Curriculum vitae for Martin Törngren

Name: Eric Martin Törngren
Date of birth: 27 December 1963
Citizenship: Swedish
Affiliation: Division of Mechatronics, Machine Design, School of Industrial Engineering and Management, Royal Institute of Technology – KTH
Phone: +46-8-7906307
E-mail: martin@md.kth.se
Civil status: Married, two children
Languages: Swedish, English (fluent), French (close to fluent), German, Italian & Chinese (basic)

Contents

Professional preparation

- Docent. Conferment of the title of docent in Machine Design, KTH, 1999.
- Ph.D, Department of Machine Elements, KTH, 1995.
- Licentiate of Technology, Department of Machine Elements, KTH 1992.
- M.Sc. in Mechanical Engineering with a specialization in Mechatronics, KTH, 1987.

Continued education

- KTH learning lab CDIO course at MIT/Harvard, 2011
- Career planning for managers, KTH 2010.
- Executive school in industrial management, 2007.
- Manager introduction, KTH, 2007.
- PhD supervisor training, 1999.

Appointments

Current position since 2002: Professor in Embedded Control Systems, KTH.

Previous positions:

2018 (Oct. 15 – Dec. 17: Visiting scholar at UC Berkeley, Mechanical Engineering Dept., hosted by Prof Francesco Borrelli.

2018 (March 15 – May 15): Visiting scholar at Stevens Institute of Technology, Division of Systems and Software, hosted by Prof Dinesh Verma. Hoboken, New Jersey, USA

2011-2012: Visiting scholar at Univ of California at Berkeley, EECS Department, hosted by Prof Edward Lee.

1996-2002: Research associate ("Forskarassistent" during 1996-2000), Department of Machine Design, KTH.

1998 Feb – June: European Commission Joint Research Centre, Institute for Systems, Informatics and Safety, Software Technologies and Automation Unit, Ispra/Italy, Post-doc period.

1995-2000: Technical director at startup company Fengco Real-Time Control AB.

1988-1995: PhD Student, Department of Machine Elements, KTH.

1987-1988: Assistant Lecturer, Department of Machine Elements, KTH.

Commissions of trust

Major industrial appointments as outside expert

2013 - : On the International Scientific Advisory Board of the Virtual Vehicle Research Center (VIF, http://vif.tugraz.at/en/)

1999: Appointed external expert by the Swedish Space Corporation for assessing the design of the distributed control system of the Smart satellite.

Director appointments

2020-03-26 – Director for the KTH centre TECoSA – Trustworthy Edge Computing Systems and Applications - https://www.tecosa.center.kth.se/

2020 – fall - . Scientific director for the KTH centre for Embedded systems - ICES: www.ices.kth.se

2008-09-01 – 2020- fall. Director for the KTH centre for Embedded systems - ICES: www.ices.kth.se

1999-2004: Chairman of the Swedish real-time systems association: www.snart.org

Board appointments

2019 – On the board of the Integrated Transport Research Lab (ITRL) at KTH
2013-2014: On the board of Swedsoft (www.swedsoft.se)
2010-2017: Centre for Autonomous Systems, KTH.
2007-2011: KTH faculty board.
2000-2007: Fengco real-time control AB.
2004-2007: Artes[1] network for real-time research & graduate education in Sweden
2003-2005: On the board of the Department of Machine Design
1999-2006: On the board of Snart[2], the Swedish real-time systems association

KTH special commissions

2019 May – June 2020: Project lead for the ITM school overarching research initiative on sustainable industry and society (IRIS).
2019 – fall: Deputy Dean at the school of Industrial Engineering and Management, KTH
2020- : On the reference group for the Industrial Transformation Platform at KTH
2018- : On the KTH industrial digitalization task force (KTH Digital Futures).
2018- : On the strategic board of the school of Industrial Engineering and Management, KTH
2015 - 2018: On the Research Advisory Council of the KTH Integrated Transport Research Lab.
2013 - : KTH representative in the ARTEMIS industrial association.
2013 (March) – 2017: On the strategic board of the ICT school (http://www.kth.se/ict)
2012-: Co-manager for the Mechatronics division.
2007-02-01 – 2011-03-31: Member of the KTH faculty board.
2010 – 2011: Industrial Engineering and Management Appointments Committee
2005-2006 (June): Research education board of the KTH school of Industrial Engineering and Management.
2002-2006 (June): Head of graduate studies. Department of Machine Design, KTH

Project leading appointments

2020 – PI for the TECoSA research center.
2018-: PI for KTH in the Nordic University Hub on Industrial Internet of Things (HI2OT, NordForsk).
2018-2021: PI for KTH and Swedish consortium coordination, Prystine ECSEL project.
2018-2019: PI for the MERIT project (Vinnova).
2017-2020: PI for KTH and Swedish consortium coordination, AutoDrive ECSEL project.
2017-2020: Advisor and Swedish consortium coordination for the SCOTT ECSEL project.
2017-2020: PI for KTH as partner in Fed4SAE, a H2020 Innovation action.
2016-2017: PI for KTH as partner in the Platforms4CPS (H2020 coord. & support action).
2014-2016: Technical coordinator for the EIT ICT Labs project Integrated Information Engineering (IIE).

[1] www.artes.uu.se
[2] www.snart.org

2015: PI for KTH in CPSE-Labs (H2020 innovation action)
2015-2018: PI for KTH in ARCHER (FFI/Vinnova).
2010-2013: Technical coordinator for iFEST (ARTEMIS project, 21 partners).
2011-2014: KTH project leader for the ARTEMIS project MBAT.
2010-2013: KTH coordinator for the national project DFEA2020 with Volvo car.
2010-2013: KTH project leader for the FP7 project MAENAD
2009-2012: KTH project leader for the Artemis project CESAR
2008-2011: KTH project co-leader for the EU network of excellence ArtistDesign in cooperation with the ICT school.
2008-2010: KTH project leader for the FP7 project ATESST2 (www.atesst.org)
2006-2009: KTH project leader for the EU-projects ATESST (Advancing Traffic Efficiency and Safety through Software Technology) and DYSCAS (Dynamically Self-Configuring Automotive Systems).
2006-2008 Project leader for the project Flexible and Robust Architecture for Middleware of Embedded Systems, in cooperation with Enea and Volvo. Funded by Vinnova.
2004-2008: KTH project leader for the EU Network of Excellence, ARTIST2.
2004 -2007: KTH project co-leader. Project: Model based development and competence integration. Funded by Vinnova and Volvo car.
2003-2008: KTH project leader. Project: Safety Critical Vehicular Systems – SAVE/SAVE++. Funded by SSF.
2002-2004: KTH project leader for the EAST-EAA – Embedded Electronic Architecture project– in cooperation with Volvo. Funded by Vinnova.
2001-2005: KTH project leader and on the steering group for the CODEX project. Funded by Vinnova and Scania.
1997-2001: Project leader for the Dicosmos project, a cooperation between KTH, Lund Inst. of Technology, Chalmers Inst. of Technology, and Volvo Technology (1999-2001). Funded by Vinnova.
1996-1998: OSACA/IDAS: Project leader for the KTH part of this European Commission, ESPRIT funded project (project no. 22168).
1996-2002: Project leader for the AIDA project. Initial funding provided by Nutek and the Volvo research foundation. Funding 2001-2002 through SSF. The work was continued within the SAVE and CODEX projects.

