

Ulrik M. Nyman - Curriculum Vitæ

Personal Information

Ulrik Mathias Nyman
Doravej 45 st. th.
9000 Aalborg
Born: 2nd of December 1978
Married to Tina, Father of Mads (2005) and
Ida Mai (2008)

Phone: 40 89 21 56
Email: ulrik@cs.aau.dk

Education

2008 Received a Ph.d. degree in computer science from Aalborg University.
2004 - 2007 Ph.d. student at Aalborg University affiliated with CISS (Center for Indlejrede Software Systemer).
1998 - 2003 Master of Computer Science at Aalborg University (cand.scient.dat.)

Research Projects

RECOMP: EU Artemis project. Responsible for coordinating two deliverables.
CRAFTERS: EU Artemis project. Coordination of small research team (2 postdocs) and in charge of contributions to deliverables.
ITOS: Danish National Confederation of Industries project. Extensive communication with involved companies. Co-editor of final project deliverable.
MULTI-CORE-SAFETY: PI for *Compositional Verification of Real-time MULTI-CORE SAFETY Critical Systems* a DFF-1 project funded by Danish Council for Independent Research.

Teaching Experience

Courses: Test and Verification, IT-tools, Programming in Java, Introductory course on C-programming.
Supervision: Extensive experience as a project supervisor for more than 30 groups.
Coordination: Semester coordinator for SW6 for two years.
Planning: Research group representative in Teaching Planning Committee.

Work Experience

2012 - present Associate Professor at the Department of Computer Science, Aalborg University
2009 - 2012 Assistant Professor at the Department of Computer Science, Aalborg University
2007 - 2009 Scientific Assistant at the Department of Computer Science, Aalborg University
2004 - 2007 Ph.d. student at Aalborg University affiliated with CISS (Center for Indlejrede Software Systemer)
2003 - 2004 Research assistant. For CISS on Uppaal and visualSTATE.

Programming Experience

Languages Java, C++, PHP, C, Standard ML

Other SCI (Scalable Coherent Interface), MPI (Message Passing Interface), Model Checking, Timed Automata, Uppaal, SPIN, visualSTATE, Coloured Petri Net, DesignCPN.

Language Skills

Danish as mother tongue. English fluently (written and verbal). Swedish, good verbal skills.

Workshop Organization

Copenhagen Meeting on Modal Transition Systems Held September 20th, 2007 at ITU Copenhagen. Organizer.

FIT2008 Foundations of Interface Technologies 2008, Held April 5th 2008 at ETAPS 2008 in Budapest. Organizer.

AiSoS2013 First workshop on Advances in Systems of Systems. To be held March 16th 2013 at ETAPS 2013 in Rome. PC Chair.

Journal Contributions

- 1 *A Modal Specification Theory for Components with Data**, Bauer, Sebastian S. ; Larsen, Kim Guldstrand ; Legay, Axel ; Nyman, Ulrik ; Wasowski, Andrzej. Special issue of Science of Computer Programming devoted to FACS 2011. Vol. 83, 01.04.2014, p. 106-128. **Extended version of the Best Paper from FACS 2011**
- 2 *Compositional verification of real-time systems using Ecdar*, David, Alexandre ; Larsen, Kim Guldstrand ; Møller, Mikael H. ; Nyman, Ulrik ; Ravn, Anders P. ; Skou, Arne ; Legay, Axel ; Wasowski, Andrzej. In: International Journal on Software Tools for Technology Transfer Volume 14 Number 6. Pages 703-720. June 2012.
- 3 *Modal and Mixed Specifications: Key Decision Problems and their Complexities*, Antonik, Adam ; Huth, Michael ; Larsen, Kim Guldstrand ; Nyman, Ulrik ; Wasowski, Andrzej. In: Mathematical Structures in Computer Science, Volume 20, Special Issue 01, p. 75-103. 2010
- 4 *Modeling software product lines using color-blind transition systems*, Larsen, Kim Guldstrand ; Nyman, Ulrik ; Wasowski, Andrzej. In: International Journal on Software Tools for Technology Transfer Volume 9 Number 5-6. Pages 471-487. October 2007.

