Pölönen Ilkka

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CV

1. Full name and date

Surename: Pölönen

Given names: Ilkka Sakari

Gender: Male

Date of writing the CV: 30.12.2015

2. Date and place of birth, nationality, current residence

Date of birth: 03.06.1980

Place of birth: Nurmes, Finland

Current residence: Jyväskylä, Finland

Family: married, three children (born 2008 and 2010)

My research interests are in analyzing methods of high dimensional data and applying those to practice – such as in case of spectral imaging.

3. Education and degrees awarded

PhD, University of Jyväskylä   20.12.2013

Department of Mathematical Information Science; Computational Science

Thesis: *Discovering knowledge in various applications with a novel hyperspectral imager*

Supervisors: professor Pekka Neittaanmäki (University of Jyväskylä) and
                professor Amir Averbuch (Tel Aviv University)

Master of Science, University of Helsinki   25.01.2008

Major: Applied Mathematics / Stochastic

Minor: Economics, Philosophy

Pro gradu: Cournot Oligopoly in the Mathematical Economics.

Matriculation examination, High School of Nurmes   29.05.1999

5. Linguistic skills

Mother tongue: **Finnish**

	Understanding		Speaking		Writing
	Listening	*Reading*	*Spoken intreaction*	*Spoken production*	
English	Proficient user (C2)	Proficient user (C2)	Proficient user (C1)	Proficient user (C1)	Proficient user (C2)
Swedish	Independent user (B1)	Independent user (B2)	Basic user (A2)	Basic user (A1)	Independent user (B2)

6. Current position

Researcher at the department of Mathematical Information Technology, Head of the Spectral Imaging Laboratory.
Working as principal investigator Kespek-project and project manager/research consortium coordinator in TEKES funded HSI-Stereo -project. Research consortium consists of four Finnish research institutes (JyU, Luke, VTT and FGI) and eight SME's. Project is concentrated on UAV based remote sensing with small sized and novel hyperspectral imagers. My research contribution is in feature extraction and analysis of hyperspectral data. I have also couple smaller projects for Finnish companies and participating to two other projects of different departments of university.

Current position is on tenure track and fixed-term until 31.12.2019.

7. Previous work experience

University of Jyväskylä, Department of Mathematical Information Technology

Principal investigator/Project Manager/Researcher　　　**01.06.2010 - >**

Kespek　　　　　　　　　　　　　　　　　　　*08.11.2015 -*
　　　Principal investigator (74 k€)

Iskin　　　　　　　　　　　　　　　　　　　*01.01.2015 -31.12.2015*
　　　Principal investigator, commercial reseach (10 k€)

MineView　　　　　　　　　　　　　　　　　*01.01.2015 ->*
　　　Hyperspectral data analysis (Academy of Finland)

IhoSpeksi　　　　　　　　　　　　　　　　　*01.01.2014-31.6.2015*
　　　Principal investigator (12 k€)

Recenart – Research center for art　　　　　*01.01.2014 ->*
　　　Hyperspectral data analysis (TEKES)

HSI-Stereo　　　　　　　　　　　　　　　　*01.01.2014 ->*
　　　Project manager and consortium coordinator (Tekes fund. 225 €)
　　　Partnerts: VTT, FGI, METLA (fund. whole consortium 1 M€)

SpeCSI Solutions　　　　　　　　　　　　　*01.05.2013 -31.10.2014*
　　　Project researcher (TEKES fund. 500 k€)

UASI –project　　　　　　　　　　　　　　*15.02.2012 – 30.04.2013*
　　　Project manager and consortium coordinator (TEKES fund. 290 k€).
　　　Partners: VTT, MTT, METLA (fund. whole consortium 1,2 M€)

SpeCSI –project　　　　　　　　　　　　　*15.02.2012 – 30.06.2012*
　　　Project manager in a hyperspectral imaging at crime scenes project. (TEKES fund. 100 k€) Partners: VTT, National Bureau of investigation, Specim ltd.

Diagnostics –project　　　　　　　　　　　*01.01.2011 – 31.01.2013*
　　　Project manager in a medical imaging project
　　　Data analysis for Pet/CT, MRI and hyperspectral imaging. (TEKES, fund. 320 k€). Partners: Tel Aviv University, Päijät-Häme Central Hospital

Computational science and work life –project　*01.06.2010 – 31.1.2012*
　　　Project researcher (EAKR 200 k€)

Joensuun Popmuusikot ry, Project Manager 01.08.2008 - 31.05.2010

> Project manager in business development case. (EAKR, fund. 200 k€) http://www.popmuusikot.fi

City of Nurmes, Deputy Lecturer in the High School 01.11.2007 – 31.05.2008

HYY Group / Student Union of the Helsinki University 01.01.2004 – 30.04.2007

> Member of the Board of the Student Union (2004-2005), Chairman of the Board of the HYY Group (2005), Chairman of the Supervisory Board of the HYY Group (2006-2007). HYY Group is owned by the Student Union. HYY Group's revenue in 2005 was 170 M€.

University of Helsinki, Tutor 01.09.2003-31.05.2004

8. Research funding as well as leadership and supervision

Gathered personal research funding as principal investigator:

> *IhoSpeksi (2014-2015)* 12500 €
> *Spectral imaging analysis for skin cancer (HYKS-institute Ltd)*
>
> *Iskin (2015)* 10000 €
> *Spectral imaging application for skin cancer (Revenio Research Ltd)*
>
> *Kespek (2015-2017)* 74436 €
> *For development of spectral imaging laboratory (Regional Council of Central Finland)*

Writer or co-writer in following funded projects:

> *HSI-Stereo* 2014
> *Tekes fund. 225 k€ (PI: Pekka Neittaanmäki)*
>
> *SpeCSI Solutions* 2013 - 2014
> *Tekes fund. 500 k€ (PI: Jaana Kuula)*
>
> *Hide –project* 2011-2013
> *Tekes fund. 250 k€ (PI: Timo Hämäläinen)*
>
> *SpeCSI –project* 2012
> *Tekes fund. 100 k€   (PI: Pekka Neittaanmäki)*
>
> *Diagnostics –project* 2011 – 2013
> *Tekes fund. 320 k€ (PI: Pekka Neittaanmäki)*

I have been working as research project manager and principal scientific researcher in four multidisciplinary TEKES funded project (HSI-Stereo, UASI, SpeCSI and Diagnostics).
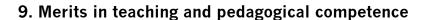
Supervising three PhD students:

Eskelinen, Matti A.: Measure theoretic diffusion geometry and out-of-sample extension of noisy data

Braithwaite, Billy: Parallel optimization algorithms for higher-order MRFs in spectral imaging applications

Aizenbud, Yariv: Analysis using random projections

I have also supervised three master theses and one bachelor's thesis.

9. Merits in teaching and pedagogical competence

Lecturer on:

- Machine Vision course at JyU in spring 2014 about hyperspectral imaging and data analysis (4h)
- Introduction to Cognitive Computing (2015, 2016)

10. Awards, prizes and honours

Most innovative thesis of year 2013, Central Finland Information Technology Society.

Innovator of the year 2015, University of Jyväskylä

11. Other academic merits

Member of Scientific Computing Committee of ECCOMAS (European Community on Computational Methods in Applied Sciences)
Member of Finnish Mathematical Society
Referee of Remote Sensing, Journal of the Institute of Brewing

12. Scientific and societal impact of research

Author or co-author of 19 scientific articles.

Currently, four research articles under review.

Two commercial software products to licensed to business

- Skin cancer analysis software to Revenio Research Ltd (2015)
- Spectral data analysis software to Vision Systems Ltd (2015)