

Simon Holmbacka. PhD – Resume

1 August 2017

CONTACT INFORMATION

Tammikalliontie 1
20900 Turku, Finland
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Email: sholmbac@abo.fi
Gender: male
Time of birth: 24.01.1986
Place of birth: Jakobstad, Finland
Nationality: Finnish



POSITION

IT Researcher
Elisa Oyj.
Task: *Mobile network optimization using deep learning*
Senior Researcher
University of Turku
Task: *Creating MooCs for online education (25% contract)*

May 2017 –

June 2017 –

EDUCATION

Åbo Akademi University, Finland

Doctor of Technology in Computer Engineering (26 Jan. 2016, Turku, Finland)

2011 – 2015

- Faculty: Science and Engineering
- Major: Embedded Computer Systems
- Minor: Software Engineering
- Minor: University Pedagogics
- Thesis: *Energy-Aware Software for Many-Core Systems* **Grade:** Honorary Grade
- Reference: Prof. Johan Lilius johan.lilius@abo.fi

Master of Science in Computer Engineering (31 Mar. 2011, Turku, Finland)

2009 – 2011

- Institution: Information Technologies
- Major: Embedded Computer Systems
- Minor: Control Engineering
- Minor: Software Engineering
- Thesis: *Task Migration in Virtualized Multi-Core Real-Time Systems* **Grade:** 5/5

Bachelor of Science in Computer Engineering (6 Oct. 2009, Turku, Finland)

2006 – 2009

- Institution: Information Technologies
- Major: Embedded Computer Systems
- Minor: Software Engineering

ABOUT ME

I come from the small city of Jakobstad in the mid west of Finland from which I moved to Turku to study computer engineering in 2006. I completed my Master's degree in 5 years (2006 – 2011) and my PhD in 4 years (2011 – 2015) from Åbo Akademi University in Turku, Finland.

Technical

I have worked extensively in the areas of embedded systems, runtime systems, power management and many-core platforms, which includes foremost low level system programming (usually in C), and lately I have been using Python more. Furthermore I have experience in other object oriented programming languages, mostly C++ and Java, and I have of course stumbled upon some Java script, xml and assembly programming. I have worked with system modeling, mathematical optimization and control theory including NLP optimization, digital filtering, plane fitting methods, control theory and its underlying mathematics. This means that I have very good knowledge of Matlab, its toolboxes and system simulation in Simulink. On the hardware side, I have excellent knowledge of ARM and Intel platforms in particular, and system/kernel programming using Linux. I have been hacking with the Linux kernel since I was 16 years old and know this world in and out. On further lower level I have worked with real-time operating systems like FreeRTOS during my PhD and I have also build many hobby projects from scratch using micro controllers such as an audio synthesizer complete with a midi interface and USB driver running on an 8-bit AVR. I am currently working with big data deep learning using Tensorflow/Keras and R, and optimization of deep learning models in Opentuner.

Project Work

In the 4 years of making my PhD I have published over 15 international peer reviewed scientific articles, one of which I received the best paper award for in 2014. I worked in the European FP-7 project RECOMP from 2011 – 2014 and in the national Tekes project ParallaX from 2014 – 2016, in which I worked together with universities and international IT companies like Wittenstein ltd., UK and Seven Solutions, Spain on programming and integration tasks. I am a very good team worker, which has shown in co-operations with 7 different universities in 4 countries during this time for my thesis, and outside of my thesis I have published work together with 12 different institutions and co-authored work together with over 30 people. I have visited more than 30 countries in my thesis work, and I find it very easy to join a team and start working on new projects with new people.

Languages



- Swedish: Mother tongue
- Finnish: Conversational
- English: Fluent
- German: Conversational

Pedagogics

Education wise, I have been lecturing university courses in English since 2013 and completed university pedagogics as a minor subject. I created two online education MooCs on coursera.org from scratch in the EIT Digital project in 2015, 2016 and 2017, which are now freely available on Coursera and has thousands active students.

About Simon

I would describe myself as a person who takes the initiative, gets things started and gets things done. I have a very good working discipline with regard to time and responsibility, and *I always do the work today instead of leaving it until tomorrow!* I always start a task well on time, and I keep the promised timelines whether it is a question of delivering C code, an article, a presentation, course material or a PhD thesis. My hobbies are traveling, gardening, skiing, hiking, driving, workout and watching airplanes.

