Anne Elisabeth Haxthausen

Department of Applied Mathematics and Computer Science - Associate Professor

Software Engineering

Publications:

A Domain-Specific Language for Generic Interlocking Models and Their Properties
Publication: Research - peer-review › Article in proceedings – Annual report year: 2017

Compositional Model Checking of Interlocking Systems for Lines with Multiple Stations
Publication: Research - peer-review › Article in proceedings – Annual report year: 2017

Compositional Verification of Interlocking Systems for Large Stations
Publication: Research - peer-review › Article in proceedings – Annual report year: 2017

Formal Development and Verification of Safe Railway Control Systems
Haxthausen, A. E. 2017
Publication: Research › Poster – Annual report year: 2017

Formal modelling and verification of interlocking systems featuring sequential release
Publication: Research - peer-review › Journal article – Annual report year: 2016

Model Checking Geographically Distributed Interlocking Systems Using UMC
Publication: Research - peer-review › Article in proceedings – Annual report year: 2017

Comparing formal verification approaches of interlocking systems
Publication: Research - peer-review › Article in proceedings – Annual report year: 2016

Compositional Verification of Multi-Station Interlocking Systems
Publication: Research - peer-review › Article in proceedings – Annual report year: 2016

Formal Development and Verification of Safe Railway Control Systems
Haxthausen, A. E. 2016
Publication: Research - peer-review › Poster – Annual report year: 2016

On the Feasibility of a Unified Modelling and Programming Paradigm
On the Use of Static Checking in the Verification of Interlocking Systems
Publication: Research - peer-review › Article in proceedings – Annual report year: 2016

SaRDIn - A Safe Reconfigurable Distributed Interlocking
Publication: Research - peer-review › Article in proceedings – Annual report year: 2016

Formal Development and Verification of Railway Control Systems - In the context of ERTMS/ETCS Level 2
Publication: Research › Ph.D. thesis – Annual report year: 2015

A Domain-Specific Language for Railway Interlocking Systems
Publication: Research - peer-review › Article in proceedings – Annual report year: 2014

An Institution for Imperative RSL Specifications
Publication: Research - peer-review › Book chapter – Annual report year: 2014

Applied Bounded Model Checking for Interlocking System Designs
Publication: Research - peer-review › Article in proceedings – Annual report year: 2014
Automated generation of formal safety conditions from railway interlocking tables
Publication: Research - peer-review » Journal article – Annual report year: 2014

Complete Model-Based Equivalence Class Testing for the ETCS Ceiling Speed Monitor
Publication: Research - peer-review » Article in proceedings – Annual report year: 2014

FM-RAIL-BOK organizers' message
Publication: Research - peer-review » Preface/postscript – Annual report year: 2014

Formal Modeling and Verification of Interlocking Systems Featuring Sequential Release
Publication: Research - peer-review » Article in proceedings – Annual report year: 2014

Formal Verification of the Danish Railway Interlocking Systems
Publication: Research - peer-review » Article in proceedings – Annual report year: 2014

Applied Bounded Model Checking for Interlocking System Designs
Publication: Research - peer-review » Article in proceedings – Annual report year: 2013

A Rigorous Methodology for Analyzing and Designing Plug-Ins
Publication: Research - peer-review » Article in proceedings – Annual report year: 2013

Efficient Development and Verification of Safe Railway Control Software
Publication: Research - peer-review » Book chapter – Annual report year: 2013

Formal Development and Verification of Railway Control Systems
Vu Hong, L., Haxthausen, A. E. & Vu Hong, L. 2013
Publication: Research - peer-review » Conference abstract for conference – Annual report year: 2013

Formal Development and Verification of Safe Railway Control Systems
Haxthausen, A. E. & Vu Hong, L. 2013
Publication: Research - peer-review » Poster – Annual report year: 2013

The Overture Approach to VDM Language Evolution
Publication: Research - peer-review » Article in proceedings – Annual report year: 2013
Publication: Research › Report – Annual report year: 2013

