ELLIIT Nyhetsblad 9 – September 2014

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Målet med ELLIITs nyhetsblad är att sprida information om händelser och nyheter från ELLIIT. Nyhetsbladet är skrivet på en blandning av svenska och engelska.

Nyheter

ELLIIT Workshop

The annual ELLIIT workshop will be held in Norrköping on Oct 23-24. The program is available on http://www.liu.se/elliit/elliit-workshop-2014-2?l=en It contains special sessions on embedded systems and visualization, highlights from the ELLIIT research areas, and invited keynotes from Claudio Silva (New York University) on "Exploring Big Urban Data" and Peter Marwedel (TU Dortmund) on "Cyber-Physical Systems: Opportunities, Problems and (some) Solutions".

LiU-forskare vann tävling i datorseende

Mikael Felsberg och hans grupp på LiU:s avdelning för datorseende tog hem segern i tävlingen Visual Object Tracking Challenge, VOT i samband med European Conference on Computer Vision, Zurich. Mer information: http://www.liu.se/forskning/forskningsnyheter/1.585052?l=sv

Commercialization of research results on modeling and optimization tools.

A derivative of the JModelica.org compiler developed by Modelon AB in Lund will be integrated in the ANSYS Simplorer product line. See http://otp.investis.com/clients/us/ansys/usn/usnews-story.aspx?cid=806&newsid=18161 The compiler is based on research results from (LU/AC), and it is implemented using the JastAdd extensible compiler generation technology from (LU/CS).

Dagstuhl seminar on control and software engineering

On September 14-19, Martina Maggio (LU/CS) was one the organizers of a Dagstuhl one-week seminar on "Control Theory meets Software Engineering", see

http://www.martinamaggio.com/dagstuhl/ The aim of the seminar was to bring together young researchers from the two communities to foster cooperation.

LUCAS-day in Lund

Reports of unusable IT systems are commonplace, and the latest of a long line is the police service's new PUST system. Hundreds of millions of kronor are spent developing systems that eventually are canceled due to occupational safety and health issues. Why is it so hard to commission and develop these systems? Are there any good examples of ones that do what they set out to? Are the public procurement regulations to blame, is the technology inadequate, or do the users simply not know what they want?

This year's LUCAS Day will focus on software procurement, taking an open-minded approach to discussions about potential causes and solutions to the issues, see http://www.lth.se/programvaruportalen/kalendarium/lucas-2014/2014-10-21/ It will be held at MAPCI in Lund on September 21 in connection with the opening of the new Mobile Heights Center.

Seventh Swedish Workshop on Multicore Computing in Lund

Krzysztof Kuchcinski and his group at (LU/CS) will organize MCC14 - Seventh Swedish Workshop on Multicore Computing (http://www.lth.se/programvaruportalen/mcc14), November 27-28, 2014.

New book on correctness of concurrent systems from Halmstad

The new book "Modeling and Analysis of Communicating Systems", by Jan Friso Groote (TU/Eindhoven, NL) and Mohammad Reza Mousavi (Halmstad U), MIT Press, August 2014 provides an in-depth treatment of behavioral specification of reactive systems based on process algebras and abstract data types. It also presents various mechanized abstraction and model-checking techniques for behavioral specifications. http://mitpress.mit.edu/books/modeling-and-analysis-communicating-systems

"Finally, the book that contains the full story of mCRL2, an extremely powerful specification formalism for concurrent, complex systems empowered by an extensive tool set. This book provides detailed and instructive information on the wide range of modeling and analysis possibilities of mCRL2 and is a must-read for anyone who cares about the correctness of computer systems." (Kim Larsen, Aalborg U, DK):

New Edition of Book on Language Processing

The second edition of the "Language Processing with Perl and Prolog: Theories, Implementation, and Application" by Pierre Nugues (LU/CS), Springer was released on 21 August, 2014.
http://www.amazon.co.uk/Language-Processing-Perl-Prolog-Implementation/dp/364241463X

TRENDS 2014

Ilaria Castellani (INRIA, FR) and Mohammad Reza Mousavi (Halmstad, SE) co-chaired TRENDS 2014 on September 6 as a satellite of CONCUR 2014 in Rome. TRENDS is an event organized by IFIP WG 1.8 on Concurrency Theory. It aims at bringing together researchers interested in Concurrency Theory and its applications to exchange ideas and discuss recent trends and open problems.
http://ceres.hh.se/mediawiki/index.php/TRENDS_2014

Requirements Engineering at BTH

The 22nd IEEE Requirements Engineering Conference was arranged at BTH August 25-29, 2014. It attracted the record number of 400 participants, including a record number of industry participants.