Conference chair, editorial boards, professional networks and reviewing
2019: Co-organizer of the 2nd Workshop on Ensuring and Validating Safety for Automated Vehicles at IV 2019.
2008 - : Organizer of the ICES annual conference (since 2008) and the Scandinavian Conference on System and Software Safety (since 2015).
2008: Senior member of the IEEE.
2004-2012: On the editorial board of the International Journal of Embedded Systems[3].
2003-2005: IEE Professional Network on Microelectronics & Embedded Systems.
2001 & 2003: Program chair for Real-time in Sweden conference.
2000: General chair for the Euromicro real-time systems conference
1995- Reviewing for an extensive no. of Journals and Conferences including Real-time Systems (Kluwer), Microprocessor & Microsystems (Elsevier), Systems and Software, Emsoft, RTSS, RTAS, Euromicro real-time systems (2000-2001, 2005) and Real-time systems symposium (2001, 2012, 2013).

[3] www.inderscience.com

PhD opponent, PhD committees and Licentiate thesis opponent

- PhD opponent on five occasions.
- Licentiate thesis opponent on six occasions.
- Numerous PhD committees.

PhD opponent

2019: Member of the PhD Jury for Martin Helmuth, TU Graz, Feb. 2019.

2018: Member of the PhD Jury for Christian Sonntag, TU Dortmund, July 2018, Germany.

2015: Member of the PhD Jury for Ralf Buschermöhle, Univ. of Oldenburg, Germany.

2015: Opponent for Luka Lednicki, dissertation January 2015, MDH. Sweden.

2013: Member of the PhD Jury for Joachim Denil – "Design, Verification and Deployment of Software Intensive Systems - A Multi-Paradigm Modeling Approach, Univ. of Antwerp, Feb. 2013.

2005: Opponent for the PhD dissertation by Roger Johansson, June 2005, Dept. of Computer Engineering, Chalmers University of Technology.

2003: Opponent for the PhD dissertation of Anton Cervin, April 2003, Dept. of Automatic Control at Lund University: http://www.control.lth.se/~anton/

Licentiate thesis opponent

Licentiate thesis 2017: Jan Schröder, Chalmers.

Licentiate thesis 2010: Niklas Mellegård, Chalmers Univ. Method and Tool Support for Automotive Software Engineering. 2010-09-30.

Licentiate thesis 2005: Johan Fredriksson. "Transformation of component models to real-time models ". Dept. of Computer Science and Electronics. Mälardalen University, 2005.

Licentiate thesis 2001: Jonny Vinter. "Software-Implemented Error Detection and Recovery for Control Applications". Dept. of Computer Eng., Chalmers University of Tech., Sweden, 2001

Licentiate thesis 2000: Anders Wall, "A formal approach to analysis of software architectures for real-time systems". Uppsala Univ., Information systems.

Licentiate thesis 1995: Henrik Lönn, "Communication in safety critical distributed real-time systems". Dept. Computer Engineering, Chalmers, Göteborg.

Licentiate thesis 1992: Rickard Uusijärvi, "Distributed control of hydraulic systems". Dept. of Machine Elements, KTH.

PhD dissertation committees

PhD Sept. 2020: Jan Schröder - Chalmers

PhD May 2016: Pedro Migual Salsinha Neves. KTH. Reconfiguration methodology to improve the agility and sustainability of plug and produce systems.

PhD Sept. 2015: Bogdan Tanasa. Linköping Univ. Probabilistic timing analysis with particular emphasis on real-time communication.

PhD July 2014: Ernest Wozniak, CEA-LIST, Paris. Model-based Synthesis of Distributed Real-time Automotive Architectures.

PhD June 2014: Markus Buschle, KTH/EES school. Tool Support for Enterprise Architecture Analysis, KTH.

PhD March 2014: Erik Henriksson, KTH/EES school. Predictive control for wireless networked systems in process industry.

PhD Feb. 2014: Jonas Nilsson, Chalmers. COMPUTATIONAL VERIFICATION METHODS FOR AUTOMOTIVE SAFETY SYSTEMS
PhD 2012: Sajed Miremadi, Nov. 16, 2012, Chalmers. Supervisory Control of Timed Discrete Event Systems.
PhD 2010: Christer Thörn, Linköping Univ. On the Quality of Feature Models.
PhD 2008: Xu Ke, Univ. of Southern Denmark, Mads Clausen Institute for Product Innovation (Oct 2008).
PhD 2008: Iyad Al Khatib. KTH. Dept. of Electronic, Communication, and Software Systems (June 2008).
PhD 2008: Kaj Hänninen, MDH, Dept. of Computer systems (June 2008).
PhD 2007: Tarvo Raudvere, KTH, Dept. of Electronic, Communication, and Software Systems (Sept. 2007).
PhD 2005: Fredrik Bruhn, UU, Dept. of Engineering Sciences, Angstrom Space Technology Centre (Nov. 2005).
PhD 2005: Gustav Naeser, MDH, Dept. of Computer Engineering (Oct. 2005).
PhD 2004: Anders Orebäck, KTH, Department of Computer Science (Nov. 2004).
PhD 2004: Joakim Aidemark, Chalmers University of Technology, Dept. of Computer Engineering (Dec. 2004).
PhD 2004: Håkan Sivencrona, Chalmers University of Technology, Dept. of Computer Engineering (2004-02-25).
PhD 2003: Appointed PhD thesis assessor by Institut National Polytechnique de Lorraine – France, Ecole des Mines de Nancy for the thesis by Fabrice Jumel.
PhD 2003: Anders Wall, Mälardalen University, Dept. of Computer Science and Engineering (2003-09-26).
PhD 2003: Örjan Askerdal, Chalmers University of Technology, Dept. of Computer Engineering (2003-06-04).
PhD 2002: Lars Petersson, "A framework for integration of processes in autonomous systems". Centre for Autonomous Systems, Department of Numerical analysis and computer science, KTH.
PhD 2002: Martin Hiller, Chalmers University of Technology, Dept. of Computer Engineering (2004-10-18).
PhD 1995: Preliminary assessment of the doctoral dissertation by Pasi Tuominen, Tampere Univ. of Technology/Dept. of Mechanical eng., Finland. "Synchronization of loosely coupled motion control systems". Supervisor: Prof. Tapio Virvalo.

Other university appointments:
2001, 2002, 2003, 2008, 2009, 2010, 2011, 2017: External expert for associate processor, docent and professor appointments at several universities including Univ. of Hull - UK (2010), Holon Institute of Technology – Israel (2017), Halmstad Högskola (2017), Blekinge Institute of Technology (Sw Eng – 2011), Chalmers (2009), Mälardalen University (Dept. of Computer Science and Engineering – several occasions including 2010 and 2011), and Uppsala University (Dept. of Computer Science – 2002).

Main reviews for funding agencies:
Reviewer for the European Commission (DG Connect) – Project annual evaluation (Spring 2016).
ICT Reviewer for Vinnova for the 2nd call for the Vinnova Strategic Innovation Program on the Internet of Things (2015).

Appointed expert reviewer by the European commission for the Artemis 1st call, Autumn 2008.

Tutoring experience

The Embedded control systems research group that I started in 2002, has currently forked into 3 groups, on *Automated driving* (emphasizing safety and architecting), *Interoperability and model-based systems engineering* (emphasizing federated models for CPS, contract based design, as well as digital twins and knowledge management), and *Innovation eco-systems* (related to the ICES competence network, various innovation projects and networks).

