CV: Prof. Lars M. Kristensen, PhD

Personal Information

Name: Lars M. Kristensen   Date of Birth: September 1, 1971
Civil status: Married, two children   Nationality: Danish
Email: lmkr@hib.no   Homepage: home.hib.no/ansatte/lmkr

Academic Degrees

- MSc in Computer Science and Mathematics, University of Aarhus, Denmark, June 1997.
- PhD in Computer Science, University of Aarhus, Denmark, April 2000.

Academic Career

02/2009 – present   Professor, Department of Computing, Bergen University College.
07/2007 – 01/2009 Associate Professor, Dept. of Comp. Science, University of Aarhus.
04/2005 – 06/2007 Research Associate Professor, Dept. of Comp. Science, University of Aarhus.
09/2002 – 03/2005 Research Assistant Professor, Dept. of Comp. Science, University of Aarhus.
08/2000 – 08/2002 Research Fellow, Computer Systems Engineering Centre, University of South
                         Australia / Australian Defence Science and Technology Organisation.
02/2000 – 08/2000 Research Assistant Professor, Dept. of Comp. Science, University of Aarhus.

Research Projects and Grants

- T. Røkenes, L.M. Kristensen, P. Trefall, and R. Herhim. *The SIMSubsea game-based Learning Application*. **Partner Investigator**. Supported by Bergen University College, One Subsea, Aker Solutions, FMC Technologies, NCE Subsea. 2.5 MNOK, 2012-2015.
- T. Ågotnes, H. Helstrup, Y. Lamo, and L.M. Kristensen. *FormGRID: Formal Verification of GRID Systems.* **Partner Investigator**. Supported by the Norwegian Research Council. NOK 4,100,000. 2010 – 2014.
- K. Grønbæk, L.M. Kristensen, K.M. Hansen, and L.A. Arge. *A Platform for Galileo Based Pervasive Positioning*. **Joint Primary Investigator**. Supported by the Danish National Advanced Technology Foundation. DKR 5,800,000 (University of Aarhus part). 2007 – 2010.
- L.M. Kristensen. *SensoByg : Sensor-based Surveillance in the Construction Industry.* **Primary Investigator**. Innovation consortium supported by the Danish Agency for Science, Technology and Innovation. DKR 1,800,000 (University of Aarhus part). 2007 – 2010.
- L.M. Kristensen. *Advanced State Space Methods and Computer Tools for Verification of Communication Protocols.* **Primary Investigator**. Project Grant. Danish Research Council for Technology and Production. DKR 4,000,000. 2006 – 2009.
- L.M. Kristensen, I. Thysen, J. Pagter, B. Magnussen, L. Personen, M. Gilbertsson, and T. Bak. *Mobile Internet Services for Online Support of Agricultural Machinery.* **Joint Primary Investigator.** Nordunet 3 Programme of the Nordic Natural Science Research Council. DKR 1,500,000. 2006 – 2009.
- L.M. Kristensen. *Development and Validation of Communication Protocols for Mobile Ad-hoc Networking.* **Primary Investigator.** Carlsberg Foundation. DKR 1,100,000. 2005 – 2007.
- K.M. Hansen and L.M. Kristensen. *Architecture for Communication between Mobile and Stationary Devices.* **Joint Primary Investigator**. Project Grant from ISIS Katrinebjerg. DKR 2,800,000. 2003 – 2006.
- L.M. Kristensen. *Formal Methods and Computer Tools for the Development of Communication Protocols.* **Primary Investigator.** Steno Grant. Danish Natural Science Research Council. DKR 1,771,000. 2002 – 2005.
- J. Billington and L.M. Kristensen. *Sweep-line State Space Methods for the Verification of Concurrent and Distributed Systems.* **Primary Researcher**. Discovery Grant from the Australian Research Council. 2001 – 2004.

- L.M. Kristensen. *Information Infrastructure for Electronic Commerce.* **Primary Investigator.** Post Doc. Grant. Danish Natural Science Research Council. DKR 210,000. 2001 – 2002.