NWPT 2014

Mohammad Reza Mousavi and Walid Taha (Halmstad) will organize the 26th edition of the Nordic Workshop on Programming Theory (NWPT 2014) from October 29 to October 31, 2014 at Halmstad University, Sweden. The NWPT series of annual workshops is a forum bringing together programming theorists from the Nordic and Baltic countries (but also elsewhere).
http://ceres.hh.se/mediawiki/NWPT_2014

5G Positioning Workshop

The ELLIIT groups in Lund that are doing research on advanced navigation (led by Tufvesson at LU/EIT, Bernhardsson at LU/AC and Åström at LU/MIG) were invited to present their work for the Ericsson research department at a 5G positioning workshop arranged in Kista in Sep 2014. The motivation for the workshop was that Ericsson is doing research on the future 5G standard and wanted to find opportunities to leverage Swedish academic research performed in the area.

ELLIIT Dominance in Empirical Software Engineering

In an analysis presented at the recent ESEM conference i Torino, Italy it is clear that ELLIIT researchers has a dominating role in the international community of empirical software engineering. The analysis comprises 898 papers since 1997 from the two top conferences and the top journal. The paper concludes:

- Sweden is the third country - without any normalization - with 82 papers, directly after USA with 187 and UK with 138. After Sweden follows Germany (78), Norway (71), Italy (67), and Australia (61).
- The three top authors were Barbara Kitchenham (32 papers), Emilia Mendes (30), and Claes Wohlin (30); the latter two at BTH.
- The institutions that most contributed with published studies are Lund University (40), Keele University (37), and Maryland University (37).
- The most cited research methodology guidebook was the experimentation guidebook by Wohlin, Runeson et al, cited by 88 studies.

Another sign of the dominance is that in "Authorship trends in software engineering" (Springer; Scientometrics 101(1):257-271), Claes Wohlin (BTH) was top-ranked in two lists of authors worldwide who contributed most to the area of Software Engineering (rank 4 and 7, respectively) (see http://link.springer.com/article/10.1007%2Fs11192-014-1331-6).

Furthermore, Kai Petersen (BTH) was ranked among the 18 most productive scholars in lean and agile software development based on publications in journals of a total of 448 researchers. Reference: Sun-Wen Chuang, Tainyi Luor, Hsi-Peng Lu: Assessment of institutions, scholars, and contributions on agile software development (2001-2012). Journal of Systems and Software 93: 84-101 (2014). In the same assessment BTH was ranked among the top 20 institutions (rank 20) of a total of 220 institutions.

ELLIIT Universities Top-Ranked

BTH was top-ranked among Swedish universities in URANK's latest ranking in the factor "teknik grundutbildning" (see http://www.urank.se/?fid=144). In the overall ranking Lund University came on third place and Linköping University on fourth place.

LCCC Focus Period on Dynamics and Control in Networks

From September 29 to October 31, 2014, the Lund Linneaus Center for Control of Complex Systems (LCCC) will be hosting a focus period on Dynamics and Control in Networks. The focus period will include a workshop with approximately 25 distinguished speakers, to be held at the Old Bishop's Palace, Lund, from October 15 to October 17, 2014. The aim of this focus period is to bring together leading researchers from different communities to create exciting cross-fertilization and new ideas.