Number of examined PhDs: **19** (15 as main, and 4 as co-supervisor)
Number of additional examined Licentiates: **4** (all as main supervisor)
PhD students in progress: 8

Doctoral students graduated:

1. Jinzhi Lu, June 2019. A Framework for Cyber-physical System Tool-chain Development: A Service-oriented and Model-based Systems Engineering Approach
2. Didem Gurdur, January 2019: Data and Visual Analytics for Cyber-physical Systems: Current Situation and Strategies for Action.
3. Xinhai Zhang, June 2017: Automated Support for the Architecting of Distributed Embedded Systems: Methods and Analysis for Industrial Adoption.
4. Thilo Friedrich, March 2017: Systems Engineering for Computing Systems at Accelerator based Research Facilities.
5. Jonas Westman, Sept. 2016. Specifying Safety-Critical Heterogeneous Systems Using Contracts Theory.
6. Sagar Behere, Jan. 2016. Reference architectures for highly automated driving.
7. Fredrik Asplund, Oct. 2014. Risks Related to the Use of Software Tools when Developing Cyber-Physical Systems.
8. Magnus Persson, June 2013. A formalized approach to multi-view components for embedded systems.
9. Matthias Biehl, January 2013. A Modeling Language for the Description and Development of Tool Chains for Embedded Systems. Doctoral Thesis, ISBN 978-91-7501-426-5, Royal Institute of Technology, Stockholm, Sweden.
10. Tahir Naseer Qureshi, 2012, Enhancing Model-Based Development of Embedded Systems: Architecture-Centric Modeling, Simulation and Model-Transformation in an Automotive Context. KTH-TRITA-MMK 2012:16, ISSN 1400-1179, ISRN KTH/MMK/R- 12/16-SE, ISBN 978-91-7501-465-4, Sweden, 2012.
11. Diana Malvius, Dec. 2009. *Integrated information management in complex product development*. http://kth.diva-portal.org/smash/record.jsf?searchId=1&pid=diva2:280011. Co-supervised. Main supervisor: Margareta Norell.
12. Carl-Johan Sjöstedt, June 2009. Modeling and Simulation of Physical Systems in a Mechatronic Context. Now at ÅF.
13. Niklas Adamsson, 2007. *Interdisciplinary integration in complex product development - Managerial implications of embedding software in*

manufactured goods. Co-supervised. Main supervisor: Margareta Norell. Now with Technia AB.

14. Jad El-khoury, 2006. *A Model Management and Integration Platform for Mechatronics Product Development*. Previously with Tonium AB; now postdoc.
15. Ola Larses, 2005. Architecting and Modeling Automotive Embedded Systems. Now with Flir Systems AB.
16. Martin I. Sanfridson, 2004. *Quality of Control and Real-time Scheduling - Allowing for time-variations in computer control systems*. Now with VTEC AB.
17. DeJiu Chen, 2004. *Systems Modeling and Modularity Assessment for Embedded Computer Control Applications*. Now: Associate prof. at KTH and with Enea AB.
18. Ola Redell, 2003: *Response Time Analysis for Implementation of Distributed Control Systems*. With Enea 2006-2008, Tonium AB, 2008-2010. Now with Maquet.
19. Kristian Sandström, 2002. *Enforcing Temporal Constraints in Embedded Control Systems*. Co-supervised: Main supervisor: Jan Wikander. Now with Zealcore Embedded Solutions AB and MDH.

Statistics regarding students' occupation beyond PhD graduation:

- Industry: 10
- University: 4 (divided into 2 post-docs, and 2 permanent positions)
- Other: 3 (divided in to 2 at research institutes, and 1 public)
- 2 internationally employed and 15 in Sweden.

Students graduated with licentiate degree:

1. Naven Mohan. March 2018. Architecting Safe Automated Driving with Legacy Platforms.
2. Didem Gurdur, Feb. 2017. Making Interoperability Visible : A Novel Approach to Understand Interoperability in Cyber-Physical Systems Toolchains.
3. Thilo Friedrich, June 2013. Engineering Aspects of Computing Systems for Accelerator based Light Sources.
4. Sagar Behere, April 2013. Licentiate thesis. Architecting Autonomous Automotive Systems: With an emphasis on Cooperative Driving.
5. Fredrik Asplund, Oct. 2012. Tool Integration and Safety - A Foundation for Analysing the Impact of Tool Integration on Non-functional Properties.
6. Rickard Svenningsson, 2012**.** Model-Implemented Fault Injection for Robustness Assessment.
7. Matthias Biehl, 2010. Supporting Model Evolution in Model-Driven Development of Automotive Embedded Systems. ISBN 978-91-7415-723-9, Royal Institute of Technology, Stockholm, Sweden, November 2010. Now continued PhD student.
8. Magnus Persson, Nov. 2009. *Adaptive Middleware for Self-Configurable Embedded Real-Time Systems: Experiences from the DySCAS Project and Remaining Challenges*. Licentiate Thesis, KTH, 2009. Report no TRITA-MMK 2009:22, ISSN 1400-1179, ISRN/KTH/MMK/R-09/22-SE ISBN 978-91-7415-495-5. Now continued PhD student.

9. Tahir Naseer Qureshi, June 2009. Towards Model-Based Development of Self-Managing Automotive Systems. Licentiate thesis, KTH 2009. TRITA MMK 2009-12. ISSN 1400-1179; ISRN KTH/MMK/R--09/12—SE; ISBN 978-91-7415-374-3. Now continued PhD student.
10. Jianlin Shi, 2007. *Model and Tool Integration in High Level Design of Embedded Systems*. Now with Volvo car.
11. Diana Malvius, 2007. *Information Management for Complex Product Development.* Co-supervised. Main supervisor: Margareta Norell. Now with Syntell AB and KTH.
12. – 11: In addition Ola Larses, Martin Sanfridson, DeJiu Chen and Ola Redell completed their licentiate degrees before their PhD degree.

Educational achievements

Extensive experiences in under-graduate and graduate education, developing and giving courses at different levels, in different forms, and for industry. Developed and provided courses on a regular basis include:

- Safety critical embedded systems (7,5 ECTS credits, PhD student course).
- Embedded control systems (9 ECTS credits, final year MSc. level course)
- Design of embedded real-time systems (PhD student course, given as part of the ARTES graduate school)
- Further development of the Mechatronics specialization course (18 ECTS credits, final MSc. Level project course).
- Supervision of a large number of higher course projects as part of the Mechatronics capstone course, including for example Xless (2000), FAR (2003), Saint 1-3 (2005-2007) and S-Team (2009).

Achievements on a program level include contributions to the renewal and improvements of the Mechatronics specialization as part of the Engineering Design masters program at KTH, and in the initiation and operational support for the Embedded systems master's program at KTH.

Martin Törngren has supervised a very large number of MSc. Thesis (in the role as examinator or supervisor) over the past 15 years (approx. 5-6 per year).

Instances of graduate courses and for industry - developed and given:
Many of these courses have had both graduate students and industrials representatives.

- Safety critical embedded systems for industry and PhD students, autumn 2015.
- Safety critical embedded systems – with KTH education for industry and PhD students, autumn 2012.
- System and functional safety – with KTH education for industry and PhD students, 2010.
- Functional safety and ISO26262 – Volvo car, 2009, Designed and performed together with Per Johannessen, Volvo car
- Safety critical embedded systems. PhD student course given in the context of the SAVE-IT graduate school (20 participants from Universities and industry), autumn 2009.
- AUTOSAR – The Automotive software architecture – overview and evaluation, Spring 2009 (approx. 20 participants from Universitites and Industry).

- Design of embedded real-time systems, 2006 (20 participants from Universities and Industry)
- Design of embedded real-time systems, 2004 (15 participants from Universities and Industry)
- Safety critical computer control systems - SC3S, 2002 (10 participants from Universities and Industry)
- Real-time computer control systems, 2001 (11 participants from Universities and Industry)
- Real-time computer control systems, 1997 (participants from KTH, LIU, MDH, UU)

Selected grants awarded

Larger and strategic research grants since 2006 are included.

