Henry **Sanmark**

Lead Software Engineer

henry.sanmark@iki.fi | henry-sanmark | Espoo, Finland

Summary

I am an experienced software engineer who has developed software for space missions and also for other fields of industry. I have educational background from control engineering and robotics. Furthermore, I have strong experience leading teams in different organisations and keen passion for intellectually challenging projects and problem solving. I want to keep learning and challenge myself in an extreme way, while keeping up the mood with pragmatic touch and taking a whole team into consideration.

Education

Aalto University School of Electrical Engineering — *Espoo, Finland*

Master of Science, Technology — *2014 - 2017*

Major: *Control, Robotics and Autonomous systems* - Minor: *Space Technology*

Bachelor of Science, Technology — *2010 - 2014*

Major: *Automation and Systems Technology* - Minor: *Industrial Engineering and Management*

Experience

ICEYE — *Espoo, Finland*

Lead Software Engineer, Satellite and Ground Stations — *Jul 2019 - Present*

I am responsible for major technical decisions and design for ground segment and satellite constellation control software. Work requires multiple programming languages, frameworks and understanding of cloud, embedded and bare-metal systems. I am also leading team of software engineers, which includes, for example, being a scrum master. My team works directly with satellite operations and product delivery.

Ground Segment Software Engineer — *May 2017 - Jul 2019*

Ground segment software is used for the satellite mission operations. This includes, for example, telemetry and beacon handling, pass calculations and working with a large infrastructure with multiple different technologies and frameworks. I continued in this position directly after finishing my master's thesis.

Master's Thesis Worker — *Oct 2016 - May 2017*

I was working as a software engineer and simultaneously writing my master's thesis about development and engineering analysis for mission critical satellite flight software. Master's thesis was finished in May 2017.

Eficode — *Helsinki, Finland*

DevOps Consultant — *Jun 2015 - Sep 2016*

I was a consultant in DevOps unit, which produces solutions for third generation software development with virtualization, modern software production tools, continuous integration and test automation. I was involved in projects such as an autonomous payment terminal test robot based on CNC mill frame and OpenCV, automatic acceptance testing library for a mobile game, creating CI/CD pipelines for different fields of industry and Robot Framework coaching material.

Aalto University, Aalto-1 — *Espoo, Finland*

Software Engineer — *Jun 2015 - Aug 2015*

I was writing satellite radio communication software with C for Aalto-1 satellite during summer 2015. This was my secondary work alongside a position of the consultant at Eficode.

ICEYE — *Espoo, Finland*

Software Trainee — *May 2014 - Jan 2015*

I was employed at ICEYE before it was an official company and part of Aalto University. My major role was to develop satellite on-board computer software focusing on data handling software following ECSS-E-70-41A. I was also involved in ground segment development at its early stages.

Aalto University, Aalto-1 — *Espoo, Finland*

Research Assistant — *Jun 2013 - Aug 2013*

I was employed as a research assistant in Aalto-1 student satellite project to develop on-board computer software from scratch. I also made my bachelor's thesis based on my work in autumn 2013.

Miscellaneous

Various — *2005 - 2012*

I did various different summer jobs and internships, such as being a shop assistant.

Projects

Aalto-1

Volunteer software engineer *2013-2015*

As stated in work experience, I also worked voluntarily for Aalto-1 project to create Finland's first satellite mainly focusing on on-board computer software using C. Aalto-1 is the student-driven satellite project based on CubeSat 3U architecture. It was launched successfully in summer 2017.

Autonomous flying quadcopter

Developer *2014*

I was a member of a team, which developed a quadcopter which is able to navigate autonomously indoors based on LIDAR data using SLAM. I was responsible in Robot Operating System integration first with Intel Galileo board and afterwards with Raspberry Pi connected with Arduino boards. The quadcopter was self-built by our team. This project was semi-extracurricular, while developed autonomously but received credits and funding from university.

Glove-controlled miniature robot

Developer *2012*

I was a member of the team in a pilot for workshop course, where we developed a glove containing several flex sensors and gyroscopes, used to control a simple wheeled robot using just hand movement. Development was done with Python on Arduino board with various sensors.

Game installer

Private developer *2011*

A personal project to create a script to install Dota 2 video game developed by Valve Corporation on Linux desktops, working as a wrapper for Wine technology. Cancelled after a few months, when an official native Linux client was announced. The installer client was written with C and Bash.

Multiplayer Pacman

Software developer *2011*

Revised version of Pacman game, developed using C++ and Qt. Able to play multiplayer over the net. Part of the C++ course as a project work.

Volunteer experience

I have been actively part of various organizations, especially in student and alumna associations, starting from 2010. These positions of trust have given me indispensable experience of project management and leading teams. I have experience especially in event producing, where largest of them have involved thousands of participants. For full list of experience, I can provide additional list of positions upon request. These positions include, for example,

- Member of board (including **chair of board**) in 5 different organisations
- Multiple professionally produced events, such as **Laskiaisrieha** sports event, world's largest sauna **WiikonWappuSauna** and phenomenal **Tempaus2016** for promoting comprehensive schooling around Finland
- Leading different teams, usually from 5 to 30 members
- Received several awards, such as **Badge of Merit** from Aalto University Student Union

Technical skills

Programming, experienced: Python, C, Bash, SQL, NoSQL
Programming, some experience: C++, Matlab, Simulink, XML, Arduino, PLC
Tools and frameworks: Robot Framework, PyUnit, Git, Falcon, Tornado, AWS (multiple services), Docker, Jenkins, STK, SQLAlchemy, Robot Operating System
Operating systems: Linux (cloud, bare-metal, embedded), Windows, FreeRTOS

Languages

Finnish Native
English Full working proficiency
Swedish Limited working proficiency
German Elementary proficiency

Other

Developing a Linux-based nanosatellite on-board computer: Flight results from the Aalto-1 mission

Co-author, journal *Jan 2019*

Published in IEEE Aerospace and Electronic Systems Magazine (Volume: 34, Issue: 1, Jan 2019). https://ieeexplore.ieee.org/document/8637100/