

# Simon Holmbacka. PhD – Resume

1 February 2017

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## CONTACT INFORMATION

Frantsinkatu 2 B 9  
20540 Turku, Finland  
Tel: +358 50 5310467  
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*

May 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](mailto: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). Furthermore I have experience in object oriented programming languages, mostly C++ and Java, and I have of course stumbled upon some Python, VB, 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. From my PhD work, I created an Android app called “Low Energy Player” freely available on Google Play. 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.

## 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 an online education MooC on coursera.org from scratch in the EIT Digital project in 2015 and 2016, which is 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 and lecturer:** EIT Digital Online Coursera

*Development of Real-Time Systems*

<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**

## 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 Tileria 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

**PoDoCo Grant (2.8% acceptance)****2017***For research integration with Elisa Oyj, 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 edistämmissäätiö****2013***For thesis on energy aware software, 5000€*

## WORK

## EXPERIENCE

**Elisa Oyj**, Helsinki, Finland*IT Researcher***May 2017 –****Åbo Akademi University**, Turku, Finland*Post-Doc Researcher***January 2016 – April 2017****Fernuniversität in Hagen**, Hagen, Germany*Wissenschaftlicher Mitarbeiter***September 2015 – April 2017****Åbo Akademi University**, Turku, Finland*PhD Student***March 2011 – December 2015***Research assistant***April 2010 – March 2011****Brisa Inc.**, Pedersöre, Finland*IT manager***May 2009 – September 2009****Herrmans Inc.**, Pedersöre, Finland*IT support***May 2008 – September 2008****Brisa Inc.**, Pedersöre, Finland*Webshop assistant***May 2007 – September 2007****Digicomp Inc.**, Jakobstad, Finland*Sales person***July 2006 – September 2006***Technical support***May 2005 – January 2005**

## REFEREES

**Prof. Johan Lilius**

Professor

Åbo Akademi University

Turku Finland

phone: *available on request*e-mail: *johan.lilius@abo.fi***Prof. Jörg Keller**

Professor

Fernuniversität in Hagen

Hagen Germany

phone: *available on request*e-mail: *joerg.keller@fernuni-hagen.de***Jonas Kronlund**

Business Design Lead

Elisa Oyj

Helsinki Finland

phone: *available on request*e-mail: *jonas.kronlund@elisa.fi*