Duration	Project Name	Contribution in proposal / Main role in project
2020-2024	TECoSA competence center (Vinnova)	PI and director
2018-2019	MERIT project (VINNOVA)	PI
2018-2021	HI2OT – Academic hub on Industrial internet of things(NordForsk)	Co-Principal investigator / KTH project leader
2018-2021	Prystine (ECSEL project)	Co-Principal investigator / KTH project leader
2017-2020	FED4SAE (H2020 innovation action)	Co-Principal investigator / KTH project leader
2017-2020	AutoDrive (ECSEL project)	Co-Principal investigator / KTH project leader
2017-2020	SCOTT (ECSEL project)	Swedish sub-consortium coordinator, core team member, supervisor
2016-2018	Platforms4CPS support action (H2020)	Co - Principal Investigator (PI)/ KTH project leader
2015-2018	ARCHER (FFI/Vinnova)	Principal Investigator (PI)/ KTH project leader
2015-2018	CPSE-Labs (H2020)	Co-PI / KTH Design centre lead
2014-2017	EMC2 (ARTEMIS)	Co-PI / KTH project leader.
2014 Jan Dec. 2016	Integrated Information Engineering (ICTlabs, CPS AL)	PI and project leader (project run in 3 yearly iterations)
2013-2014	CYPHERS – Cyber Physical Systems roadmapping (FP7)	Co-PI / KTH project leader

2012-2015	ESPRESSO	Principal Investigator / KTH project leader
2011 - 2014	MBAT, Model-based analysis and testing Coordinator: Daimler	Principal Investigator / KTH project leader and WP leader
2011-2014	CREST - Coarse Grain Reconfigurable Embedded Systems Technologies	Principal investigator together with Ahmed Hemani, KTH
2010 – 2013	iFEST, industrial Framework for Embedded Systems Tools http://www.artemis-ifest.eu/ Coordinator: ABB	Principal Investigator / Project technical coordinator
2010 – 2013	MAENAD, Modelling Analysis Evaluation of Novel Architectures for Dependable Electric Vehicles http://www.maenad.eu/ Coordinator: Volvo Technology	Principal investigator / KTH project leader and WP leader
2010-2013	DFEA2020, Dependable and Flexible Electrical Architecture 2020	Principal investigator / KTH project leader
2009-2012	CESAR, Cost-efficient methods and processes for safety relevant embedded systems	Principal investigator / KTH project leader and task leader
2008-2011	ArtistDesign - EU network of excellence in Embedded systems http://www.artist-embedded.org/artist/	KTH project co-leader; participant in several clusters.
2008 – 2010	ATESST2, Advancing Traffic Efficiency and Safety through Software Technology, FP7 Project (Funding decision 09/01/2008) http://www.atesst.org/ Coordinator: Volvo Technology	Principal investigator / KTH project leader and WP leader
2006 – 2009	DYSCAS, Dynamically Self-Configuring Automotive Systems, FP6 Project (Funding decision 09/01/2008) http://www.atesst.org/ Coordinator: Volvo Technology	Principal investigator / KTH project leader,and WP leader

Awards

- Xinhai Zhang, Naveen Mohan and Martin Törngren receive the best paper award at SIES 2017.
- The iFEST project receives the ARTEMIS recognition award at the ARTEMIS/ITEA2 cosummit, Stockholm, Dec. 2013.

- Matthias Biehl and Martin Törngren received the Best Paper Award at the Seventh Int. Conference on Software Engineering Advances ICSEA 2012 for their contribution "Constructing Tool Chains based on SPEM Process Models" (http://www.md.kth.se/~biehl). The award is based on the reviews of the original submission, the camera-ready version, and the presentation during the conference.
- Best conference paper award at IEEE Int. Conf. on Mechatronics and Automation, August 2010 with the paper "Verifying System Behaviors in EAST-ADL2 with the SPIN Model Checker.".
- The ITEA achievement award 2004 for contributions in the EAST-EEA project
- SAAB-Scania Award 1994 for qualified contributions in distributed control systems

Intra- and Entrepreneurial achievements

- Principal initiator and leader of the effort to establish a KTH embedded systems centre, ICES (www.ices.kth.se). ICES has grown from six initial external industrial members to a network of some 25 partner organizations today. Examples of concrete outputs from the ICES networking activities include the initiation and preparation of a new Masters program in Embedded systems [4] at KTH, initiation of research projects such as iFEST (http://www.artemis-ifest.eu/) and the seminar and conference activities.
- Principal initiator and leader of the Embedded control systems group at KTH[5]
- Co-founder in 2016 of the company Data Frame AB, specialized in tailored and open standards based data integration for CPS engineering (development) environments.
- Co-founder in 1996 of the company Fengco Real-time Control AB (www.fengco.se) specialized in advanced tools for design and verification of embedded control systems, and related consultancy.
- Initiator of numerous industrial and academic seminars for information exchange.
- Initiator of the Swedish and the Nordic Transputer Users Groups (active early 90s)

Press and public discourse, including popular science articles

- Digitalisering i en fysisk värld – hur påverkas vi? Lecture as part of KTH's open and popular lecture series, March 11th, 2019: https://youtu.be/MVrsZr1vmck
- Dagens Nyheter Debate on challenges and collaboration needs in providing Swedish industry with competent engineers, reply (August 1st - 2018 https://www.dn.se/debatt/repliker/ratt-om-samarbete-men-status-for-utbildning-maste-hojas/) by Martin Törngren and Tor Ericson to a debate article in DN by Confederation of Swedish Enterprise (Svenskt Näringsliv) – "Bättre samarbete kan lösa företagens kompetensförsörjning".

[4] http://www.kth.se/en/studies/programmes/master/programmes/it/embedded-systems/master-s-programme-in-embedded-systems-1.70455
[5] www.md.kth.se/RTC (the group was initially called the Real-time control group)

- Interview in "Branschaktuellt Sverige AB" on challenges and concerns for automated vehicles – published online August 2018 - (https://branschaktuellt.se/transport-logistik/20861-hett-med-forskning-om-forarlosa-fordon - accessed Aug. 26, 2018)
- July 2017 (posted July 26, on-line) in Aftonbladet – Public views on autonomous vehicles (http://www.aftonbladet.se/bil/a/7rMe3/tvekan-infor-sjalvkorande-bilar)
- Blog on the Context, Foundations and Impact of Cyber-Physical Systems, initiated in July 2017: (https://platforum.proj.kth.se/tiki-view_blog.php?blogId=3)
- August 2016 – SR (Swedish Radio): Interview on security and safety threats for cars and a digital society
- June 2016: NyTeknik technical magazine, June 3rd, 2016 – "IT problems in a digital society" (in Swedish) (http://www.nyteknik.se/digitalisering/bredare-ingenjorer-stoppar-it-haverier-6577385)
- May 2016: Part of Swedsoft's response to the referral on transformations through Digitalization to the Swedish Digitalization commission (Deltagande i Swedsofts Yttrande om Digitaliseringens transformerande kraft - vägval för framtiden)
- September 2015 - SVT God Morgon Sverige – on Autonomous vehicles
- Martin Törngren och Karl-Henrik Johansson, Cyber-Physical Systems – interagerar med människor och infrastruktur. Artikel i Elektroniktidningen, 2013-05-06 (http://www.etn.se/index.php?option=com_content&view=article&id=57551)
- Per Runesson et al. Vem vill vara rektor 2020? (Who wants to lead a university in 2020? – article in Swedish)[6]. Published in Göteborgsposten, June, 10th, 2005.
- Martin Törngren. Embedded Systems of Strategic Importance for Swedish Society - where are the needs and how should efforts be directed? Essay and summary from the panel debate at Real-time in Sweden, 2003[7].

