

# Simon Holmbacka. PhD – Publications

---

## CONTACT INFORMATION

Embedded Systems Laboratory  
Faculty of Science and Engineering  
Åbo Akademi University, Finland

Tammikalliontie 1  
20900  
Turku  
Finland  
Tel: +358 50 5310467  
Email: sholmbac@abo.fi



## THESIS

Simon Holmbacka: *Energy Aware Software for Many-Core Systems*, Faculty of Science and Engineering, Åbo Akademi University, 2015, Turku, Finland

## PUBLICATIONS – JOURNALS (5)

Simon Holmbacka, Dražen Lučanin, Ilia Pietri, Ivona Brandic, Johan Lilius, Rizos Sakellariou: *Performance-Based Pricing in Multi-Core Geo-Distributed Cloud Computing*, *IEEE Transactions on Cloud Computing*, IEEE 2016

Simon Holmbacka, Jörg Keller, Patrick Eitschberger, Johan Lilius: *Accurate Energy Modeling for Many-Core Static Schedules with Streaming Applications*, *Microprocessors and Microsystems*, Elsevier, 2016

Simon Holmbacka, Erwan Nogues, Maxime Pelcat, Sébastien Lafond, Daniel Menard, Johan Lilius: *Energy-Awareness and Performance Management with Parallel Dataflow Applications*, *The Journal Signal Processing Systems*. Springer US, 2015

Jose-Luis Gutiérrez-Rivas, Simon Holmbacka, Miguel Míndez-Macías, Wictor Lund, Sébastien Lafond, Johan Lilius, Javier Díaz-Alonso: *Safe Motor Controller in a Mixed-Critical Environment with Runtime Updating Capabilities*, *Journal of Universal Computer Science*, 2015

Simon Holmbacka, Mohammad Fattah, Wictor Lund, Amir-Mohammad Rahmani, Sébastien Lafond, Johan Lilius: *A Task Migration Mechanism for Distributed Many-Core Operating Systems*, *The Journal of Supercomputing*. Springer US, 2014

## PUBLICATIONS – PROCEEDINGS (20)

Simon Holmbacka, Robert Müller: *epEBench: True Energy Benchmark*, 25th Euromicro International Conference on Parallel, Distributed and Network-Based Processing, 2016, St Petersburg, Russia

Hergys Rexha, Simon Holmbacka, Sébastien Lafond: *Core Level Utilization for Achieving Energy Efficiency in Heterogeneous Systems*, 25th Euromicro International Conference on Parallel, Distributed and Network-Based Processing, 2016, St Petersburg, Russia

Georgios Georgakarakos, Simon Holmbacka and Johan Lilius: *Analysis on Scalability and Energy Efficiency of HEVC Decoding Using Task-Based Programming Model* The 2016 Conference on Design & Architectures for Signal & Image Processing, 2016, Rennes, France

Enida Sheme, Neki Frashëri, Simon Holmbacka, Sébastien Lafond, Dražen Lučanin: *Datacenters Powered by Renewable Energy: A Case Study for 60 Degrees Latitude North* Seventh symposium on green networking and computing (SGCN 2016), 2016, Split, Croatia

Simon Holmbacka, Jörg Keller, Patrick Eitschberger, Johan Lilius: *Accurate Energy Modelling for Many-Core Static Schedules* Proceedings of the 23rd International Euromicro Conference on Parallel, Distributed and Network-based Processing, 2015, Turku, Finland

Simon Holmbacka, Johan Lilius: *Fitness: A Metric Describing the Efficiency of Microarchitectural Utilization*, Eight Nordic Workshop on Multicore Computing, 2015, Copenhagen, Denmark

Simon Holmbacka, Sébastien Lafond, Johan Lilius: *Performance Monitor Based Power Management for big.LITTLE Platforms* HiPEAC Workshop on Energy Efficiency with Heterogeneous Computing, 2015, Amsterdam, Netherlands

Simon Holmbacka, Erwan Nogues, Maxime Pelcat, Sébastien Lafond, Johan Lilius: *Energy Efficiency and Performance Management of Parallel Dataflow Applications* [BEST PAPER] The 2014 Conference on Design & Architectures for Signal & Image Processing, 2014, Madrid, Spain