Selected Programme, Steering Committees, and Editorial Boards

- International Conference on Application and Theory of Petri Nets and Other Models of Concurrency, 2002, 2007,2008,2009,2010, 2011 (PC co-chair), 2012, 2015
- French Singaporean Workshop on Formal Methods and Applications, 2013, 2014
- IEEE International Conference on Mobile Ad-hoc and Sensor Systems, 2011, 2012.
- International Workshop on Petri Nets and Software Engineering, 2009-2014.
- International Workshop on Sensor Networks and Ambient Intelligence, 2008, 2009, 2012, 2013
- International Workshop on Network Simulation Tools, 2009.
- International Workshop on Localized Algorithms and Protocols for Wireless Sensor Networks, 2007, 2009.
- European Conference on Modelling and Simulation, 2008.
- International Conference on Distributed Computing, Applications and Technologies, 2008.
- International Workshop on Petri Nets and Distributed Systems, 2008
- International Workshop on Teaching Concurrency, 2007.
- International SPIN Workshop on Model Checking of Software, 2006.
- International Workshop on Formal Methods Applied to Defence Systems, 2002 (PC co-chair).
- Guest co-editor on special issue of Fundamenta Informaticae journal based on Petri Nets 2011.
- Guest co-editor on special volume of the LNCS Transaction on Petri Nets and Other Models of Concurrency on Protocols, Networks, and Services, 2012
- Member of the editoral board for Transactions on Petri Nets and Other Models of Concurrency (ToPNoC), a subseries of Lecture Notes in Computer Science (LNCS) published by Springer.
- Member of the steering committee for the International Conference on Application and Theory of Petri Nets and Concurrency.
- Reviewer for more than 30 international journals, conferences, and workshops.
- Reader of Grant Applications for the Swiss and Czech Science Foundations.

Bachelor and Master's Thesis Supervision:

- Supervision of two honors thesis at University of South Australia, three bachelor projects at Bergen University College, 23 master's theses in Computer Science at University of Aarhus, 3 master's theses in software engineering at Bergen University College, and currently supervising six master's projects at Bergen University College.

PhD Supervision and Examination:

- Currently supervising three PhD research fellow and projects within concurrent software systems modeling and verification at Bergen University College. Expected completion 2014, 2016, and 2017.
- M.T. Hansen. *Efficient Protocols and Middleware for Sensor Networks*. 2008-2009 (supervision ended with move to Bergen University College). Degree awarded 2012.
- J. Andersen. *Medical Sensor Network Infrastructures*. 2006-2010. Degree awarded 2010.
- J. Brøndsted. *Software Architecture and Communication in Mobile Environments*, University of Aarhus, 2004-2008. Supervised with K.M. Hansen. Degree awarded 2008.
- M. Westergaard. *Model Checking and State Space Methods*. University of Aarhus, 2003-2007. Jointly supervised with K. Jensen. Degree awarded 2007.
- C. Ouyang. *The Internet Open Trading Protocol*. University of South Australia, 2000-2002. Co-supervised with Prof. Jonathan Billington. Degree awarded 2004.
- Associate supervisor for Ph.D. students: S. Gordon, L. Liu, B. Han, and A. Singh, University of South Australia, 2000-2002. Main supervisor was Prof. Jonathan Billington.
- Examiner (opponent) on 12 PhD theses (Denmark, Germany, Australia, and Norway)

Research Management and Administrative Experience

- Acting Deputy Dean of Research at the Faculty of Engineering, Bergen University College, November 2013 – April 2014.
- Director of the strategic research program on Software Technologies for Distributed Systems at Bergen University College, 2009 – present
- Member of the steering committee for the HiB-UiB joint master's degree in software engineering, 2012-present
- Member of the teaching committee for the Bachelor Programme in Computing and Information Technology at Bergen University College, 2012 - present
- Completed 3x3 day Research Leadership Programme organised by the research administration of University of Oslo, November 2011 – March 2012.
- Chair of the teaching committee for the Bachelor Programme in Computing and Information Technology at Bergen University College, 2010 - 2012
- Member of the PhD commitee, Computer Science Department, Aarhus University, 2007-2009.
- Member of the teaching commitee for technical IT, electrical, and optical engineering, Aarhus Graduate School of Engineering (2008-2009).
- Member of the Danish Censor Corpus for Computer Science, 2006-2009.
- Member of the steering commitee for the SensoByg innovation consortium under the Danish Agency for Science, Technology, and Innovation, 2007-2009.
- Member of the Departmental Advisory Board, Department of Computer Science, University of Aarhus, 2004- 2009.

Awards

The Research and Development Prize of Bergen University College, 2012. The prize is awarded to researchers at Bergen University College that have succeeded in research and development work of high quality in a regional and in an international context.

The Danish Independent Research Councils' Young Researcher's Award, 2007. The award was given in relation to the project *Advanced State Space Methods and Computer Tools for Verification of Communication Protocols*. The award is given to talented young researchers below the age of 35 who have earned recognition for their work to such an extent that is unusual for their age.