Networking, invited talks and organized events

Networking and multidisciplinary research have been characteristic throughout Martin Törngren's career. From 1999-2004 he served as the Chairman of the Swedish real-time systems association, and he has represented KTH as a core partner in the EU networks of excellence in Embedded systems design, Artist2 and ArtistDesign, and in the Artemis industrial association.

Martin Törngren has extensive academic and industrial cooperation including through ICES (www.ices.kth.se), research projects and networks. Academic collaboration partners include Antwerp Univ, CEA, CTU, GeorgiaTech, INRIA, Lund Inst. of Technology, MIT, Mälardalen University, OFFIS, Tecnalia, TUM, and University of California at Berkeley.

Industrial collaboration partners over the years have included ABB, Airbus, Bosch, Carmeq GmbH/Volkswagen, Continental, Daimler AG, Denso, dSPACE, EADS,

[6] Co-authored by 45 researchers representing "future leaders" with reflections from the IDAS seminars.
[7] http://www.snart.org/conference/2003/PanelSummary-RTiS03/

Enea, Ericsson, ETAS, Mathworks, Mecel, NI, Prevas, Scania, Siemens, Stoneridge, Swedish Space Corporation, Systemite, Thales, Volvo car, Volvo AB, and ÅF.

Invited talks (not exhaustive)

2020:

- ACACES (HIPEAC) Summerschool invited on-line talks on Trustworthy Cyber-physical systems. (July)
- Engineering for System Safety, Functional Safety and Risk Management – Challenges and Directions. Operational Safe Systems, March 16 – 17, 2020, San Francisco, USA

2019:

- Virtual Verification for Autonomous Vehicles, Operational Safe Systems (OSS.5), Sept. 26, Berlin, Germany, 2019
- Assurance cases in an era of smart and collaborative cyber-physical systems, ASSURE workshop at Safecomp, Turkku, Finland, Sept. 10th
- Opportunities, risks and engineering methodologies considering a new era of autonomous, "smart" and interacting cyber-physical systems of systems (Featured talk at the Conf. on Systems engineering research, Washington DC, April 2019)
- Implications and directions forward in a new era of cyber-physical systems (keynote at the ARTEMIS Technology Conference, Amsterdam, April 2019).

2018:

- Safety Assurance of Autonomous Cyber-Physical Systems, Challenges & Directions, NASA AMES USA, 20181211.
- Safety engineering for automated vehicles. 2018-12-04, UC Berkeley (joint seminar series by the "CITRIS People and Robots Initiative" and the "Design of Robotics and Embedded systems, Analysis, and Modeling" Seminars (DREAMS): https://citris-uc.org/people-and-robots-seminar-series/
- Fundamentals of Effective Assurance Cases - Panelist at the Software Certification Consortium meeting, Annapolis, Maryland/USA - May 10th; https://cps-vo.org/node/54714
- Mechatronics, Cyber-physical systems and Automated driving - Talk at NIST, for the NIST CPS team, Gaithersburg, USA.
- The safety vs. smartness challenge for autonomous vehicles - towards safety supervisors and methodological support. Invited talk at Stevens Institute of Technology, May 1st 2018 - https://www.stevens.edu/events/sse-seminar-martin-trngren-kth-royal-institute-technology
- Engineering challenges in dealing with the Cyber-Physical Systems of tomorrow. March 19th 2018, Invited talk at Stevens Institute of Technology.

2017:

- Panelist at the workshop on Reskilling SME's for the digital transformation: opportunities, challenges and success stories, part of the Digital Skills and Jobs Coalition Conference, Brussels, Dec. 7th (CPSELabs success story experiment)
- The safety vs. smartness challenge for autonomous systems. Invited talk at Operational Safe Systems for Automated Driving - From Functional Safety to

System Safety. Sept. 19-20, Berlin (https://www.operational-safe-systems.com/

- Summer School on Cyber-Physical Systems, CPS 2017 - July 17-21, 2017 - Halmstad University, Sweden. Invited talks on Cyber-Physical Systems - Perspectives, Innovation Opportunities and Key Cross-Domain Challenges.
- The safety vs. smartness challenge for autonomous systems; analysis and directions. Invited talk at the Norwegian Automation conference, March 15, 2017.
- Machines and industrial engineering in the era of digitalization. ITM-KTH school leadership conference, January 12th.

2016:

- Invited panelist on the topic of Robust Infrastructures at the Swedish Internet days - "Infrastructure - Driving Europe's Digital Transformation" – Nov. 21st.
- Safety and architecting for Autonomous vehicles. Invited talk at UC Berkeley, Oct. 12th. 2016.
- Safety and architecting for Autonomous vehicles. Vanderbilt Univ. Oct. 7th. 2016.
- Architecting autonomous systems, Thales, Hengelo, 2016-06-20
- Autonomous vehicles, perspectives and challenges - architecture, verification and safety. Invited keynote: Israeli Embedded Systems Conference, May 31st
- Autonomous vehicles, perspectives and challenges - architecture, verification and safety. IBM research lab (Haifa) – June 2nd
- CPS perspectives, opportunities and challenges. EIT Digital CPS summerschool (Paris); Invited talk, June

2015:

- Elektronik I Fordon, Gothenburg, April 23rd
- Int. MBSE workshop, Lund – May
- Ericsson Research day (panel)
- SVT God Morgon Sverige – on Autonomous vehicles
- Keynote talk at the EIT Digital CPS summerschool, Monday June 22nd: Cyber-Physical Systems: Characteristics, Trends, Opportunities & Challenges.

2014:

- UC Berkeley DREAMS seminar series (Design of Robotics and Embedded systems, Analysis, and Modeling Seminar), November 04, 2014 - Link: https://ptolemy.berkeley.edu/projects/chess/pubs/853.html
- Invited lecture at the WOODRUFF SCHOOL OF MECHANICAL ENGINEERING, GeorgiaTech, Tuesday, November 11, 2014: Roadmapping efforts for research, education & innovation in Cyber-Physical Systems (CPS) http://www2.me.gatech.edu/www/calendar/view_seminar.asp?speaker=Martin%20Torngren&startDate=11/11/2014&startTime=11:00%20AM
- Keynote talk at SimuTools - 7th International ICST Conference on Simulation Tools and Techniques, March 17, Portugal (http://simutools.org/2014/) Talk title: Dealing with Viewpoint Interrelations - A Necessary Means for Efficient Model-based Engineering
- 4th Int. Conference – Applying ISO26262 (http://www.iso26262-conference.com/)

2013:

- Inbyggda system –möjligheter och utmaningar. 2 Dec, 2013. Dagens verkstadsföretag är i IT-branschen – nu tar de nästa steg! – ICES/IVA conference.
- Cyphers project presentation. Brussels, Oct. 30, 2013. CYBER-PHYSICAL SYSTEMS: UPLIFTING EUROPÉ'S INNOVATION CAPACITY
- Strategic innovation and research in CPS; experiences from Sweden. 1st European Experts' Workshop on Cyber-Physical Systems in Munich, October 14–15, 2013.
- Robotics at KTH, Sept. 27, 2013 (http://www.cas.kth.se/RAS/SE-RAS%20-%20Events.html).
- iPack annual workshop, August 2013: Embedded systems challenges, and Introduction of KTH Innovative Centre for Embedded Systems (ICES).
- Viewpoint integration. Lecturer for the European summerschool, July 2013 (https://persyval-lab.org/summer-school/cps).
- First MathWorks Research Faculty Summit Agenda, June 1-3, Boston.
- 7th MODPROD Workshop on Model-Based Product Development, Feb. 2013.