Automated Generation of Safety Requirements from Railway Interlocking Tables
Publication: Research - peer-review › Article in proceedings – Annual report year: 2012

On the dimensions of software documents — An idea for framing the software engineering process.
Publication: Research - peer-review › Article in proceedings – Annual report year: 2012

The Model-Driven openETCS Paradigm for Secure, Safe and Certifiable Train Control Systems
Publication: Research - peer-review › Book chapter – Annual report year: 2012

A Formal Approach for the Construction and Verification of Railway Control Systems
Publication: Research - peer-review › Journal article – Annual report year: 2010

Effective Development and Verification of Railway Control Software
Haxthausen, A. E. 2011
Publication: Research › Report – Annual report year: 2011

Formal Development of a Tool for Automated Modelling and Verification of Relay Interlocking Systems
Publication: Research - peer-review › Article in proceedings – Annual report year: 2011

Towards a Framework for Modelling and Verification of Relay Interlocking Systems
Publication: Research - peer-review › Article in proceedings – Annual report year: 2011

An Introduction to Formal Methods for the Development of Safety-critical Applications
Publication: Research › Report – Annual report year: 2010

Modelling and Verification of Relay Interlocking Systems
Publication: Research - peer-review › Article in proceedings – Annual report year: 2010

Towards a Framework for Modelling and Verification of Relay Interlocking Systems
Publication: Research - peer-review › Article in proceedings – Annual report year: 2010
A Domain-specific Framework for Automated Construction and Verification of Railway Control Systems
Publication: Research - peer-review › Article in proceedings – Annual report year: 2009

Developing a Domain Model for Relay Circuits
Publication: Research - peer-review › Journal article – Annual report year: 2009

CASL, the Common Algebraic Specification Language
Publication: Research - peer-review › Book chapter – Annual report year: 2008

Specification, proof, and model checking of the Mondex electronic purse using RAISE
Publication: Research - peer-review › Journal article – Annual report year: 2008

The Logic of the RAISE Specification Language
Publication: Research - peer-review › Book chapter – Annual report year: 2008

A Domain-oriented, Model-based Approach for Construction and Verification of Railway Control Systems
Publication: Research - peer-review › Article in proceedings – Annual report year: 2007

Object Code Verification for Safety-Critical Railway Control Systems
Publication: Research - peer-review › Article in proceedings – Annual report year: 2007

Specification, Proof, and Model-checking of the Mondex Electronic Purse using RAISE
George, C. & Haxthausen, A. E. 2007 UNU-IIST.
Publication: Research - peer-review › Report – Annual report year: 2007

Specification and Proof of the Mondex Electronic Purse
Publication: Research - peer-review › Article in proceedings – Annual report year: 2006

Specification and Proof of the Mondex Electronic Purse
Publication: Research - peer-review › Article in proceedings – Annual report year: 2006

Designing a Flexible Kernel Providing VDM++ Support for Eclipse
Publication: Research › Article in proceedings – Annual report year: 2005

Test of Object-oriented Software
Haxthausen, A. E. 2005
Publication: Education › Compendium/lecture notes – Annual report year: 2005
Generation of Executable Railway Control Components from Domain-Specific Descriptions
Publication: Research - peer-review › Article in proceedings – Annual report year: 2003

The Logic of the RAISE Specification Language
Publication: Research - peer-review › Journal article – Annual report year: 2003

A Domain Specific Language for Railway Control Systems
Publication: Research - peer-review › Article in proceedings – Annual report year: 2002

Formal development and verification of a distributed railway control system
Publication: Research - peer-review › Journal article – Annual report year: 2000

Formal Methods for the Specification and Verification of Distributed Railway Control Systems: From Algebraic Specifications to Distributed Hybrid Real-Time Systems
Publication: Research - peer-review › Article in proceedings – Annual report year: 2000

Linking DC together with TRSL
Publication: Research - peer-review › Article in proceedings – Annual report year: 2000

