

List of publications

Visa Koivunen, Prof., D.Sc. (Tech.)

Journal papers and book chapters

- Ollila E., Koivunen, V., (2009) Robust Estimation Techniques for Complex-Valued Random vectors. Chapter (46 pages) in *Adaptive Signal processing: Next Generation Solutions*, Simoin Haykin and Tulay Adali (eds.) Wiley, 2009.
- Chaudhari, S., Poor, H.V., Koivunen, V., (2009) Autocorrelation-Based Decentralized Sequential Detection of OFDM Signals in Cognitive Radios, *IEEE Transactions on Signal Processing*, Accepted for publication.
- Ollila, E., Koivunen, V., (2009) “Robustness and efficiency of scatter matrix based array processors: case MVDR beamformer,” *IEEE Transactions on Signal Processing*, Volume: 57, No. 1, pp. 247-259.
- Abrudan, T., Eriksson, J., Koivunen, V., (2008) Steepest Descent Algorithms for Optimization under Unitary Matrix Constraint. *IEEE Transactions on Signal Processing*, Vol. 56, No. 3, pp. 1134-1147.
- Ollila, E., Koivunen, V., (2008) Compact Cramer-Rao Bound Expression for Independent Component Analysis. *IEEE Transactions on Signal Processing*, Vol. 56, No. 4, pp. 1421-1428.
- Ollila, E., Koivunen, V., (2008) Complex-Valued ICA Based on a Pair of Generalized Covariance Matrices. *Computational Statistics and Data Analysis*, Vol. 52, pp. 3789-3805.
- Belloni, F., Richter, A., Koivunen, V., (2007) DoA Estimation via Manifold Separation for Arbitrary Array Structures. *IEEE Transactions on Signal Processing*. Vol. 55, No. 10, pp. 4800-4810.
- Ollila, E., Oja, H., and Koivunen, V. (2008) “Complex-valued ICA based on a pair of generalized covariance matrices,” *Computational Statistics and Data Analysis*, vol. 52, pp. 3789-3805.
- Ollila E. and Koivunen, V. (2008) “Complex ICA using generalized uncorrelating transform,” *Signal Processing*, In Press.

- Ribeiro, C., Richter, A., Koivunen, V., (2007) Joint Angular and Delay Domain MIMO Propagation Parameter Estimation Using Approximate ML Method. *IEEE Transactions on Signal Processing*. Vol. 55, No. 10, pp. 4775-4790.
- Koivisto, T., Koivunen, V., (2007) Blind despreading of short-code DS-CDMA signals in asynchronous multi-user systems. *Signal Processing*, Vol. 87, No. 11, pp, 2560-2568.
- Enescu, M., Roman, T., Koivunen, V., (2007) State Space Approach to Spatially Correlated MIMO OFDM Channel Estimation. *Signal Processing*, Vol. 87, No. 9, pp, 2272-2279.
- Abrudan, T., Koivunen, V., (2007) Blind Equalization in Spatial Multiplexing MIMO-OFDM Systems based on Vector CMA and Decorrelation Criteria. *Wireless Personal Communication*, Accepted for Publication, in press.
- Lunden, J., Koivunen, V., (2007) Automatic Radar Waveform Recognition, *IEEE Journal of Selected Topics in Signal Processing*, *IEEE Journal of Selected Topics in Signal Processing*, Special issue on waveform diversity in radars, Vol. 1, No.1., pp. 124-136.
- With, M., Werner, S., Koivunen, V., (2007) Householder Multi-stage Wiener filter for Space-Time Navigation Receivers. *IEEE Transactions on Aerospace and Electronic Systems*. Vol. 43, No. 3, pp. 975-988.
- Ribeiro, C., Ollila, E., Koivunen, V., (2007) Stochastic Maximum-Likelihood Method for MIMO Propagation Parameter Estimation *IEEE Transactions on Signal Processing*. In Vol. 55, No.1, pp. 46-55, January 2007
- Roman, T., Visuri, S., Koivunen, V., (2006) Blind frequency synchronization for OFDM via diagonality criterion, *IEEE Transactions on Signal Processing*. Vol. 54, nro 8, pp. 3125-3135.
- Eriksson, J. and Koivunen, V. (2006) Complex Random Vectors and ICA Models: Identifiability, Uniqueness and Separability, 2006. *IEEE Transactions on Information Theory*. Vol. 52, nro 3, pp. 1017-1029.
- Belloni, F., Koivunen, V., (2006) Beamspace Transform for UCA: Error Analysis and Bias reduction, *IEEE Transactions on Signal Processing*, Vol. 54, nro 8, pp. 3078-3089.
- Koivunen, V., Ollila, E., (2006) Direction of Arrival Estimation under Uncertainty. Chapter 12 in *Advances in Direction of Arrival estimation*, ed. Sathish Chandran, Artech House, 2005. pp. 241-258.
- Valkama, M., Renfors, M., Koivunen, V., (2005) Blind Signal Estimation in Conjugate Signal Models with Application to I/Q Imbalance Compensation. *IEEE Signal Processing Letters*, Vol. 12, No. 11, pp. 733-736.