2012:

- Invited talk at 1st Workshop on "Mechatronic Design" Linz 2012, 2012-11-30. Multiview Modelling and Tool Integration for Mechatronics Engineering (Problem Analysis, Challenges and Solutions). http://mechatronic-design.jku.at/program.html

2011:

- Invited talk at the UC Berkeley DREAMS seminar series – "Timing problems and opportunities for embedded control systems; modeling and co-design" (http://chess.eecs.berkeley.edu/pubs/853.html). Monday, Sept. 19th, 2011.

2010:

- Lecture at the DFEA2020 kick off at Volvo cars.

2009:

- Lectures part of the ICES seminars during 2009.
- Invited talk at the Computer Automated Multi-Paradigm Modeling workshop (http://msdl.cs.mcgill.ca/conferences/CAMPaM/2009/).
- Invited talk at the KTH education group meeting, Dec. 2009. Quality ensured examination: Challenges and how to improve the situation
- Invited talk at the faculty collegium of the KTH school of Architecture and the Built Environment: Quality ensured examination.

2008:

- Invited talk at SP: Embedded control systems research at KTH.
- INCOSE seminar on 2008-11-11; Model based engineering for safety critical (automotive) embedded systems.
- Also several contributions and lectures as part of ICES seminars during the autumn 2008.

2007:

- KnowIT-Architecture seminar. Nov. 20, Stockholm. Talk: *Trends in Software architecting for embedded systems*.
- Dagstuhl seminar on Model-Based Engineering of Embedded Real-Time Systems, Nov. 2007. Talk: *Towards a framework and methodology for model based engineering of embedded real-time systems*.
- Invited talk at the Second International Workshop on Foundations of Component-based Design, Sept. 30, in conjunction with the Emsoft

conference, Salzburg. Talk: *Model and Component based development of embedded systems*

- Electronics in Vehicles (IBC Euroforum conference), April 17-18, Gothenburg. Talk (in Swedish): Trender inom modell- och komponentbaserad utveckling och systematisk verifiering av mjukvara i fordon.
- Enea Automotive Systems Meeting, March 22, Stockholm. Talk: *Automotive Embedded Systems – trends and challenges.*

2006:

- Lecture at the ARTES summer school: *Automotive Embedded Systems – research challenges*. Aug. 24, 2006
- Lecture at Mecel, June 14, 2006. Talk: *Cost-efficient and systematic verification of embedded control systems*
- Lecture at ENEA, May 17, 2006. Talk: *Automotive Embedded Systems; characteristics, trends and challenges*".
- Lecture at PLM Forum 10th May 2006. Talk: *Challenges for PLM of Mechatronic Systems*.
- Invited panellist for the ARTIST2 workshop: Beyond Autosar, Innsbruck, March 24, 2006

2005:

- Lecture at Linköping University, Division of Control and Communication/Dept. of Electrical Eng., Dec. 8, 2005
- Lecture at Scania samverkansforum, Nov. 14, 2005
- Lecture at Mälardalen University, April 12, 2005, Västerås.
- EM-TECH seminar, June 9, Stockholm.

2004:

- 2nd Chinese-Swedish Conference on Control (http://lsc.amss.ac.cn/workshop-ccc/ccc-2th.html).
- Summer school on Model Driven Engineering for Embedded Systems (http://www.ensieta.fr/mda/).
- Konstruktion & Design: Keynote at the seminar Simulation and Modeling of Mechatronic Systems

2003:

- Honeywell labs, Minneapolis, Group led by Dr. Rakesh Jha.
- KTH executive school

Samples of organized events:

A very large number of workshops and conferences organized through ICES (www.ices.kth.se) and the Artist networks (http://www.artist-embedded.org/artist/). The links provide more information, see below for some representative examples:

- Scandinavian Conference on System and Software Safety, Stockholm, 2015, 2016, 2017 and 2018 (www.ices.kth.se).
- Foundations of CPS – Platforms4CPS workshop, 2017 at KTH.
- WESE workshop on Embedded and Cyber-Physical Systems, ESWEEK Oct. 2015 through 2017.
- CyPhERS 3rd workshop, KTH, Stockholm, Sept. 2014.
- WESE workshop on Embedded and Cyber-Physical Systems, ESWEEK Oct. 2014.

- CPS 20 years from now – how to get there: vision and challenges. Workshop at CPSWeek, April 2014.
- ICES 3rd Annual Conference: Networked Products - a solution for the energy problems of the future. Sept. 2nd 2010 (www.ices.kth.se).
- Formalisms for Architecture description and visualization as part of the CPS week, April 12th KTH, organized by ICES with support from ArtistDesign.
- ICES 2nd Conference – Trends and Challenges in Embedded systems – Sept. 2nd 2009 (www.ices.kth.se)
- European research on Embedded systems, organized in cooperation with Vinnova, featuring representatives from ARTEMIS, the European Commission, ITEA2 and Vinnova, Jan. 2009.
- ICES/INCOSE seminar on SysML – Model based systems engineering (MBSE): Where are we heading? – 2008-11-11 at KTH.
- Kick off for the new KTH centre in Embedded systems – ICES, Sept. 3rd, 2008
- Nancy Leveson seminar on System Safety at KTH, May 2008 (coorganized with Sesam)
- KTH - Industry Seminar on Embedded Systems, August 30, 2007.
- Artist2 workshop on tool platforms for modelling, analysis and validation of embedded systems. July 1-2, 2007, Berlin, Germany. Computer Aided Verification (CAV), 19th International Conference.
- Towards a Systematic Approach to Embedded System Design – Bringing Leading-Edge Embedded Systems Design Tools to Industrial Users. Artist2 workshop at the DATE conference, Nice, France. 20th April 2007.
- ARTIST2 Graduate Course on Embedded Control Systems, organized and funded by Artist, May 7-11, 2007, Lund, Sweden.

Demonstrators and software

- AD-EYE – https://tiny.cc/adeye - a modeling and simulation platform for automated vehicle architecture and algorithm evaluation with respect to safety
- The Juggling Robot: Web-site to be launched!
- OSLC code generator (originated by Martin's team – efforts led by Jad Elkhoury): https://wiki.eclipse.org/Lyo/AdaptorCodeGeneratorWorkshop
- The iFEST tool integration framework and related demonstrators, see http://www.artemis-ifest.eu/home
- The SCOOP/GCDC project (http://gcdc.md.kth.se) Convoying of trucks in order to improve traffic efficiency and reduce emissions. In cooperation with Scania and other labs at KTH, functionalities for convoying were developed.
- The EAST-ADL tool-suite (http://www.maenad.eu/ProjectDescription.html). This model-based development tool-suite, developed in the context of the ATESST project incorporates support for embedded systems information management and analysis. The tool-suite is based on Eclipse and the EAST-ADL UML profile implementation. KTH developments include the contributions to the EAST-ADL language and plug-ins providing transformations between Simulink and the EAST-ADL, and to safety analysis (FTA, FMEA realized for the HIP-HOPS tool).
- The SAINT truck: A scale model of a truck with embedded distributed control system explicitly supporting modular software development and configuration. The truck has and is being developed and improved as part of several

mechatronics final year MSc. projects in close relation to research projects. Scania has been the main sponsor in the development. For more information see [110]

- The DySCAS modeling and simulation tool-suite and the DyLite demonstrator. In the DySCAS project, existing modeling, simulation and analysis tools were adapted for the purposes to support design of the DySCAS middleware reference architecture for self-configuring systems. Also, as part of the project, KTH developed a middleware implementation based on the reference architecture, referred to as DyLite; see for example [106, 144].
- The Aida toolset: A toolset for architectural design of embedded control systems, [27].
- The Far vehicle: A model x-by-wire car with advanced distributed embedded control system developed by KTH and Volvo car. Now used for electronics architecture evaluation at Volvo car and as a case study, [126].