The list of speakers includes Munther Dahleh, MIT, Tryphon Georgiou, University of Minnesota, Steven Low, CalTech, Rodolphe Sepulchre, University of Cambridge, Jean-Jacques Slotine, MIT, and Glenn Vinnicombe, University of Cambridge. http://www.lccc.lth.se/index.php?page=october-2014

Industry-Academia Collaboration in Software Engineering

Dr. Emelie Engström, Dr. Kai Petersen and Dr. Sten Minör filled almost a full session at the International Workshop on Long-term Industrial Collaboration on Software Engineering (WISE2014) 16 September 2014 in Västerås, Sweden. They presented experience and proposed models for industry-academia collaboration on software engineering:

- "Finding relevant research solutions for practical problems - the SERP taxonomy architecture", Kai Petersen and Emelie Engström
- "The 4+1 View Model of Industry - Academia Collaboration", Per Runeson and Sten Minör
- "Get the Cogs in Synch - Time Horizon Aspects of Industry-Academia Collaboration", Per Runeson, Sten Minör and Johan Svenér

Some Publications:

- D. Adjiashvili, S. Bosio, Y. Li, and D. Yuan. Exact and approximation algorithms for optimal equipment selection in deploying in-building distributed antenna systems. IEEE Transactions on Mobile Computing. (Accepted)
- C.-K. Ho, D. Yuan, L. Lei, and S. Sun. On power and load coupling in cellular networks for energy optimization. IEEE Transactions on Wireless Communications. (Accepted)
- M. Garrido, M. Acevedo, A. Ehliar and O. Gustafsson, "Challenging the Limits of FFT Performance on FPGAs", International Symposium on Integrated Circuits (ISIC-2014), Singapore, December 2014. (Accepted)
- Johanna Wallén, Isolde Dressler, Svante Gunnarsson, Anders Robertsson, Mikael Norrlöf , "Estimation-based ILC applied to a parallel kinematic robot", Control Engineering Practice, Volume 33, December 2014, Pages 1–9
- Emilia Mendes: Practitioner's Knowledge Representation - A Pathway to Improve Software Effort Estimation. Springer 2014, ISBN 978-3-642-54156-8, pp. 1-208
- M. Glinz, S. Fricker (2014). "On Shared Understanding in Software Engineering: an Essay", Computer Science - Research and Development. DOI 10.1007/s00450-014-0256-x.
- Solinski A., Petersen K.; "Prioritizing Agile Benefits and Limitations in Relation to Practice Usage", Software Quality Journal, accepted
- Mäntylä M., Khomh F., Adams B., Engström E., Petersen K.; "On Rapid Releases and Software Testing: A Case Study and a Semi-Systematic Literature Review", Empirical Software Engineering, accepted
- Petersen K., Khurum M., Angelis L.; "Reasons for Bottlenecks in Very Large System of Systems Development", Information and Software Technology, accepted

- R. Jabangwe, J. Börstler, D. Smite and C. Wohlin, "Empirical Evidence on the Link between Object-Oriented Measures and External Quality Attributes: A Systematic Literature Review", Accepted for publication in Empirical Software Engineering: An International Journal, published online March 8, 2014 - DOI: http://dx.doi.org/10.1007/s10664-013-9291-7.

- C. Wohlin and A. Aurum, "Towards a Decision-making Structure for Selecting a Research Design in Empirical Software Engineering", Accepted for publication in Empirical Software Engineering: An International Journal, published online May 20, 2014 - DOI: http://dx.doi.org/10.1007/s10664-014-9319-7.

- N. bin Ali, K. Petersen and C. Wohlin, "A Systematic Literature Review on the Industrial Use of Software Process Simulation", Accepted for publication in Journal of Systems and Software, published online July 9, 2014 - DOI: http://dx.doi.org/10.1016/j.jss.2014.06.059.

- P. Chatzipetrou, L. Angelis, S. Barney and C. Wohlin, "An Experience-based Framework for Evaluating Alignment of Software Quality Goals", Accepted for publication in Software Quality Journal, published online September 3, 2014 - DOI: http://dx.doi.org/10.1007/s11219-014-9251-5.

- S. Jalali, C. Wohlin and L. Angelis, "Investigating the Applicability of Agility Assessment Surveys: A Case Study", Accepted for publication in Journal of Systems and Software, published online September 8, 2014 - DOI: http:dx.doi.org/10.1016/j.jss.2014.08.067.