Erwan Nogues, Simon Holmbacka, Maxime Pelcat, Daniel Menard, Johan Lilius: *Power-Aware HEVC Decoding with Tunable Image Quality* 2014 IEEE Workshop on Signal Processing Systems, 2014, Belfast, UK

Simon Holmbacka, Johan Lilius: *Evaluation of CPU Hotplug Latency on Multi-Core ARM Chips*, Seventh Swedish Workshop on Multicore Computing, 2014, Lund, Sweden

Fredric Hällis, Simon Holmbacka, Wictor Lund, Robert Slotte, Sébastien Lafond and Johan Lilius: *Thermal Influence on the Energy Efficiency of Workload Consolidation in Many-Core Architecture*, Proceedings of the 24th Tyrrhenian International Workshop on Digital Communications, 2013, Genoa, Italy

Simon Holmbacka, Wictor Lund, Sébastien Lafond, Johan Lilius: *Lightweight Framework for Runtime Updating of C-Based Software in Embedded Systems*, 5th Workshop on Hot Topics in Software Upgrades, 2013, San Jose, US

Simon Holmbacka, Wictor Lund, Sébastien Lafond, Johan Lilius: *QoS Manager for Energy Efficient Many-Core Operating Systems*, 21st Euromicro International Conference on Parallel, Distributed and Network-Based Processing, 2013, Belfast, UK

Simon Holmbacka, Dag Ågren, Sébastien Lafond, Johan Lilius: *Task Migration for Dynamic Power and Performance Characteristics on Many-Core Distributed Operating Systems*, 21st Euromicro International Conference on Parallel, Distributed and Network-Based Processing, 2013, Belfast, UK

Simon Holmbacka, Sébastien Lafond, Johan Lilius: *Power Optimized Many-Cores with User Centric Notion of Parallelism*, Sixth Swedish Workshop on Multicore Computing, 2013, Halmstad, Sweden

Simon Holmbacka, Sébastien Lafond, Johan Lilius: *Towards Increasing Energy Scalability in Many-Core Systems*, 1st ASPLOS Doctoral Workshop, 2012, London, UK

Simon Holmbacka, Sébastien Lafond, Johan Lilius: *A PID-Controlled Power Manager for Energy Efficient Web Clusters*, International Conference on Cloud and Green Computing, 2011, Sydney, Australia

Simon Holmbacka, Sébastien Lafond, Johan Lilius: *Power Proportional Characteristics of an Energy Manager for Web Clusters*, 11:th International Conference on Embedded Computer Systems: Architectures, Modeling and Simulation, 2011, Samos, Greece

Simon Holmbacka, Jens Smeds, Sébastien Lafond, Johan Lilius: *System Level Power Management for Many-Core Systems*, uPM2SoC workshop, DATE '11 Conference, 2011, Grenoble, France

Simon Holmbacka, Sébastien Lafond, Johan Lilius: *Generic QoS Manager for Many-Core Service-Based Operating Systems*, Fourth Swedish Workshop on Multicore Computing, 2011, Linköping Sweden

PUBLICATIONS – NON-PEER-REVIEWED Simon Holmbacka Fredric Hällis, Wictor Lund, Sébastien Lafond and Johan Lilius: *Energy and Power Management, Measurement and Analysis for Multi-Core Processors* TUCS Technical Reports 1117, 2014, Turku Centre for Computer Science

REGISTERED INVENTIONS Simon Holmbacka (100%): *Power management with performance monitoring for computer systems* Coordinator: Olle Lagerroos, June 2015, Åbo Akademi University

REFEREES	<b>Prof. Johan Lilius</b> Professor Åbo Akademi University Turku Finland phone: <i>available on request</i> e-mail: <i>johan.lilius@abo.fi</i>	<b>Prof. Jörg Keller</b> Professor Fernuniversität in Hagen Hagen Germany phone: <i>available on request</i> e-mail: <i>joerg.keller@fernuni-hagen.de</i>	<b>Jonas Kronlund</b> Business Design Lead Elisa Oyj Helsinki Finland phone: <i>available on request</i> e-mail: <i>jonas.kronlund@elisa.fi</i>
----------	---	--	--

**Prof. Juha Plosila**  
Professor  
University of Turku  
Turku Finland  
phone: *available on request*  
e-mail: *juplos@utu.fi*