Publications by Martin Törngren

Publications in refereed international journals

1. Xin Tao, Jinzhi Lu, DeJiu Chen and Martin Törngren. Probabilistic Inference of Fault Condition of Cyber-Physical Systems Under Uncertainty. IEEE Systems Journal, vol. 14, no. 3, pp. 3256-3266, Sept. 2020, doi: 10.1109/JSYST.2020.2965400.
2. Thi Bich Lieu Tran, Martin Törngren, Huu Duc Nguyen, Radoslav Paulen, Nancy Webster Gleason & Trong Hai Duong (2019) Trends in preparing cyber-physical systems engineers, Cyber-Physical Systems, 5:2, 65-91, DOI: 10.1080/23335777.2019.1600034
3. Jinzhi Lu, Xinguo Wang*, Martin Törngren. Design Ontology in a Case Study for Co-simulation in a Model-based Systems Engineering Tool-chain, IEEE Systems journal, June 2019, DOI: 10.1109/JSYST.2019.2911418
4. Julie A. McCann, Gian Pietro Picco, Alex Gluhak, Karl Henrik Johansson, Martin Törngren and Laila Gide. Connected things connecting Europe, Commun. ACM, Volume 62 Issue 4, April 2019
5. Didem Gürdür, Jad El-khoury and Martin Törngren. Digitalizing Swedish industry: What is next?: Data analytics readiness assessment of Swedish industry, according to survey results. Computers in Industry, Vol. 105, Feb. 2019, Pages 153-163, https://doi.org/10.1016/j.compind.2018.12.011
6. Martin Törngren and Paul T. Grogan. How to Deal with the Complexity of Future Cyber-Physical Systems?, Journal of Designs, Vol. 2, No. 4, Oct. 2018, URL: http://www.mdpi.com/2411-9660/2/4/40, DOI: 10.3390/designs2040040.
7. Jinzhi Lu, Jiqiang Wang, Dejiu Chen, Jian Wang, Martin Törngren. A Service-oriented Tool-chain for Model-based System Engineering of Aero-engines, Sept. 2018, IEEE ACCESS (IF:3.557). 10.1109/ACCESS.2018.2868055.
8. M. Parseh, F. Asplund, M. Törngren. Industrial Safety-Related Considerations to Introducing Full Autonomy in the Automotive Domain. Proc. of the Workshop on Challenges and New Approaches for Dependable and Cyber-Physical System Engineering, (at Ada Europe 2017), Ada User Journal, Vol 38, No. 4, Dec 2017.
9. Didem Gurdur, Jad El-khoury, Fredrik Asplund and Martin Törngren. Assessing tool chain interoperability in cyber-physical systems: A systematic review. Journal of Systems and Software, ISSN 0164-1212, E-ISSN 1873-1228, 2017.
10. Martin Törngren, Martin Grimheden, Jonas Gustafsson and Wolfgang Birk. Strategies and considerations in shaping Cyber-Physical Systems education. ACM SIGBED Review - Special Issue on Embedded and Cyber-Physical Systems Education, Volume 14 Issue 1, October 2016.
11. Sagar Behere and Martin Törngren. Educating embedded system hackers: A practitioner's perspective. ACM SIGBED Review - Special Issue on Embedded and Cyber-Physical Systems Education, Volume 14 Issue 1, October 2016.
12. Sagar Behere and Martin Törngren. A functional reference architecture for autonomous driving. J. of Information and Software Technology, Vol. 73, Pages 1-164 (May 2016), Elsevier.
13. L. Wang, M. Törngren and M. Onori. Current Status and Advancement of Cyber-Physical Systems in Manufacturing. J. of Manufacturing Systems, Vol.37, Part 2, p.517-527, Oct 2015:http://www.sciencedirect.com/science/journal/aip/02786125

14. Fredrik Asplund and Martin Törngren. The Discourse on Tool Integration Beyond Technology, A Literature Survey. Journal of Systems and Software 04/2015; 106. DOI:10.1016/j.jss.2015.04.082.
15. Martin Törngren, Ahsan Qamar, Matthias Biehl, Frederic Loiret, Jad Elkhoury. Integrating Viewpoints in the Development of Mechatronic Products. Journal of Mechatronics, special issue on Model-based mechatronic system-design, Elsevier Volume 24, Issue 7, October 2014, Pages 745–762. (http://dx.doi.org/10.1016/j.mechatronics.2013.11.013).
16. Sagar Behere, Martin Törngren, De-Jiu Chen. A reference architecture for cooperative driving. Journal of System Architecture. (2013), http://dx.doi.org/10.1016/j.sysarc.2013.05.014
17. Matthias Biehl, Jad El-khoury, Martin Törngren. Automated tailoring of application life-cycle management systems to existing development processes. International Journal On Advances in Software, Vol. 6, 2013.
18. Matthias Biehl, Jad El-Khoury, Frederic Loiret, Martin Törngren. On the Modeling and Generation of Service-Oriented Tool Chains. In Journal of Software and Systems Modeling, Dec 2012.
19. Matthias Biehl, DeJiu, Chen, Törngren, Martin. Integrating Safety Analysis into the Model-based Development Toolchain of Automotive Embedded Systems. ACM SIGPLAN notices(ISSN 0362-1340)(EISSN 1558-1160). Volume:45, Issue:4, Pages:125-131, April 2010.
20. Richard Anthony, DeJiu Chen, Mariusz Pelc, Magnus Persson and Martin Törngren. Context-Aware Adaptation in DySCAS. Electronic Communications of the EASST, Volume 19: Context-Aware Adaptation Mechanism for Pervasive and Ubiquitous Services (CAMPUS). Technische Universität Berlin, 2009. ISSN 1863-2122.
21. Magnus Persson, Martin Törngren: Using improved resource interfaces to formally describe adaptability in embedded systems. SIGBED Review 6(3): 8 (2009).
22. Walker M., Papadopoulos Y., Parker D., Lönn H. Törngren M., Chen D., Johansson R. Sandberg A. (2009) Semi-Automatic FMEA supporting complex systems with combinations and sequences of failures, SAE International Journal of Passenger Cars- Mechanical Systems October 2009 2(1): 791-802, ISSN: 1946-4002.
23. Martin Törngren, Martin Grimheden, Niklas Adamsson. Experiences from large embedded systems development projects in education, involving industry and research. Invited paper (extended version of the corresponding Emsoft paper). In SIGBED Review (Special interest group on embedded systems), ACM. ISSN:1551-3688. The 12th issue (Volume 4, Number 1), January 2007. Special Issue on the Second Workshop on Embedded System Education.
24. Martin Grimheden and Martin Törngren. How should Embedded Systems be taught? Experiences and snapshots from Swedish higher engineering education. ACM SIGBED Review, 2(4):34-39, Oct 2005.
25. Martin Grimheden and Martin Törngren. What is embedded systems and how should it be taught? – Results from a didactical analysis. In the ACM Transactions on Embedded Computing Systems (TECS); Special Issue on Education, Volume 4, Issue 3 (August 2005).
26. Paul Caspi, A. Sangiovanni-Vincentelli, L. Almeida, A. Benveniste, B. Bouyssounouse, G. Buttazzo, I. Crnkovic, W. Damm, J. Engblom, G. Folher, M. Garcia-Valls, H. Kopetz, Y. Lakhnech, F. Laroussinie, L. Lavagno, G. Lipari, F.