Modelling Railway Interlocking Systems
Publication: Research - peer-review › Article in proceedings – Annual report year: 2000

Some Approaches for Integration of Specification Techniques
Haxthausen, A. E. 2000 INT'00 - Integration of Specification Techniques with Applications in Engineering. Technical University of Berlin, p. 33-40
Publication: Research - peer-review › Article in proceedings – Annual report year: 2000

Subsorted Partial Higher-order Logic as an extension of CASL
Publication: Research - peer-review › Article in proceedings – Annual report year: 2000

Towards Domain-Specific Formal Specification Languages for Railway Control Systems
Publication: Research - peer-review › Article in proceedings – Annual report year: 2000

CASL - The CoFI Algebraic Specification Language - Semantics.
Haxthausen, A. 1999
Publication: Research - peer-review › Report – Annual report year: 1999

Formal Development and Verification of a Distributed Railway Control System
Publication: Research - peer-review › Article in proceedings – Annual report year: 1999
Linking DC together with TRSL
Haxthausen, A. E. & Yong, X. 1999
Publication: Research › Poster – Annual report year: 1999

Linking DC together with TRSL
Publication: Research › Article in proceedings – Annual report year: 1999

Subsorted Partial Higher-order Logic as an Extension of CASL
Publication: Research › Article in proceedings – Annual report year: 1999

A RAISE Specification Framework and Justification assistant for the Duration Calculus
Publication: Research - peer-review › Article in proceedings – Annual report year: 1998

CASL The Common Algebraic Specification Language Semantics
Haxthausen, A. 1998
Publication: Research - peer-review › Report – Annual report year: 1998

Extending CASL with Higher-order Functions: Design Proposal
Publication: Research - peer-review › Report – Annual report year: 1998

Formal Development and Verification of a Distributed Railway Control System
Publication: Research - peer-review › Article in proceedings – Annual report year: 1998

Subsorted Partial Higher-order Logic as an Extension of CASL
Mossakowski, T., Haxthausen, A. & Krieg-Bruckner, B. 1998
Publication: Research - peer-review › Report – Annual report year: 1998

CASL - The CoFI Algebraic Specification Language (Tentative Design, version 0.95) -- Language Summary with annotations concerning questions and doubts
Haxthausen, A. 1997
Publication: Research - peer-review › Report – Annual report year: 1997

CASL - The CoFI Algebraic Specification Language (Tentative Design, version 0.95) - Language Summary, with annotations concerning the semantics of constructs.
Haxthausen, A. 1997
Publication: Research - peer-review › Report – Annual report year: 1997

CASL - The CoFI Algebraic Specification Language (version 0.97) - Semantics
Haxthausen, A. 1997
Publication: Research - peer-review › Report – Annual report year: 1997

CASL- The Common Algebraic Specification Language- Summary
Haxthausen, A. 1997
Publication: Research - peer-review › Report – Annual report year: 1997

LYCOS: The Lyngby Co-Synthesis System
Publication: Research - peer-review › Journal article – Annual report year: 1997
<table>
<thead>
<tr>
<th>Title</th>
<th>Year</th>
<th>Volume</th>
<th>Page Range</th>
<th>Publisher</th>
<th>Type</th>
<th>Annual report year</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC + RSL</td>
<td>1996</td>
<td></td>
<td></td>
<td></td>
<td>Report</td>
<td>1996</td>
</tr>
<tr>
<td>Overloading, Subtypes and Higher Order Functions</td>
<td>1996</td>
<td></td>
<td></td>
<td></td>
<td>Report</td>
<td>1996</td>
</tr>
<tr>
<td>Subsorting and Higher-order Functions</td>
<td>1996</td>
<td></td>
<td></td>
<td></td>
<td>Report</td>
<td>1996</td>
</tr>
</tbody>
</table>
A Concurrency Case Study Using RAISE
Publication: Research - peer-review › Article in proceedings – Annual report year: 1993