Selected Invited Talks and Tutorials

1. L.M. Kristensen. From Executable Simulation Models to Executable Protocol Software. Invited talk at International Conference on Simulation Tools and Techniques, Lisbon, 2014.
2. L.M. Kristensen. Coloured Petri Nets. Invited tutorial at the International Conference on Application and Theory of Petri Nets, 2012, 2013, 2014.
3. L.M. Kristensen. State Spaces and Protocol Verification. Invited lecture shared with W. Penczek at the 5th Advanced Course and PhD School on Petri Nets, Rostock, Germany, 2010.
4. L.M. Kristensen. Explicit State Space Exploration of Coloured Petri Nets: Past, Present, and Future. Invited talk at ICATPN'2010, Braga, Portugal, 2010.
5. M.Westergaard and L.M. Kristensen. State Space Exploration and the ASAP Model Checking Platform. Tutorial at the ICATPN'2010, Braga, Portugal, 2010.
6. L.M. Kristensen. The ASAP Platform: Next Generation Tool Support for State Space Analysis of CPN Models. Invited talk at International Workshop on Petri Nets and Distributed Systems, Xian, China, 2008.
7. L.M. Kristensen: *Modelling and Validation of Communication Protocols using Coloured Petri Nets*. Ph.D. School on Verification of Protocols for Security and Mobility. IT University of Copenhagen. October 2006.

Selected Recent Publications (2009 – 2014)

Google scholar summary: Citations = 2847 and h-index = 22 [http://scholar.google.com/citations?user=-fjTtjIAAAAJ&hl=en]

Textbooks and proceedings

1. L.M. Kristensen, W. Penczek, and L. Petrucci. Application and Theory of Petri Nets, Special issue of Fundamenta Informaticae, Vol. 122, No-1-2, IOS Press, 2013.**Level 1.**
2. Wil M. van der Aalst, M. Ajmone Marsan, G. Franceschinis, J. Kleijn, L.M. Kristensen (Eds). Transactions on Petri Nets and Other Models of Concurrency VI. Special issue on Best Papers from Petri Nets 2012 with special section on Networks, Protocols, and Services. Subseries of Lecture Notes in Computer Science, LNCS Vol 7400, Springer, 2012. **Level 1.**
3. L.M. Kristensen and L. Petrucci (Eds.). Proc. of 32nd International Conference on Application and Theory of Petri Nets and Other Models of Concurrency. Vol. 6709 of Springer Lectures Notes in Computer Science, 2011. **Level 1.**
4. K. Jensen and L.M. Kristensen. *Coloured Petri Nets – Modelling and Validation of Concurrent Systems*. Springer, July 2009. **Level 1.**

Peer-reviewed international journals (Level 1 or Level 2 publications)

1. K. Jensen and L.M. Kristensen: Coloured Petri Nets: A Graphical Language for Formal Modelling and Validation of Concurrent Systems. Accepted for Communication of the **ACM. Level 2**.
2. A. Kumar, L.M. Kristensen, and K. Ovsthus. An Industrial Perspective on Wireless Sensor Networks - A Survey of Requirements, Protocols, and Challenges. To appear in IEEE Communications Survey and Tutorials, 2014. **Level 1**.
3. S. Evangelista and L.M. Kristensen. A Sweep-Line Method for Buchi Automata-based Model Checking. To appear in Fundamenta Informaticae, 2014. **Level 1.**
4. A. Kumar, L.M. Kristensen, and K. Ovsthus. An Industrial Perspective on Wireless Sensor Networks - A Survey of Requirements, Protocols, and Challenges. To appear in IEEE Communications Survey and Tutorials, 2013. **Level 1.**
5. S. Evangelista and L.M. Kristensen. Dynamic State Space Partitioning for External Memory State Space Exploration. Vol. 78, Issue 7 of Science of Computer Programming, pp. 778-795, Elsevier, 2013. **Level 2**
6. L.M. Kristensen and K. Simonsen. Application of Coloured Petri Nets for Functional Validation of Protocol Designs. In Transactions on Petri Nets and Other Models of Concurrency, LNCS Vol. 7480, pp. 56-115, Springer, 2013. **Level 1.**
7. K. Jensen, L.M. Kristensen, and T. Mailund. The Sweep-line State Space Exploration Method. In Theoretical Computer Science, Elsevier, 2012 (in press). **Level 2**
8. M. Westergaard and L.M Kristensen. A Graphical Approach to Component-based and Extensible Model Checking Platforms. Accepted for LNCS Transactions on Petri Nets and Other Models of Concurrency, Springer, 2011. **Level 1.**
9. S. Evangelista and L.M. Kristensen. Search-Order Independent State Caching. In LNCS Transactions on Petri Nets and Other Models of Concurrency. Vol 4, pp. 21-41, Springer, 2010. **Level 1.**
10. P. Fleischer and L.M. Kristensen. Modelling and Validation of Secure Connection Establishment in a Generic Access Network Scenario. In Vol. 94, No. 3-4 of Fundamenta Informaticae, pp. 361-386, IOS Press, 2009. **Level 1.**
11. S. Evangelista, M.Westergaard, and L.M. Kristensen The ComBack Method Revisited: Caching Strategies and Extension with Delayed Duplicate Detection. In of LNCS Transactions on Petri Nets and Other Models of Concurrency Vol. 3, pp. 189-215, Springer, 2009. **Level 1.**

