

Simon Holmbacka. PhD – Resume

19 June 2018

CONTACT INFORMATION

Haagantie 62
20380 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

AI Researcher
Elisa Oyj.
Task: *Mobile network optimization using deep learning*
Senior Researcher
University of Turku
Task: *MooC developer for online education*

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 – 2018, 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, watching airplanes and Trump-Russia investigation.

TEACHING EXPERIENCE

Course administrator: EIT Digital Online Coursera <i>Embedded Hardware and Operating Systems</i>	2018
https://www.coursera.org/learn/embedded-operating-system/ Course creator: EIT Digital Online Coursera <i>Autonomous Runway Detection for IoT</i>	2017
https://www.coursera.org/learn/embedded-systems-larger/ Course creator and lecturer: EIT Digital Online Coursera <i>Development of Real-Time Systems</i>	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*

Elisa hackathon winner

Host: Elisa OYj

Rationale: *Awarded first place for "Minder" – Tinder for movies app*

INVITED TALKS	Development of MooCs and Digital Learning Location: Brussels, Belgium Event: EIT Digital Conference 2017 Host: Martijn Klabbers, TU Eindhoven	
PROGRAM COMMITTEES	The 26th Euromicro International Conference on Parallel, Distributed and Network-Based Processing, 2018 Location: Cambridge, UK The tenth Nordic Workshop on Multi-Core Computing, 2017 Location: Uppsala, Sweden	
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 Partners: Enida Sheme, Polytechnic University of Tirana, Tirana, Albania Dražen Lučanin, TU Vienna, Vienna, Austria Duration: August 15 - November 30 2015 Energy Efficient Cloud Simulation Partners: Dražen Lučanin, Ilia Pietri, Ivona Brandić, TU Vienna, Vienna, Austria Duration: May 15 - May 30 2015 Power-Aware HEVC Decoding with Tunable Image Quality Partners: Erwan Nogues, Maxime Pelcat, INSA de Rennes, France Duration: Winter 2014 Barrelfish port for Tiler Tile64 Partners: Xiaowen Wang, Robert Radkiewicz, Mats Brorsson, SICS, Stockholm, Sweden Duration: Summer 2013 Task Migration Mechanism for Distributed Many-Core NoC Systems Partners: Mohammad Fattah, Amir-Mohammad Rahmani, University of Turku, Finland Duration: Spring 2013 Safe Motor Controller in Mixed-Critical Environment with Runtime Updating Capabilities Partners: José Luis Gutiérrez, University of Granada, Spain Miguel Méndez, Seven Solutions Inc., Spain Duration: November 5 - November 17 2012 Safe Core-to-Core Channel Implementation Partners: William Davy, Wittenstein Inc., UK Duration: May 23 - May 24 2012	
GRANTS	Nvidia Grant 2018 For research on deep learning in telecommunications networks, GTX 1080 i PoDoCo Grant (2.8% acceptance) 2017 For research on network optimization coordinated with Elisa Oyy, Helsinki, 28000€ Waldemar von Frenckells stiftelse 2016 For research on energy aware software, 5000€ Oskar Öflunds stiftelse 2016 For research co-operation with FernUniversität in Hagen, Germany, 3000€ Svenska tekniska vetenskapsakademien i Finland 2015 For research visit to FernUniversität in Hagen, Germany, 4500€ Otto Malms stiftelse 2014 For thesis on energy aware software, 5000€ Svenska tekniska vetenskapsakademien i Finland 2013 For research visit to Rennes, France, 2500€ Tekniikan edistämissäätiö 2013 For thesis on energy aware software, 5000€	

WORK
EXPERIENCE

Elisa Oyj , Helsinki, Finland <i>AI 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 phone: <i>available on request</i> e-mail: <i>johan.lilius@abo.fi</i>	Prof. Jörg Keller Professor Fernuniversität in Hagen Hagen Germany phone: <i>available on request</i> e-mail: <i>joerg.keller@fernuni-hagen.de</i>	Kirsi Valtari VP Telco Efficiency Business Elisa Oyj Helsinki Finland phone: <i>available on request</i> e-mail: <i>kirsi.valtari@elisa.fi</i>
Prof. Juha Plosila Professor University of Turku Turku Finland phone: <i>available on request</i> e-mail: <i>juplos@utu.fi</i>		