RAISE: a Product Supporting Industrial Use of Formal Methods
Publication: Research - peer-review › Journal article – Annual report year: 1993

The RAISE Specification Language
Publication: Research - peer-review › Book – Annual report year: 1992

Formal, Model-oriented Software Development Methods - From VDM to ProCoS & from RAISE to LaCoS
Publication: Research - peer-review › Journal article – Annual report year: 1991

Parameterized Algebraic Domain Equation
Publication: Research - peer-review › Article in proceedings – Annual report year: 1989

Recursive Algebraic Specifications and their Semantics
Publication: Research - peer-review › Article in proceedings – Annual report year: 1989

Mutually Recursive Algebraic Domain Equation
Haxthausen, A. E. 1988 Proceedings of VDM’88. Springer Verlag
Publication: Research - peer-review › Article in proceedings – Annual report year: 1988

Structuring Mechanisms In Formal Specification Languages
Haxthausen, A. E. 1988
Publication: Research › Ph.D. thesis – Annual report year: 1988

Projects:

Formal development and verification of railway control systems
01/11/2012 → 21/01/2016
Project: PhD

Modelling and analysis for Cyber-Physical Systems
01/11/2011 → 30/09/2015
Project: PhD

Pattern-oriented Formal Software Development
Haxthausen, A. E.
01/04/2005 → 01/04/2010
Project

Modelling og analyse af globale applikationer
Buchholtz, M., Nielsen, H. R., Nielsen, F., Haxthausen, A. E., Focardi, R. & Guttman, J. D.
01/01/2002 → 12/07/2005
Project: PhD
Proof support for raise
01/04/2000 → 25/05/2004
Project: PhD

Domain-specific Languages for Railway Control Systems
Haxthausen, A. E. & Peleska, J.
01/01/2000 → 31/12/2010
Project

Modelling Railway Interlocking Systems II
Haxthausen, A. E., Lindegaard, M. P., Hansen, K. M. & Viuf, P.
01/09/1999 → 31/03/2000
Project

CoFI WG (ESPRIT Working Group no. 29432)
Haxthausen, A. E., Mosses, P., Sannella, D., Tarlecki, A., Krieg-Brückner, B., Bidoit, M., Astesiano, E. & Kirchner, H.
01/10/1998 → 30/04/2001
Project

FMERail (ESPRIT Project EP26538)
Hansen, B. S., Bjørner, D. & Haxthausen, A. E.
01/01/1998 → 30/09/1999
Project

Information project for highschool pupils
Haxthausen, A. E., Hansen, B. S. & Bing, E.
01/11/1997 → ...
Project

Co-synthesis of RSL Specifications
Haxthausen, A. E.
01/09/1997 → 31/01/1998
Project

Dracos
Haxthausen, A. E.
01/12/1996 → 01/12/1999
Project

Timed RAISE
Haxthausen, A. E. & Peleska, J.
01/08/1996 → 31/12/2000
Project

CoFI
01/11/1995 → 31/12/2003
Project
Module Composition Mechanisms
Haxthausen, A. E. & Nickl, F.
01/07/1995 → 01/07/1996
Project

Subtyping and Higher-order Functions
Haxthausen, A. E.
01/01/1995 → 31/12/1999
Project

Activities:

Formal Methods for Software Development
Haxthausen, A. E. (Guest lecturer)
11 Sep 2017 → 14 Sep 2017
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

University of Florence
Haxthausen, A. E. (Visiting researcher)
15 Aug 2017 → 14 Sep 2017
Activity: Visiting an external institution › Visiting another research institution

Green Light for Smarter Methods in Railway Safety Verification
Haxthausen, A. E. (Guest lecturer)
31 May 2017
Activity: Talks and presentations › Conference presentations

Formel Modellering og Verifikation af Jernbanekontrolsystemer: Et eksempel fra RobustRailS WP 4.1
Haxthausen, A. E. (Invited speaker)
3 Feb 2016
Activity: Talks and presentations › Conference presentations