- Norsaremah Salleh, Emilia Mendes, John Grundy: Investigating the effects of personality traits on pair programming in a higher education setting through a family of experiments. Empirical Software Engineering 19(3): 714-752 (2014)

- Emilia Mendes, Marcela Genero: Guest Editorial: Special section of the best papers from the 16th International Conference on Evaluation & Assessment in Software Engineering. Information & Software Technology 56(1): 39 (2014)

- Muhammad Sulayman, Emilia Mendes, Cathy Urquhart, Mehwish Riaz, Ewan D. Tempero: Towards a theoretical framework of SPI success factors for small and medium web companies. Information & Software Technology 56(7): 807-820 (2014)

- Chris Lokan, Emilia Mendes: Investigating the use of duration-based moving windows to improve software effort prediction: A replicated study. Information & Software Technology 56(9): 1063-1075 (2014)

- A. Maglyas, S. Fricker (2014). "Preliminary Results from the Software Product Management State-of-Practice Survey", International Conference on the Software Business (ICSOB 2014), Paphos, Cyprus.

- I. Nurdiani, S. Fricker, J. Börstler (2014). "Towards Understanding how to Build Strategic Flexibility of an IT Organization", 13th IASTED International Conference on Software Engineering (SE 2014), Innsbruck, Austria.

- Petersen K., Engström E.; "Finding Relevant Research Solutions for Practical Problems - the SERP Taxonomy Architecture"; In: Proceedings of the International Workshop on Long-term Industrial Collaboration on Software Engineering (WISE 2014); Västeras; Sweden; ACM; 2014

- Emilia Mendes, Marcos Kalinowski, Daves Martins, Filomena Ferrucci, Federica Sarro: Cross- vs. within-company cost estimation studies revisited: an extended systematic review. EASE 2014: 12

- Olavo Matos, Tayana Conte, Emilia Mendes: Is there a place for qualitative studies when identifying effort predictors?: A case in web effort estimation. EASE 2014: 40
- Muhammad Usman, Emilia Mendes, Francila Weidt, Ricardo Britto: Effort estimation in agile software development: a systematic literature review. PROMISE 2014: 82-91
- Marcos Kalinowski, Emilia Mendes, Guilherme Horta Travassos: An Industry Ready Defect Causal Analysis Approach Exploring Bayesian Networks. SWQD 2014: 12-33
- Endri Bezati, Simone Casale-Brunet, Marco Mattavelli, Jorn W. Janneck: Coarse grain clock gating of streaming applications in programmable logic implementations. Proceedings of the 2014 Electronic System Level Synthesis Conference (ESLsyn), pp. 1-6, 2014
- Jorn W. Janneck, Simone Casale-Brunet, Marco Mattavelli: Characterizing communication behavior of dataflow programs using trace analysis. 2014 International Conference on Embedded Computer Systems: Architectures, Modeling, and Simulation (SAMOS XIV), pp. 44-50, 2014
- Gustav Cedersjö, Jorn W. Janneck: Software code generation for dynamic dataflow programs. Proceedings of the 17th International Workshop on Software and Compilers for Embedded Systems (SCOPES), 2014, pp. 31-39
- M. Canale, S. Casale-Brunet, E. Bezati, M. Mattavelli, J.W. Janneck: Dataflow programs analysis and optimization using model-predictive control techniques: an example of bounded buffer scheduling. Proceedings 2014 IEEE International Workshop on Signal Processing Systems (SiPS), pp. TBD, 2014
- S. Casale-Brunet, E. Bezati, M. Mattavelli, M. Canale, J. W. Janneck: Execution trace graph analysis of dataflow programs: bounded buffer scheduling and deadlock recovery using model-predictive control. Proceedings 2014 Conference on Design & Architectures for Signal & Image Processing (DASIP), pp. TBD, 2014
- Martin S. Andersen, Sina Khoshfetrat Pakazad, Anders Hansson, Anders Rantzer: Robust Stability Analysis of Sparsely Interconnected Uncertain Systems, *IEEE Transactions on Automatic Control,* pp. 2151–2156,2014.
- A. Pitarokoilis, S. K. Mohammed and E. G. Larsson, "Uplink performance of time-reversal MRC in massive MIMO systems subject to phase noise," IEEE Transactions on Wireless Communications. To appear.
- H.Q.Ngo, M.Matthaiou and E.G.Larsson,"Massive MIMO with optimal power and training duration allocation," IEEE Wireless Communications Letters. To appear.
- V.Savic ,J.Ferrer-Coll, P.Ängskog ,J.Chilo, P.Stenumgaard and E. G. Larsson, "Measurement analysis and channel modeling for TOA-based ranging in tunnels," IEEE Transactions on Wireless Communications. To appear.

