

# Curriculum Vitae

Ilkka Sillanpää, Secrets in Data  
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## *PROFILE*

I am an independent entrepreneur in data analytics and data modeling. I have extensive experience with analysing and presenting complex datasets. I have expertise in realtime data and various data platforms: especially MongoDB, also MS-SQL and PostgreSQL, Splunk and more recently GraphQL. I am fluent in Python, C++ and scripting in Linux and Windows environments.

My background is in scientific and space physics research and my expertise is in scientific numerical and empirical modeling and data analysis. I am currently also a research scientist at the Earth Observation Unit of the Finnish Meteorological Institute (FMI). I have studied, modelled and analysed satellite data on Saturn's moon Titan, icy moons, Pluto and comets as well as near Earth particles and space weather. I received my Ph.D. in theoretical physics in 2008 and afterwards worked several years in the NASA Cassini project studying and analyzing Titan data. Public outreach of science is one of my professional interests and I regularly give public lectures and media interviews.

I am working on data analysis projects with my own company Secrets in Data.

## *CONTACT AND PERSONAL INFORMATION*

Tel: +358 050 408 9024

Email: [secretsindata@protonmail.com](mailto:secretsindata@protonmail.com)

Web page: [www.secretsindata.webs.com](http://www.secretsindata.webs.com)

Twitter: [@samooja](https://twitter.com/samooja)

Date of Birth: March 30<sup>th</sup>, 1976

Nationality: Finnish

Family: married, five children

## *PROFESSIONAL EMPLOYMENT*

Since October 2014 Research scientist at the Finnish Meteorological Institute. Plasma modeling, focusing on Earth's magnetosphere. Webpage and database development and realtime datas.

2012-2014 Research scientist at the Southwest Research Institute. Saturn and Titan plasma physics based on Cassini observations.

2008-2012 Post-doctoral researcher at SwRI. Cassini data analysis and comparisons to Titan plasma model.

2003-2008 Research scientist at FMI. Work on doctoral dissertation: Hybrid Modelling of Titan's Interaction with the Magnetosphere of Saturn. My thesis advisor was Dr. Esa Kallio, a research fellow of the Academy of Finland.

Year 2002 Researcher at FMI. Study on ionospheric electric currents for master's thesis.

Summer 2002 Researcher at GeoForschungZentrum, Potsdam, Germany. Quiet-time magnetic variations from IMAGE magnetometer network data. Following autumn wrote a refereed paper on this work.

Autumn 2001 Assistant at a physics course at the Department of Physical Sciences of the University of Helsinki.

Summer 2001 Research Assistant at the Aerosol and Environmental Physics Laboratory at the Department of Physical Sciences at the University of Helsinki. Applied different inversion methods to determine aerosol size distributions, developed an improved program for deriving reliable size distributions from aerosol particle measurements.

Summer 2000 Research Assistant at the Physics Laboratory of the Helsinki University of Technology. Random-field Ising model simulations.

## *EDUCATION*

2003 - 2007 Ph.D in planetary research, University of Helsinki. Advanced mathematics and physics courses as a post-graduate student and in preparation to Ph.D. Thesis.

1998 - 2002 Masters in Science, University of Helsinki. Theoretical physics major, with mathematics, experimental physics and astronomy as minors. Emphasis on plasma physics and electromagnetic radiation.

## *SCIENCE OUTREACH HIGHLIGHTS*

1. Seven class room presentations on space science in Helsinki region elementary and high schools in 2015-2016
2. Presentation on Titan in a science café event *Uusi Avaruus (New Space)* by Univ. Helsinki, Helsinki, Finland, 28 April 2016
3. Popular science lecture for Finnish Astronomical Society URSA, *Pluton todelliset kasvot (Pluto's actual visage)*, Helsinki, Finland, 5 April 2016.
4. Popular science presentation as part of the Space Week program in Helsinki 4 October 2015
5. Popular science presentation in Kokkola 18 April 2015
6. Keynote presentation at NASA Space Apps Challenge in Mikkeli on 10-12 April 2015
7. Popular science lectures in Helsinki and Rauma in January 2015
8. Multiple yearly career day presentations (4 to 6 classes each time) in elementary schools in San Antonio in 2009-2014.
9. Popular science lecture for Finnish Astronomical Society URSA, Cassini-luotain ja Saturnuksen uusi vuodenaika (Cassini Space Probe and the New Season of Saturn), 8 September 2009.
10. Article in Yliopisto magazine, *Titan, seireeni (Titan - a Siren)*, 5/2008, p. 46-47.

11. Article in Avaruusluotain (Space Probe) magazine by the Finnish Space Research Association, *Titanin ionipaon simulointia Ilmatieteen laitoksella (Simulation of Titan's Ion Escape at the Finnish Meteorological Institute)*, Avaruusluotain, vol. 39, issue 3, p. 17-19, 2004.

### *SPECIAL SKILLS*

Languages: native in Finnish, excellent English, basic German and Swedish.

Computer languages: python, MatLab, SQL, C++ and Fortran, and some IDL; LaTeX; Html; Wikis

### *HOBBIES, INTERESTS*

Science outreach

Self-education, public policies

Blogging and translating, twitter

Strategy board games, role-playing games