Assessment Committee for a post.doc. position (External organisation)
Haxthausen, A. E. (Participant)
21 Nov 2012 → 21 Dec 2012
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

Danish Railway Conference 2012
Haxthausen, A. E. (Participant)
9 May 2012
Activity: Attending an event › Participating in or organising a conference

Conference on European Rail Traffic Management System
Haxthausen, A. E. (Participant)
17 Apr 2012
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

An Introduction to Formal Methods for Software Development
Haxthausen, A. E. (Consultant)
7 Oct 2011
Activity: Public and private sector consultancy › Public sector consultancy

A Model-based Tool Set for Simulation and Verification of Relay Interlocking Systems
Haxthausen, A. E. (Speaker)
27 Sep 2011
Activity: Talks and presentations › Talks and presentations in private or public companies and organisations
Towards a Semantics for VDM Core
Haxthausen, A. E. (Speaker)
20 Jun 2011
Activity: Talks and presentations › Guest lectures, external teaching and course activities at other universities

Microsoft Research Software Summit
Haxthausen, A. E. (Participant)
13 Apr 2011 → 15 Apr 2011
Activity: Attending an event › Participating in or organising a conference

Effective Development and Verification of Railway Control Software
Haxthausen, A. E. (Speaker)
21 Jan 2011
Activity: Talks and presentations › Conference presentations

Member of the review board for a VIP position at Engineering College of Århus (External organisation)
Haxthausen, A. E. (Member)
22 Nov 2010 → 1 Dec 2010
Activity: Membership › Membership of committees, commissions, boards, councils, associations, organisations, or similar

Formal Methods: A Tutorial on Model-oriented Specification
Haxthausen, A. E. (Consultant)
14 Oct 2010
Activity: Public and private sector consultancy › Public sector consultancy

An Introduction to Formal Methods for the Development of Safety-critical Applications
Haxthausen, A. E. (Consultant)
1 Sep 2010
Activity: Public and private sector consultancy › Public sector consultancy

An Introduction to Formal Methods for Software Development
Haxthausen, A. E. (Consultant)
25 Jun 2010
Activity: Public and private sector consultancy › Public sector consultancy

Talentudvikling og karriererådgivning
Haxthausen, A. E. (Participant)
17 May 2010 → 7 Dec 2010
Activity: Attending an event › Participating in or organising workshops, courses, seminars etc.

JAIST Advanced School on Formal Specification and Systems Verification 2010 (JAIST-FSSV2010)
Haxthausen, A. E. (Participant)
1 Mar 2010 → 5 Mar 2010
Activity: Attending an event › Participating in or organising a conference

Member of the review board of a Ph.D. thesis entitled "Domain-specific Modelling of Railway Control Systems with Integrated Verification and Validation", by Kirsten Mewes, Bremen University (External organisation)
Haxthausen, A. E. (External examiner)
12 Nov 2009
Activity: Examinations and supervision › External examination

Towards a Framework for Modelling and Verification of Relay Interlocking Systems
Haxthausen, A. E. (Speaker)
11 Nov 2009
Activity: Talks and presentations › Conference presentations
A Domain-specific, Model-based Approach for Construction and Verification of Railway Control Systems
Haxthausen, A. E. (Speaker)
23 Jan 2009
Activity: Talks and presentations › Conference presentations

Press clippings:

Returning to the Rails.: Rail Safety: Back in the Spotlight.
Anne Elisabeth Haxthausen
18/03/2016
1 media contribution
Press / Media

Ekspert om tysk togkollision: "Besynderlig ulykke"
Anne Elisabeth Haxthausen
09/02/2016
1 media contribution
Press / Media

Matematik mindsker risiko for togkollision
Anne Elisabeth Haxthausen
01/12/2015
1 media contribution
Press / Media

Matematisk gennembrud øger tog sikkerheden
Anne Elisabeth Haxthausen
01/09/2015
1 media contribution
Press / Media