Keynotes and Invited Talks:

- Jorn Janneck (LU/CS) "Whither high-level synthesis?", Keynote at Electronic System Level Synthesis Conference, San Francisco, CA, May 2014

Awards and Appointments:

- Johan Hedborg, Andreas Robinson och Michael Felsberg vann Best Paper Award på Fourth IEEE International Workshop on Mobile Vision för sitt bidrag "Robust Three-view Triangulation Done Fast"

- ELLIIT researchers from LU were awarded "most influential paper in 10 years" for their 2004 RE paper at the recently held 2014 Requirements Engineering Conference in Karlskrona, August 26-28. Prof. Björn Regnell, his former PhD student Johan Natt och Dag, and international collaborators Vincenzo Gervasi and Sjaak Brinkkemper were awarded the price for their paper "Speeding up Requirements Management in a Product Software Company: Linking Customer Wishes to Product Requirements through Linguistic Engineering". From the motivation: "[It]was selected because it was innovative in several directions. It is one of the first requirements engineering papers to apply natural language processing to large numbers of text-based requirements... It was also one of the first requirements papers to attempt a large-scale evaluation of requirements research work. As such, it provides a template and benchmark for a new breed of requirements papers as the community matured"

- Nauman bin Ali and Kai Petersen from BTH received the best short paper award the 8th International Symposium on Empirical Software Engineering and Measurement (ESEM 2014); Torino, Italy for their paper titled "Evaluating strategies for study selection in systematic literature studies".

- Pontus Giselsson (LU/AC) received the Young Author Price at the International Federation of Automatic Control (IFAC) World Congress, Cape Town, South Africa, 25-29 August 2014, for the paper "Improved Fast Dual Gradient Methods for Embedded Model Predictive Control". Among the five finalist papers Giselsson was the single author of two.

Program chairs and Editorships:

- Special issue on Software Language Engineering, Science of Computer Programming, Elsevier. In Press. Guest editors: Krzysztof Czarnecki and Görel Hedin (LU/CS). The special issue features seven extended papers from the Fifth International Conference on Software Language Engineering held in Dresden 2012.

- Samuel Fricker (BTH) is Program Co-Chair for RefsQ 2015.

- Emilia Mendes (BTH) is Program Co-Chair for Euromicro SEAA 2015.

- Jorn Janneck (LU/CS) is the General Co-Chair for the workshop "Data Flow Algorithms and Architecture for Signal Processing Systems" at GlobalSIP, December 2014, Atlanta, GA

- Emil Björnson and Erik G. Larsson (LiU/ISY) are co-chairs of the Massive MIMO symposium at IEEE GlobalSIP, December 2014, Atlanta, GA.

Dissertations:

- No new dissertations since last Newsletter because of summer holidays.

Forskningsfinansiering

- MCSA EID proposal "Anticipatory Networking Techniques in 5G and Beyond (ACT5G)", coordinated by D. Yuan (LiU/ITN), has been selected for funding from the Horizon 2020 programme, with a total budget of EUR 1,043,000, among which EUR 527,000 is allocated to LiU.
- MCSA RISE proposal "Deploying High Capacity Dense Small Cell Heterogeneous Networks (DECADE)", coordinated by D. Yuan (LiU/ITN), has been selected for funding from the Horizon 2020 programme, with a total budget of EUR 634,000 , among which EUR 175,000 is allocated to LiU.
- The H2020 proposal "SARAFun: Smart Assembly Robots with Advanced Functionalities" coordinated by ABB, Sweden and with LU/AC as one of the partners has been invited to contract negotiations. The total budget is EUR 570 000.