Peer-reviewed international conference papers (All level 1 publications)

1. L.M. Kristensen. Investigating Optimal Progress Measures for Verification of the WebSocket Protocol. Accepted for the Norwegian Informatics Conference, 2014.
2. A. Kumar, K. Ovsthus, and L.M. Kristensen. Towards a Dual-mode Adaptive MAC Protocol (DMA-MAC) for Feedback-based Networked Control Systems. In Procedia Computer Science, 2014, Vol. 34, pp. 505-510.
3. K. Simonsen and L.M. Kristensen. Implementing the WebSocket Protocol based on Formal Modelling and Automated Code Generation. To appear in IFIP Conference on Distributed Systems and Interoperable Systems. Springer Lecture Notes in Computer Science, 2014.
4. A. Kumar, L.M. Kristensen, and K. Ovsthus: A Formal Executable Specification of the GinMAC Protocol for Wireless Sensor Actuator Networks. In Proc. of 8th Int. Symposium on Wireless Pervasive Computing, IEEE Computer Society, 2013. To Appear.
5. K. Simonsen, E. Kindler, and L.M. Kristensen. Generating Protocol Software from CPN Models annotated with Pragmatics. In Proc. of SBMF'13. Vol. 8295 of Lecture Notes in Computer Science, pp. 227-242, Springer 2013.
6. S. Evangelista, L.M. Kristensen, and L. Petrucci. Multi-threaded Explicit State Space Exploration with State Reconstruction. In Proc. of ATVA'2013. Vol. 8172 of Lecture Notes in Computer Science, pp. 208-223, 2013.
7. K. Simonsen and L.M. Kristensen. Towards a CPN-based Modelling Approach for Reconciling Verification and Implementation of Protocol Models. In Proc. of 8th International Workshop on Model-based Methodologies for Pervasive and Embedded Software. LNCS Vol. 7706, pp. 106-125, Springer, 2013.
8. S. Evangelista and L.M. Kristensen. Hybrid LTL Model Checking with the Sweep-Line Method. Accepted for International Conference on Application and Theory of Petri Nets (ICATPN), Proceedings published in LNCS series, Springer, 2012.
9. S.Taktak and L.M. Kristensen. Formal Modelling and Initial Validation of the Chelonia Distributed Storage System: In Proc. of International Conference on Grid and Pervasive Computing. Vol. 6646 of LNCS, pp 127-137, Springer, 2011.
10. L.M. Kristensen: A Perspective on Explicit State Space Exploration of Coloured Petri Nets: Past, Present, and Future. In Proc. of ICATPN'10, Vol. 6128 of LNCS, pp. 39-42, Springer, 2010. Invited talk

11. M. Westergaard, L.M. Kristensen, and M. Kuusela. Towards Cosimulating SystemC and Coloured Petri Net Models for SoC Functional and Performance Evaluation. In Proc. of 21st European Modeling and Simulation Symposium. September 2009.
12. L. M. Kristensen and M. Westergaard: Automatic Structure-Based Code Generation from Coloured Petri Nets: A Proof of Concept. In Formal Methods for Industrial Critical Systems (FMICS), Vol. 6371 of LNCS, pp. 215-230, Springer, 2010.
13. S. Evangelista and L.M. Kristensen. Dynamic State Space Partitioning for External Memory Model Checking. In Proc. of Formal Methods for Industrial Critical Systems (FMICS), Vol. 5825 of LNCS, pp. 70-85. Springer, 2009.
14. M. Westergaard, S. Evangelista, and L.M. Kristensen. ASAP: An Extensible Platform for State Space Analysis. In Proc. of ICATPN, Vol. 5606 of LNCS, pp. 303-312. Springer, 2009.
15. M. Westergaard and L.M. Kristensen. The Access/CPN Framework: A Tool for Interacting with the CPN Tools Simulator. In Proc. of ICATPN, Vol. 5606 of LNCS, pp. 313-322. Springer-Verlag, 2009.

In addition: A total of 31 peer-reviewed publications in international workshops.