Curriculum Vitae for Peter Sestoft

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Name, Address and Nationality:

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Born 25 June 1962 in Hellerup, Denmark. Nationality: Danish
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Education:

1981–1988	MSc in Computer Science and Mathematics, Copenhagen University
1989–1991	PhD in Computer Science, Copenhagen University

Employment:

1992–1994	Assistant professor, Technical University of Denmark
1995–2002	Associate professor, Royal Veterinary and Agricultural University, Denmark
2002–2007	Professor mso, Royal Veterinary and Agricultural University, and IT University of Copenhagen
1999–2008	Associate professor, IT University of Copenhagen, Denmark
2009–2014	Adjunct professor, Copenhagen University
Sept 2008–	Professor, IT University of Copenhagen, Denmark
2013–2016	Head of the Software and Systems Section, IT University of Copenhagen (ITU)
2017–	Head of the Computer Science Department, ITU, approx. 55 faculty and 65 PhDs and postdocs; during my tenure the faculty gender balance has improved dramatically.

Computer science interests:

Theory, implementation and principles of managed object-oriented programming languages, and of functional languages including spreadsheets. Concurrent and parallel programming. Abstract machines. Partial evaluation, abstract interpretation, program transformation. Software development and construction. Bioinformatics.

Some programs and systems:

Moscow ML, developed with colleagues in Moscow and Cambridge since 1993 and based on Caml Light from INRIA, France, is a Standard ML implementation used in teaching, research and industry.

C5, the most comprehensive collection library for the C# programming language [25].

The book [12] is among the roughly thousand most cited computer science publications, out of several million.

International experience:

Research stays abroad after PhD studies: AT&T Bell Labs, New Jersey, USA, 1994–1995; Microsoft Research, Cambridge UK, Sep–Dec 2001; Harvard University School of Engineering and Computer Science, Boston, USA, Mar–Jun 2009; Microsoft Research, Cambridge UK, Dec 2009.

Refereeing etc for international fora:

Organizer or programme committee member (or chair) for 20 international conferences and workshops.

Refereeing for international journals: Journal of Symbolic Computation; Journal of Logic Programming; Acta Informatica; Science of Computer Programming; Formal Aspects of Computing; Journal of Functional Programming; Computer Journal; ACM Transactions on Programming Languages and Systems; Lisp and Symbolic Computation; Theoretical Computer Science; Journal of Logic and Computation; Journal of Automated Software Engineering; Nordic Journal of Computing; Software Practice and Experience; Journal of Logic and Algebraic Programming.

PhD evaluation committees: Copenhagen University; Technical University of Denmark; Aarhus University; Chalmers University of Technology (Sweden); Royal Institute of Technology (Sweden); Edinburgh University; IT University of Copenhagen; University of Pisa; Luleå University; Aalborg University; École Normale Supérieure (Paris); University of New South Wales.

Evaluation of academic positions: Copenhagen University; Technical University of Denmark; Royal Institute of Technology (Stockholm); Royal Veterinary and Agricultural University, Denmark; Agricultural University of Norway; Copenhagen Business School; IT University of Copenhagen; Aalborg University; Roskilde University.

Letters of promotion for full professorships: Oregon State University; University of Illinois.

Member of the Ecma International standardization committee for C# and the Common Language Infrastructure, 2003–2006 and 2013–.

Member of the Danish national Research Council for Technology and Production (FTP) Aug 2007–Dec 2012; vice-chair Jan 2011–Dec 2012.

External evaluator for grant agencies in Australia, Austria, the Netherlands, and the United States.

Panel member for national science foundations in Sweden (2013), Norway (2012–2014) and Estonia (2022).

Member of the Danish Committees on Scientific Dishonesty 2014–2018.

Member of the Norwegian Research Council's FRINATEK grant committee 2014–2018.

Member of the Danish national Industrial PhD and Postdoc grant committee 2016–2021.

Member of the external examiner panels ("censorkorps") for computer science and for engineering since 1992.

External funding:

MSc thesis scholarship 1987–1988 from the Carlsberg Foundation; 75,000 DKK.

Personal PhD project grant 1989–1991 from the Danish Science Research Council (SNF); approx. 0.8m DKK.

Principal investigator of *Resource Constrained Embedded Systems* in collaboration with Technical University of Denmark and GN Resound; public IT Research Program 2000–2004, 4.2m DKK.

Co-principal investigator with Y. Dittrich of *Evolvable Software Products* in collaboration with Microsoft Development Center Denmark; public IT Research Program 2006–2008, 3.6m DKK.

Co-principal investigator with L. Birkedal of *Tools and Methods for Scalable Software Verification*; DFF-FTP 2009–2013, 5.4m DKK.