TEACHING EXPERIENCE

Course creator: EIT Digital Online Coursera <i>Autonomous Runway Detection for IoT</i> https://www.coursera.org/learn/embedded-systems-larger/	Summer 2017
Course creator and lecturer: EIT Digital Online Coursera <i>Development of Real-Time Systems</i> https://www.coursera.org/learn/real-time-systems/	Spring 2016
Course lecturer: Real-Time Systems Åbo Akademi University	2012 – 2017
Advisor and examiner for thesis work: Åbo Akademi University	2012 – 2016
Prüfer für Abschlussarbeiten: FernUniversität in Hagen	2015 – 2016
Course assistant: Multimedia Algorithm Implementations Åbo Akademi University	Spring 2016
Course assistant: Multimedia Algorithm Implementations Åbo Akademi University	Spring 2013
Course assistant: Real-Time Systems Åbo Akademi University	Spring 2011

AWARDS ★★★★★

Researcher of the year
Host: Åbo Akademi University
Rationale: *Awarded researcher of the year for of best PhD thesis during the year 2016*

Best paper award
Host: Conference on Design & Architectures for Signal & Image Processing 2014
Rationale: *Awarded best paper for work on power management system for multi-core processors*

INVITED SPEECHES **Development of MooCs and Digital Learning** Location: Brussels, Belgium
Event: EIT Digital Conference 2017
Host: Martijn Klabbers, TU Eindhoven

RESEARCH VISITS **Rennes 4 month research visit**
Location: Rennes, France
Institution: Institut national des sciences appliquées de Rennes
Host: Maxime Pelcat, ITER Laboratory
Duration: **November 2013 - March 2014**

JOINT- COOPERATION	Green Energy Cloud Simulation <i>Partners: Enida Sheme, Polytechnic University of Tirana, Tirana, Albania Dražen Lučanin, TU Vienna, Vienna, Austria</i> Duration:	August 15 - November 30 2015
	Energy Efficient Cloud Simulation <i>Partners: Dražen Lučanin, Ilija Pietri, Ivona Brandić, TU Vienna, Vienna, Austria</i> Duration:	May 15 - May 30 2015
	Power-Aware HEVC Decoding with Tunable Image Quality <i>Partners: Erwan Nogues, Maxime Pelcat, INSA de Rennes, France</i> Duration:	Winter 2014
	Barrelfish port for Tiler Tile64 <i>Partners: Xiaowen Wang, Robert Radkiewicz, Mats Brorsson, SICS, Stockholm, Sweden</i> Duration:	Summer 2013
	Task Migration Mechanism for Distributed Many-Core NoC Systems <i>Partners: Mohammad Fattah, Amir-Mohammad Rahmani, University of Turku, Finland</i> Duration:	Spring 2013
GRANTS	Safe Motor Controller in Mixed-Critical Environment with Runtime Updating Capabilities <i>Partners: José Luis Gutiérrez, University of Granada, Spain Miguel Méndez, Seven Solutions Inc., Spain</i> Duration:	November 5 - November 17 2012
	Safe core-to-core channel implementation <i>Partners: William Davy, Wittenstein Inc., UK</i> Duration:	May 23 - May 24 2012
	PoDoCo Grant (2.8% acceptance)	2017
	<i>For research on network optimization coordinated with Elisa Oyj, Helsinki, 28000€</i>	
	Waldemar von Frenckells stiftelse	2016
	<i>For research on energy aware software, 5000€</i>	
	Oskar Öflunds stiftelse	2016
	<i>For research co-operation with FernUniversität in Hagen, Germany, 3000€</i>	
	Svenska tekniska vetenskapsakademien i Finland	2015
	<i>For research visit to FernUniversität in Hagen, Germany, 4500€</i>	
WORK EXPERIENCE	Otto Malms stiftelse	2014
	<i>For thesis on energy aware software, 5000€</i>	
	Svenska tekniska vetenskapsakademien i Finland	2013
	<i>For research visit to Rennes, France, 2500€</i>	
	Tekniikan edistämissäätiö	2013
	<i>For thesis on energy aware software, 5000€</i>	
	Elisa Oyj, Helsinki, Finland <i>IT Researcher</i>	May 2017 –
	University of Turku, Turku, Finland <i>Senior researcher</i>	June 2017 –
	Åbo Akademi University, Turku, Finland <i>Post-Doc Researcher</i>	January 2016 – April 2017
	Fernuniversität in Hagen, Hagen, Germany <i>Wissenschaftlicher Mitarbeiter</i>	September 2015 – April 2017
	Åbo Akademi University, Turku, Finland <i>PhD Student</i>	March 2011 – December 2015
	<i>Research assistant</i>	April 2010 – March 2011
	Brisa Inc., Pedersöre, Finland <i>IT manager</i>	May 2009 – September 2009
	Herrmans Inc., Pedersöre, Finland <i>IT support</i>	May 2008 – September 2008
	Brisa Inc., Pedersöre, Finland <i>Webshop assistant</i>	May 2007 – September 2007
	Digicomp Inc., Jakobstad, Finland <i>Sales person</i>	July 2006 – September 2006
	<i>Technical support</i>	May 2005 – January 2005

REFEREES

Prof. Johan Lilius

Professor
Åbo Akademi University
Turku Finland
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Prof. Jörg Keller

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Jonas Kronlund

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