Simon Holmbacka. PhD – Resume
19 June 2018

CONTACT INFORMATION

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Gender: male
Time of birth: 24.01.1986
Place of birth: Jakobstad, Finland
Nationality: Finnish

POSITION

AI Researcher   **May 2017 –**
Elisa Oyj.
Task: *Mobile network optimization using deep learning*

Senior Researcher   **June 2017 –**
University of Turku
Task: *Creating MooCs for online education (25% contract)*

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	
	Embedded Hardware and Operating Systems	**2018**
	https://www.coursera.org/learn/embedded-operating-system/	
	Course creator: EIT Digital Online Coursera	
	Autonomous Runway Detection for IoT	**2017**
	https://www.coursera.org/learn/embedded-systems-larger/	
	Course creator and lecturer: EIT Digital Online Coursera	
	Development of Real-Time Systems	**2016**
	https://www.coursera.org/learn/real-time-systems/	
	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 ⭐⭐⭐

Elisa hackathon winner
Host: Elisa OYj
Rationale: *Awarded first place for "Minder" – Tinder for movies app*

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

PROGRAM **The 26th Euromicro International Conference on Parallel, Distributed and Network-Based**
COMMITTEES **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- **Green Energy Cloud Simulation**
COOPERATION *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 Tilera 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 Oyj, 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	
	IT Researcher	**May 2017 −**
	University of Turku, Turku, Finland	
	Senior researcher	**June 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
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