Refereed Conference Papers

- 5 *Flexible Framework for Statistical Schedulability Analysis of Probabilistic Sporadic Tasks*, Boudjadar, Jalil; David, Alexandre; Kim, Jin Hyun; Larsen, Kim Guldstrand; Nyman, Ulrik; Skou, Arne; Mikucionis, Marius; Lee, Insup, Phan, Linh Thi Xuan. **Accepted for publication at ISORC 2015**

- 6 *Compositional Schedulability Analysis of An Avionics System Using UPPAAL*, Boudjadar, Jalil; Larsen, Kim Guldstrand; Kim, Jin Hyun; Nyman, Ulrik. In: Proceedings of ICAASE 2014. 2014.
- 7 *Degree of Schedulability of Mixed-Criticality Real-time Systems with Probabilistic Sporadic Tasks*, Boudjadar, Jalil; David, Alexandre; Kim, Jin Hyun; Larsen, Kim Guldstrand; Nyman, Ulrik; Skou, Arne; Mikucionis, Marius. In: Proceedings of TASE 2014. 2014.
- 8 *Hierarchical Scheduling Framework Based on Compositional Analysis Using Uppaal*, Boudjadar, Jalil; David, Alexandre; Kim, Jin Hyun; Larsen, Kim Guldstrand; Mikucionis, Marius; Nyman, Ulrik; Skou, Arne. In: Proceedings of FACS 2013. 2014.
- 9 *Model Checking Process Algebra of Communicating Resources for Real-time Systems*, Boudjadar, Jalil; Kim, Jin Hyun; Larsen, Kim Guldstrand; Nyman, Ulrik. In: Proceedings of ECRTS 2014. 2014.
- 10 *Schedulability and Energy Efficiency for Multi-core Hierarchical Scheduling Systems*, Boudjadar, Jalil; David, Alexandre; Kim, Jin Hyun; Larsen, Kim Guldstrand; Nyman, Ulrik; Skou, Arne. In: Proceedings of ERTS2 2014. 2014.
- 11 *Widening the Schedulability Hierarchical Scheduling Systems*, Boudjadar, Jalil; David, Alexandre; Kim, Jin Hyun; Larsen, Kim Guldstrand; Nyman, Ulrik; Mikucionis, Marius; Skou, Arne. In: Proceedings of FACS 2014. 2014.
- 12 *Moving from Specifications to Contracts in Component-based Design*, Bauer, Sebastian ; David, Alexandre ; Hennicker, Rolf ; Larsen, Kim Guldstrand ; Legay, Axel ; Nyman, Ulrik ; Wasowski, Andrzej. In: Fundamental Approaches to Software Engineering 15th International Conference, FASE 2012. Lecture Notes in Computer Science, Vol. 7212, 2012. Pages 43-58.
- 13 *ECDAR: An Environment for Compositional Design and Analysis of Real Time Systems*, David, Alexandre ; Larsen, Kim Guldstrand ; Nyman, Ulrik ; Legay, Axel ; Wasowski, Andrzej. In: Automated Technology for Verification and Analysis, Lecture Notes in Computer Science, Vol. 6252, 2010, Pages 365-370.
- 14 *Timed I/O Automata: A Complete Specification Theory for Real-time Systems*, David, Alexandre ; Larsen, Kim Guldstrand ; Legay, Axel ; Nyman, Ulrik ; Wasowski, Andrzej. In: Proceedings of the 13th ACM international conference on Hybrid systems: computation and control : HSCC '10. Association for Computing Machinery, 2010.
- 15 *Complexity of Decision Problems for Mixed and Modal Specifications*, Antonik, Adam ; Huth, Michael ; Larsen, Kim Guldstrand ; Nyman, Ulrik ; Wasowski, Andrzej. In: Foundations of Software Science and Computational Structures : 11th International Conference, FOSSACS 2008. Springer Verlag, 2008. p. 112-126 (Lecture Notes in Computer Science; 4962).
- 16 *On Modal Refinement and Consistency*, Larsen, Kim Guldstrand ; Nyman, Ulrik ; Wasowski, Andrzej. In: CONCUR 2007 - Concurrency Theory. Berlin / Heidelberg : Springer, 2007. p. 105-119 (Lecture Notes in Computer Science; 4703).
- 17 *Modal I/O Automata for Interface and Product Line Theories*, Larsen, Kim Guldstrand ; Nyman, Ulrik ; Wasowski, Andrzej. In: Programming Languages and Systems : 16th European Symposium on Programming, ESOP 2007. Berlin : Springer, 2007. p. 64-79 (Lecture Notes in Computer Science; 4421).