Co-principal investigator with M. Steffensen of *Actulus: Actuarial Calculus and Computing*, in collaboration with Edlund A/S and Department of Mathematics, Copenhagen University; HTF 2011–2015, 2.5m DKK out of the grant total 11.2m DKK.

Principal investigator of *Popular Parallel Programming (P3)*, in collaboration with Aalborg University DFF-FTP 2015-2018, 2.8m DKK out of the grant total 5.6m DKK.

Principal investigator of *Multicore and Heterogeneous Parallel Computing*, in collaboration with Chinese Academy of Sciences 2015-2018, 1.5m DKK from Sino-Danish University Center.

Co-principal investigator with M. Steffensen of *Probabli: Projection of Balances and Benefits in Life Insurance*, in collaboration with Edlund A/S and Department of Mathematics, Copenhagen University; Innovationsfonden 2018-2022, 2.9m DKK out of the grant total 9.1m DKK.

PhD supervision:

Main or sole supervisor of Andrzej Wasowski (PhD 2005, now full professor at IT University of Copenhagen); Ken Friis Larsen (PhD 2006, now associate professor at University of Copenhagen); Sebastien Vaucouleur (PhD 2009, now senior principal software engineer at Ariana Pharma, Paris); Anders Hessellund (PhD 2009, now at Deltek/Maconomy); Hannes Mehnert (PhD 2013, now postdoc at Cambridge University); David Raymond Christiansen (PhD 2015, now director of Haskell Foundation); Florian Biermann (PhD 2018, now at Simcorp, Copenhagen); Alexander Bock (PhD 2019); Holger Stadel Borum (ongoing, expected 2022).

Co-supervisor of Elfar Thorarinsson (PhD 2008, now senior systems architect); Hataichanok Unphon (PhD 2010, now lead developer at Mastercard); Jonas Buhrkal Jensen (PhD 2013, now research engineer at Github); Filip Sieczkowski (PhD 2014, now assistant professor at Wroclaw University).

MSc and BSc supervision:

Supervisor or co-supervisor at ITU for 165 MSc students since 2001 and 57 BSc students since 2010.

Publications in chronological order:

[1] N.D. Jones, P. Sestoft, and H. Søndergaard. An experiment in partial evaluation: The generation of a compiler generator. In J.-P. Jouannaud, editor, *Rewriting Techniques and Applications, Dijon, France. (LNCS 202)*, pages 124–140. Springer-Verlag, 1985.

[2] P. Sestoft. The structure of a self-applicable partial evaluator. In H. Ganzinger and N.D. Jones, editors, *Programs as Data Objects, Copenhagen, Denmark, 1985. (LNCS 217)*, pages 236–256. Springer-Verlag, 1986.

[3] P. Sestoft. Automatic call unfolding in a partial evaluator. In D. Bjørner, A.P. Ershov, and N.D. Jones, editors, *Partial Evaluation and Mixed Computation*, pages 485–506. North-Holland, 1988.

[4] N.D. Jones, P. Sestoft, and H. Søndergaard. Mix: A self-applicable partial evaluator for experiments in compiler generation. *Lisp and Symbolic Computation*, 2(1):9–50, 1989.

[5] P. Sestoft. Replacing function parameters by global variables. In *Fourth International Conference on Functional Programming Languages and Computer Architecture, Imperial College, London*, pages 39–53. ACM Press, September 1989.

[6] H. Søndergaard and P. Sestoft. Referential transparency, definiteness and unfoldability. *Acta Informatica*, 27:505–517, 1990.

[7] C.K. Gomard and P. Sestoft. Globalization and live variables. In *Partial Evaluation and Semantics-Based Program Manipulation, New Haven, Connecticut (Sigplan Notices, vol. 26, no. 9, September 1991)*, pages 166–177. ACM, 1991.

[8] C.K. Gomard and P. Sestoft. Evaluation order analysis for lazy data structures. In R. Heldal, C. Kehler Holst, and P. Wadler, editors, *Functional Programming, Glasgow 1991*, pages 112–127. Springer-Verlag, 1992.

[9] C.K. Gomard and P. Sestoft. Path analysis for lazy data structures. In M. Bruynooghe and M. Wirsing, editors, *Programming Language Implementation and Logic Programming, 4th International Symposium, PLILP '92, Leuven, Belgium. (LNCS 631)*, pages 54–68. Springer-Verlag, 1992.

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[11] Z. Chaochen, M.R. Hansen, and P. Sestoft. Decidability and undecidability results for duration calculus. In P. Enjalbert, A. Finkel, and K.W. Wagner, editors, *STACS 93. 10th Symposium on Theoretical Aspects of Computer Science, Würzburg, Germany, February 1993. (LNCS 665)*, pages 58–68. Springer-Verlag, 1993.