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27. Ola Redell, Jad Elkhoury, Martin Törngren. The AIDA tool-set for design and implementation analysis of distributed real-time control systems. Microprocessors and Microsystems, Volume 28, Issue 4, 20 May 2004, Pages 163-182.
28. Jan Wikander, Martin Törngren and Mats Hanson (2001). Mechatronics Engineering - Science and Education, Invited Paper. IEEE Robotics and Automation Magazine, Vol 8, No. 2, 2001.
29. Martin Törngren and Ola Redell (2000). A Modelling Framework to support the design and analysis of distributed real-time control systems. Invited Paper. Journal of Microprocessors and Microsystems, 24 (2000) 81-93. Elsevier.
30. Martin Törngren (1998). Fundamentals of implementing Real-time Control applications in Distributed Computer Systems. J. of Real-time Systems, Vol. 14, No. 3, p. 219-250. Kluwer Academic Publishers.
31. Martin Törngren and Jan Wikander (1996). A decentralization methodology for real-time control applications. Journal of Control Engineering Practice, Volume 4, Issue 2, pp. 219-228. Special section on the Engineering of Complex Computer Control Systems, Feb. 1996, PERGAMON.
32. Richard Uusijärvi and Martin Törngren (1994). Introducing Distributed Control in Mobile Machines based on Hydraulic Actuators. Mechatronics International Journal. Vol 4, no 2, March 1994.
33. Martin Törngren and Jan Wikander (1992). Real-Time Control of Physically Distributed Systems, Application: Motion Control. Invited paper. J. of Computers & Electrical Engineering, Vol. 18, No. 1, pp. 51-72, 1992, Pergamon Press.

Refereed conference and workshop papers

34. Magnus Gyllenhammar et al. Defining Fundamental Vehicle Actions for the Development of Automated Driving Systems. SAE technical paper 2020-01-0712
35. Martin Törngren, Fredrik Asplund, Tor Ericson, Catrin Granbom, Erik Herzog, Zhonghai Lu, Mats Magnusson, Maria Månsson, Stefan Norrwing, Johanna Olsson and Johnny Öberg. Competence networks in the era of CPS – lessons learnt in the ICES cross-disciplinary and multi-domain center. Workshop on Embedded and Cyber-Physical Systems Education (WESE) at ESWEEK 2019, New York. In "Cyber Physical Systems. Model-Based Design", 2020, Springer International Publishing, Cham, Pages 264—283.
36. Lars Svensson, Monimoy Bujarbaruah, Nitin Kapania, and Martin Törngren (2019). Adaptive Trajectory Planning and Optimization at Limits of Handling, arXiv preprint arXiv:1903.04240, IROS Nov. 2019.
37. M. Parseh, F. Asplund, M. Nybacka, L. Svensson, M. Törngren, "Pre-Crash Vehicle Control and Manoeuvre Planning: A Step Towards Minimizing Collision Severity for Highly Automated Vehicles. IEEE International Conference on Vehicular Electronics and Safety (ICVES), Sept 2019, Cairo, Egypt.
38. Andrii Berezovskyi, Rafia Inam, Jad El-Khoury, Martin Törngren, Elena Fersman. Efficient State Update Exchange in a CPS Environment for Linked Data-based Digital Twins. *IEEE International Conference on Industrial Informatics, INDIN'19*, Jul 2019, Helsinki-Espoo, Finland

39. Turki Alelyani, Ronald Michel, Ye Yang, Jon Wade, Dinesh Verma and Martin Törngren. A Literature Review on Obsolescence Management in COTS-Centric Cyber Physical Systems. 17th Annual Conference on Systems Engineering Research (CSER), April 2019, Elsevier, open access.
40. Ye Yang, Ronald Michel, Jon Wade, Dinesh Verma, Martin Törngren and Turki Alelyani. Towards a taxonomy of technical debt for COTS-intensive cyber physical systems. 17th Annual Conference on Systems Engineering Research (CSER), April 2019, Elsevier, open access.
41. Naveen Mohan and Martin Törngren. A practical simulation toolchain for the early verification of Functional Safety Concepts. Accepted for SAE World Congress, April 9-11 2019, Detroit.
42. Martin Törngren, Xinhai Zhang, Naveen Mohan, Matthias Becker, Lars Svensson, Xin Tao, De-Jiu Chen and Jonas Westman. Architecting Safety Supervisors for High Levels of Automated Driving. Proceedings of the 21st IEEE Int. Conf. on Intelligent Transportation Systems, Nov. 2018.
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44. Lars Svensson, Lola Masson, Naveen Mohan, Erik Ward, Lei Feng, Anna Pernestål Brenden, Törngren Martin. Safe Stop Trajectory Planning for Highly Automated Vehicles. IEEE Intelligent Vehicles Symposium, June, 2018.
45. Lola Masson, J. Guiochet, H. Waeselynck, K. Cabrera, S. Cassel, M. Törngren. Tuning permissiveness of active safety monitors for autonomous systems. Nasa Formal Methods, April, 2018 (https://shemesh.larc.nasa.gov/NFM2018/).
46. Erik Herzog, ÅN Larsson, J El-Khoury, M Törngren. Experience from Introducing Systems Engineering in an Academic Environment Using an Industry Training Course. INCOSE International Symposium 28 (1), 245-259, 2018
47. Xinhai Zhang, Naveen Mohan, Martin Törngren, and DeJiu Chen. Architecture Exploration for Distributed Embedded Systems: A Gap Analysis in Automotive Domain. SIES June 2017. **Best paper award**
48. Naveen Mohan, Martin Törngren and Sagar Behere. A Method towards the Systematic Architecting of Functionally Safe Automated Driving - Leveraging Diagnostic Specifications for FSC design. SAE Automotive World Congress, 2017.
49. Naveen Mohan, Per Roos, Johan Svahn, Martin Törngren and Sagar Behere. ATRIUM - Architecting Under Uncertainty: For ISO 26262 compliance. IEEE SysCon 2017.
50. Xinhai Zhang, Xinwu Song, Lei Feng, and Martin Törngren. A Case Study on Achieving Fair Data Age Distribution in Vehicular Communications. Proc. Of the 23rd IEEE Real-time and Embedded Technology and Applications Symposium, (RTAS 2017), IEEE , 2017, p. 307-317.
51. Martin Törngren and Erik Herzog. Towards integration of CPS and Systems engineering in education. Proc. 2016 Workshop on Embedded and Cyber-Physical Systems Education, 12th Embedded system week, Pittsburgh, Oct. 2016.
52. Xinhai Zhang, Lei Feng, Martin Törngren and DeJiu Chen. Formulating customized specifications for resource allocation problem of distributed embedded systems. 35th Int. Conf. on Computer-Aided Design - ICCAD, November 2016

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54. Ken Vanherpen · Joachim Denil · Istvan David · Paul De Meulenaere · Pieter J. Mosterman · Martin Torngren · Ahsan Qamar · Hans Vangheluwe. Ontological reasoning for consistency in the design of cyber-physical systems. Int. Conf. on Cyber-Physical Systems, April, 2016.
55. V. Izosimov, A. Asvestopoulos, O. Blomkvist, and M. Törngren, Security-Aware Development of Cyber-Physical Systems Illustrated with Automotive Case Study, DATE, March, 2016.
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