- 18 *Interface Input/Output Automata*, Larsen, Kim Guldstrand ; Nyman, Ulrik ; Wasowski, Andrzej. In: FM 2006: Formal Methods : 14th International Symposium on Formal Methods, Hamilton, Canada, August 21-27, 2006 Proceedings. Berlin : Springer, 2006. p. 82-97 (Lecture Notes in Computer Science; 4085).
- 19 *Color-blind Specifications for Transformations of Reactive Synchronous Programs*, Larsen, Kim Guldstrand ; Larsen, Ulrik ; Wasowski, Andrzej. In: Fundamental Approaches to Software Engineering: 8th International Conference, FASE 2005, Proceedings. Berlin / Heidelberg : Springer, 2005. p. 160-174 (Lecture Notes in Computer Science; 3442).

Refereed Workshop Papers

- 20 *Methods and tools for reducing certification costs of mixed-criticality applications on multi-core platforms: the RECOMP approach*, Pop, Paul ; Tsiopoulos, Leonidas ; Voss, Sebastian ; Slotosch, Oscar ; Ficek, Christoph ; Nyman, Ulrik ; Lopez, Alejandra Ruiz. **To be published in:** Proceedings of the Workshop on Industry-Driven Approaches for Cost-effective Certification of Safety-Critical, Mixed-Criticality Systems WICERT. 2013
- 21 *A Modal Specification Theory for Components with Data*, Bauer, Sebastian S. ; Larsen, Kim Guldstrand ; Legay, Axel ; Nyman, Ulrik ; Wasowski, Andrzej. In: Formal Aspects of Component Software - 8th International Symposium, FACS 2011, Oslo, Norway, September 14-16, 2011, Revised Selected Papers, Lecture Notes in Computer Science, Vol. 7253. Pages 61-78. (2013). **Received best paper award.**
- 22 *New Results on Timed Specifications*, Bourke, Timothy ; David, Alexandre ; Larsen, Kim Guldstrand ; Legay, Axel ; Lime, Didier ; Nyman, Ulrik ; Wasowski, Andrzej. In: Recent Trends in Algebraic Development Techniques 20th International Workshop: WADT 2010 Selected Papers. Vol. 7137/2012 Springer, 2012. Pages 175-192.
- 23 *Methodologies for Specification of Real-Time Systems Using Timed I/O Automata.*, David, Alexandre ; Larsen, Kim Guldstrand ; Legay, Axel ; Nyman, Ulrik ; Wasowski, Andrzej. In: Formal Methods for Components and Objects, Lecture Notes in Computer Science, Vol. 6286, 2010, s. 290-310.
- 24 *EXPTIME-complete Decision Problems for Modal and Mixed Specifications*, Antonik, Adam ; Huth, Michael ; Larsen, Kim Guldstrand ; Nyman, Ulrik ; Wasowski, Andrzej. In: Electronical Notes in Theoretical Computer Science (Proceedings of the 15th Workshop on Expressiveness in Concurrency (EXPRESS 2008))
- 25 *Interface Input/Output Automata : Splitting Assumptions from Guarantees*, Larsen, Kim Guldstrand ; Nyman, Ulrik ; Wasowski, Andrzej. In: Electronic Notes in Theoretical Computer Science (Foundations of Interface Technologies, 2005). To appear.
- 26 *Color-blind Behavioral Specifications for Transformations of Reactive Synchronous Programs*, Larsen, Ulrik ; Larsen, Kim Guldstrand ; Wasowski, Andrzej. In: Proceedings of the 16th Nordic Workshop on Programming Theory : Technical report. Department of Information Technology, Uppsala University : Uppsala Sweden, 2004. **Extended Abstract**

Technical Reports

- 27 *An Interface Theory for Input/Output Automata*, Larsen, Kim Guldstrand ; Nyman, Ulrik ; Wasowski, Andrzej. Århus : BRICS, 2006. 40 p.
- 28 *Danfoss EKC Trial Project Deliverables*, Larsen, Kim Guldstrand ; Larsen, Ulrik ; Nielsen, Brian ; Skou, Arne ; Wasowski, Andrzej. Århus University : BRICS, 2003. 53 p.

Invited Papers

- 29 *20 Years of Modal and Mixed Specifications* Antonik, Adam ; Huth, Michael ; Larsen, Kim Guldstrand ; Nyman, Ulrik ; Wasowski, Andrzej. In: Bulletin of the European Association for Theoretical Computer Science. 2008 ; No. 95, June.

Ph.D. Thesis

- 30 *Modal Transition Systems as the Basis for Interface Theories and Product Lines*, Ulrik Nyman : Ph.D Thesis, Department of Computer Science, Aalborg University, 2008.