[12] N.D. Jones, C.K. Gomard, and P. Sestoft. *Partial Evaluation and Automatic Program Generation*. Englewood Cliffs, NJ: Prentice Hall, 1993. At http://www.itu.dk/people/sestoft/pebook/pebook.html.

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[15] P. Sestoft. Deriving a lazy abstract machine. *Journal of Functional Programming*, 7(3):231–264, May 1997.

[16] S. Romanenko, C. Russo, and P. Sestoft. *Moscow ML Owner's Manual, version 2.00*, June 2000. 35 pages.

[17] S. Romanenko, C. Russo, and P. Sestoft. *Moscow ML Language Overview, version 2.00*, June 2000. 24 pages.

[18] S. Diehl, P. Hartel, and P. Sestoft. Abstract machines for programming language implementation. *Future Generation Computer Systems*, 16(7):739–751, May 2000.

[19] P. Sestoft. Demonstrating lambda calculus reduction. In T. Mogensen, D. Schmidt, and I. H. Sudborough, editors, *The Essence of Computation: Complexity, Analysis, Transformation. Essays Dedicated to Neil D. Jones. (LNCS 2566)*, pages 420–435. Springer-Verlag, 2002.

[20] P. Sestoft. *Java Precisely*. Cambridge, MA: The MIT Press, May 2002.

[21] E. Danielsen, L. Elkjær Jørgensen, and P. Sestoft. Monte Carlo simulations of PAC-spectra as a general approach to dynamic interactions. *Hyperfine Interactions*, 142:607–626, 2002.

[22] A.L. Gimsing, O.K. Borggaard, and P. Sestoft. Modeling the kinetics of the competitive adsorption and desorption of glyphosate and phosphate on goethite and gibbsite and in soils. *Environmental Science and Technology*, 38(6):1718–1722, March 2004.

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[24] P. Sestoft. *Java Precisely*. Cambridge, MA: The MIT Press, second edition, August 2005.

[25] Niels Kokholm and Peter Sestoft. The C5 Generic Collection Library for C# and CLI. Technical Report ITU-TR-2006-76, IT University of Copenhagen, January 2006. 254 pages.

[26] P. Sestoft, editor. *Programming Languages and Systems. 15th European Symposium on Programming, ESOP 2006, Vienna, Austria*, volume 3924 of *Lecture Notes in Computer Science*. Springer-Verlag, 2006.

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[32] Anders Hessellund and Peter Sestoft. Flow analysis of code customizations. In J. Vitek, editor, *European Conference on Object-Oriented Programming (ECOOP) 2008, LNCS 5142*, pages 285–308. Springer-Verlag, 2008.

[33] Rasmus Johansen, Peter Sestoft, and Stephan Spangenberg. Zero-overhead composable aspects for .NET. In E. Börger and A. Cisternino, editors, *Advances in Software Engineering. LNCS 5316*, pages 185–215. Springer-Verlag, 2008.

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[35] Jonas Braband Jensen, Lars Birkedal, and Peter Sestoft. Modular verification of linked lists with views via separation logic. In *12th Workshop on Formal Techniques for Java-like Programs*, June 2010.

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[38] H. Mehnert, F. Sieczkowski, L. Birkedal, and P. Sestoft. Formalized verification of snapshotable trees: Separation and sharing. In *Verified Software: Theories, Tools, Experiments - 4th International Conference, VSTTE 2012*, volume 7152 of *Lecture Notes in Computer Science*, pages 179–195, 2012.

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[45] Christian Harrington, Nicolai Dahl, Peter Sestoft, and David Christiansen. Pension reserve computations on GPUs. In *Third ACM SIGPLAN workshop on Functional High-Performance Computing, Gothenburg, Sweden*, September 2014.

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[51] Florian Biermann and Peter Sestoft. Quad ropes: Immutable, declarative arrays with parallelizable operations. In *ACM SIGPLAN International Workshop on Libraries, Languages and Compilers for Array Programming*, 2017.

[52] Florian Biermann, Wensheng Dou, and Peter Sestoft. Rewriting high-level spreadsheet structures into higher-order functional programs. In *International Symposium on Practical Aspects of Declarative Languages*, 2018.

[53] Alexander Bock, Thomas Bøgholm, Peter Sestoft, Bent Thomsen, and Lone Leth Thomsen. On the semantics for spreadsheets with sheet-defined functions. *Journal of Computer Languages*, 57(100960), 2020. DOI https://doi.org/10.1016/j.cola.2020.100960.

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[56] Alexander Bock, Thomas Bøgholm, Peter Sestoft, Bent Thomsen, and Lone Leth Thomsen. On the cost semantics for spreadsheets with sheet-defined functions. *Journal of Computer Languages*, 69(101103), April 2022. DOI https://doi.org/10.1016/j.cola.2022.101103.