berkeley, CA 94720. Available from: <http://ptolemy.eecs.berkeley.edu/papers/02/typeSystem>.
- Yates, R. K., 1993: Networks of real-time processes. In Best, E., ed., *Proc. of the 4th Int. Conf. on Concurrency Theory (CONCUR)*, Springer-Verlag, vol. LNCS 715.
- Zeigler, B., 1976: *Theory of Modeling and Simulation*. Wiley Interscience, New York.
- Zeigler, B. P., H. Praehofer, and T. G. Kim, 2000: *Theory of Modeling and Simulation*. Academic Press, 2nd ed.
- Zhao, Y., 2009: On the design of concurrent, distributed real-time systems. Ph.D. Thesis Technical Report UCB/EECS-2009-117, EECS Department, UC Berkeley. Available from: <http://www.eecs.berkeley.edu/Pubs/TechRpts/2009/EECS-2009-117.html>.
- Zhao, Y., E. A. Lee, and J. Liu, 2007: A programming model for time-synchronized distributed real-time systems. In *Real-Time and Embedded Technology and Applications Symposium (RTAS)*, IEEE, Bellevue, WA, USA, pp. 259 – 268. doi:10.1109/RTAS.2007.5.
- Zou, J., 2011: From ptides to ptidyos, designing distributed real-time embedded systems. PhD Dissertation Technical Report UCB/EECS-2011-53, UC Berkeley. Available from: <http://www.eecs.berkeley.edu/Pubs/TechRpts/2011/EECS-2011-53.html>.
- Zou, J., J. Auerbach, D. F. Bacon, and E. A. Lee, 2009a: PTIDES on flexible task graph: Real-time embedded system building from theory to practice. In *Languages, Compilers, and Tools for Embedded Systems (LCTES)*, ACM, Dublin, Ireland. Available from: <http://chess.eecs.berkeley.edu/pubs/531.html>.
- Zou, J., S. Matic, E. A. Lee, T. H. Feng, and P. Derler, 2009b: Execution strategies for Ptides, a programming model for distributed embedded systems. In *Real-Time and Embedded Technology and Applications Symposium (RTAS)*, IEEE, San Francisco, CA. Available from: <http://chess.eecs.berkeley.edu/pubs/529.html>.