

Curriculum Vitae - Jarkko Ylipaavalniemi

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Date of Birth:	13.5.1978 - Helsinki, Finland
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Education

- **Postgraduate Student:** Aalto University, Finland (Current)
Department: Information and Computer Science
Major: Computer and Information Science
Minor: Cognitive Science
- **Master of Science (Technology):** Helsinki University of Technology, Finland (2005)
Department: Computer Science and Engineering
Major: Computer and Information Science
Minor: Industrial Management
- **Military service:** ViestiR - Riihimäki, Finland (1998)
Rank: Lance Corporal
- **Matriculation examination:** Espoonlahden Lukio, Finland (1997)
- **Language skills:** Finnish native, English fluent, Swedish adequate

Work experience

- **Adaptive Informatics Research Centre - Helsinki University of Technology**
Researcher 22.3.2005 -
Teaching Assistant on Image Analysis in Neuroinformatics 2008 -
Teaching Assistant on Signal Processing in Neuroinformatics 2007 -
Research Assistant 1.6.2003 - 21.3.2005
Analysis of functional brain imaging data with adaptive unsupervised methods. Pursuing a doctoral degree.

- **Arcus Software Oy**
Software Engineer 8.2.2000 - 31.7.2002
Development of tools and algorithms for 3-dimensional urban and terrain modeling and visualization.

Grants and Memberships

- **Helsinki Graduate School in Computer Science and Engineering (HeCSE)**
Funded Position 1.1.2009 - 31.12.2009
Adjunct Position 1.1.2008 - 31.12.2008
- **Jenny ja Antti Wihurin rahasto**
Personal Stipend 7.10.2008
- **Tekniikan Edistämissäätiö (TES)**
Personal Stipend 31.5.2009
Personal Stipend 31.5.2007

Publications

- N. Reyhani, J. Ylipaavalniemi, R. Vigário and E. Oja. **Consistency and asymptotic normality of FastICA and Bootstrap FastICA.**
In Signal Processing, In press 2012.
- J. Karhunen, T. Hao and J. Ylipaavalniemi. **A Generalized Canonical Correlation Analysis Based Method for Blind Source Separation from Related Data Sets.**
In Proceedings of the 2012 IEEE International Joint Conference on Neural Networks (IJCNN 2012), In press, Brisbane, Australia, June 2012.
- J. Ylipaavalniemi, N. Reyhani and R. Vigário. **Distributional Convergence of Subspace Estimates in FastICA: A Bootstrap Study.**
In Proceedings of the 10th International Conference on Latent Variable Analysis and Signal Separation (LVA/ICA 2012), pages 123-130, Tel Aviv, Israel, March 2012.
- J. Karhunen, T. Hao and J. Ylipaavalniemi. **A Canonical Correlation Analysis Based Method for Improving BSS of Two Related Data Sets.**
In Proceedings of the 10th International Conference on Latent Variable Analysis and Signal Separation (LVA/ICA 2012), pages 91-98, Tel Aviv, Israel, March 2012.
- J. Ylipaavalniemi, E. Savia, S. Malinen, R. Hari, R. Vigário and S. Kaski. **Dependencies between stimuli and spatially independent fMRI sources: Towards brain correlates of natural stimuli.**
In NeuroImage, issue 48(1), pages 176-185, October 2009.
- J. Ylipaavalniemi and J. Soppela. **Arabica: Robust ICA in a Pipeline.**
In Proceedings of the 8th International Conference on Independent Component Analysis and Signal Separation (ICA 2009), pages 379-386, Paraty, Brazil, March 2009.
- J. Ylipaavalniemi and R. Vigário. **Matching complex activation patterns with features of natural stimuli.**
In Conference Abstracts of the 1st INCF Congress of Neuroinformatics: Databasing and Modeling the Brain (Neuroinformatics 2008), page 71, Stockholm, Sweden, September 2008.

- J. Ylipaavalniemi and R. Vigário. **Analyzing Consistency of Independent Components: An fMRI Illustration.**
In NeuroImage, issue 39(1), pages 169-180, January 2008.
- J. Ylipaavalniemi and R. Vigário. **Subspaces of Spatially Varying Independent Components in fMRI.**
In Proceedings of the 7th International Conference on Independent Component Analysis and Signal Separation (ICA 2007),
pages 665-672, London, UK, September 2007.
- J. Ylipaavalniemi, E. Savia, R. Vigário and S. Kaski. **Functional Elements and Networks in fMRI.**
In Proceedings of the 15th European Symposium on Artificial Neural Networks (ESANN 2007),
pages 561-566, Bruges, Belgium, April 2007.
- J. Ylipaavalniemi, S. Mattila, A. Tarkiainen and R. Vigário. **Brains and Phantoms: An ICA Study of fMRI.**
In Proceedings of the 6th International Conference on Independent Component Analysis and Blind Signal Separation (ICA 2006),
pages 503-510, Charleston, SC, March 2006.
- J. Ylipaavalniemi. **Variability of Independent Components in functional Magnetic Resonance Imaging.**
Master's Thesis, Espoo, Finland, March 2005.
- J. Ylipaavalniemi and R. Vigário. **Analysis of Auditory fMRI Recordings via ICA: A Study on Consistency.**
In Proceedings of the 2004 IEEE International Joint Conference on Neural Networks (IJCNN 2004),
pages 249-254, Budapest, Hungary, July 2004.

Referee duties

- The 9th International Conference on Latent Variable Analysis and Signal Separation (LVA/ICA 2010)
- NeuroImage (2008)
- International Journal of Systems Science (2007)
- The 2nd International Conference on Bio-Inspired Computing: Theories and Applications (BIC-TA 2007)

Professional knowledge

- **Scientific knowledge:** Information theory, neural networks, signal processing, functional brain imaging, neuroscience, neuroinformatics, computer graphics, software architecture, international project management and marketing, etc.
- **Programming languages:** C#, C++, Java, Javascript, Pascal, Perl, Python, Ruby, Php, Lisp, Scheme, various assemblers, etc.
- **Software:** AutoCAD, Maya, 3DStudio, Lightwave3D, Modo, Messiah, Blender, Matlab, Mathematica, Maple, MindManager, XMind, Office, OpenOffice, LaTeX, ACDSsee, Digikam, Inkscape, Photoshop, Acrobat, etc.
- **Operating systems:** Amiga, OS X, Windows, Unix, Linux, iOS, Android, Symbian, etc.
- **Networking standards:** SQL, XML, HTML, CSS, VRML, TCP/IP, etc.

Professional interests

- Researching independent component analysis, canonical correlation analysis, source separation, functional brain imaging, neuroscience, computational neuroscience, supercomputing and related topics.
- I have always been interested in 3-dimensional modeling and visualization. My experience on the subject ranges from self made computer graphics demos, for participating in various competitions, to high-end CAD systems. Building on this experience I'm still eager to learn even more.
- In programming my strong skills are good low- and high-level abstraction, particularly in object-oriented designs and making clean and robust implementations. Based on my long experience with many languages and environments, I'm interested in software design architecture and programming tools.

Hobbies

- Running, gym and swimming
- Alpine skiing in various flavors
- Spacecrafts, astronomy and cosmology
- Computer coding, graphics and games