- Valkama, M., Renfors, M., Koivunen, V., (2005) Blind I/Q Signal Separation Based Solutions for Receiver Signal Processing, EURASIP Journal on Applied Signal Processing, Special issue on Software Defined Radio, No. 16, 2708-2718.
- Enescu, M., Sirbu, M., Koivunen, V., (2005) Adaptive Equalization of time-varying MIMO channels, Signal Processing. Vol. 85, nro 1, pp.81-93.
- Roman, T., Enescu, M., Koivunen, V., (2004) Joint Time-Doimain Tracking of Channel and Frequency Offset for MIMO OFDM System, Wireless Personal Communications, Vol. 31, pp. 181-200.
- Sirbu, Marius, Koivunen, Visa (2004) Delay Estimation in Long-Code Asynchronous DS-CDMA Systems Using Multiple Antennas. EURASIP Journal on Wireless Communications and Networking, 2004. Nro 1, pp. 84-97.
- Eriksson, J., Koivunen, V. (2004) Identifiability, separability, and uniqueness of linear ICA models IEEE Signal Processing Letters, Volume: 11 , Issue: 7 , July 2004 Pages:601 - 604
- Karvanen, Juha, Koivunen, Visa (2004) Independent component analysis via optimum combining of kurtosis and skewness-based criteria. Journal of The Franklin Institute, 2004. Vol. 341, pp. 401-418.
- Melvasalo, Maarit; Koivunen, Visa Blind Channel Estimation in Multicode CDMA Using Multiantenna Receiver. Wireless Personal Communications, 2004. Nro 28, pp. 163-178.
- Ollila E., Oja, H., Koivunen, V., (2003) "Estimates of regression coefficients based on lift rank covariance matrix", Journal of American Statistical Association (JASA), Vol. 98, nro 461, pp. 90-98.
- Sirbu, Marius and Koivunen, Visa (2003) "Multichannel Estimation and Equalization Algorithm for Asynchronous Uplink DS/CDMA". Wireless Personal Communications, Vol. 25, August 2003, pp.33-52.
- Eriksson, Jan and Koivunen, Visa (2003) "Characteristic-function-based independent component analysis" Signal Processing, Vol. 83, pp. 2195-2208.
- Ollila, E. and Koivunen, V., (2003) "Robust ML-estimation of the transmitter location," in Theory and Applications of Recent Robust Methods (Eds. M. Hubert, G. Pison, A. Struyf & S. Van Aelst), Series: Statistics for Industry and Technology, Birkhäuser, Basel, 2003.
- Koivunen, V., Enescu, M., Sirbu, M., (2003) "Blind and Semi-blind Channel Estimation", Chapter 8 In: Nonlinear Signal and Image Processing: Theory, Methods, and Applications, CRC Press, pp. 263-300, In Press, To appear in November 2003.

- Karvanen, J. Erikson, J., Koivunen, V., (2002) Adaptive Score Models for Maximum Likelihood ICA. *Journal of VLSI Signal Processing Systems*, Vol. 32, nro 1/2, pp. 83-92.
- Visuri, S., Koivunen, V., Möttönen, J., Ollila, E., Oja, H., (2003) “Affine Equivariant Multivariate Rank Methods”, *Journal of Statistical Planning and Inference*. Vol. 114, pp. 161-185.
- Karvanen, J., Koivunen, V., (2002) Blind Separation Methods Based on Pearson System and its Extensions, *Signal Processing*, Vol. 82, pp. 663–673.
- Koivunen, V., Laurila, J., Bonek, E., (2002) Blind Methods for Wireless Communication Receivers, *Review of Radio Science 1999-2002*. 2002, John Wiley & Sons, pp. 247-273.
- Visuri, S., Oja, H., Koivunen, V., (2001) Direction of Arrival Estimation Based on Nonparametric Statistics. *IEEE Transactions on Signal Processing*, 2001. Vol. 49, nro 9, pp. 2060-2073.
- Valkama, M., Renfors, M., Koivunen, V., (2001) Advanced Methods for I/Q Imbalance Compensation in Communication Receivers. *IEEE Transactions on Signal Processing*, 2001. Vol. 49, nro 10, pp. 2335-2344.
- Koivunen, V., Enescu, M., Oja, E., (2001) Adaptive Algorithm for Blind Separation from Noisy Time-Varying Mixtures, *Neural Computation*, 2001. Vol. 13, nro 10, pp.2339-2357.
- Koivunen, V., Oja E., (2001) Blind Methods in Communications Signal Processing, (In Finnish) *Prosessori*, No. 11, pp. 65-67. 2001
- Mannerkoski, J., Koivunen, V. (2000) Autocorrelation Properties of Channel Encoded Sequences – Applicability to Blind Equalization. *IEEE Transactions on Signal Processing*, Vol. 48, No. 12, pp. 3501-3507.
- Mannerkoski, J., Koivunen, V., Taylor, D., (2001) Performance Bounds for Multi-Step Prediction Based Blind Equalization. 2001. Vol. 49, nro 1, pp.84-93.
- Ollila, E., Oja, H., Koivunen, V., (2002) Estimates of Regression Coefficients based on Lift Rank Covariance Matrix. *Journal of American Statistical Association*, Accepted for for Publication.
- Visuri, S., Koivunen, V., Oja, H. (2000) Rank and Sign Covariance Matrices, *Journal of Statistical Planning and Inference*, Vol. 97, No. 2, pp. 557-575.
- Oja, H., Koivunen, V., (1998) Robust Covariance Estimation and Its Signal Processing Applications, *The Yearbook of Finnish Statistical Association 1997*, pp. 87-109.

- Koivunen, V., Himayat, N., Kassam, S.A., (1997) Nonlinear Filtering Techniques for Multivariate Images - Design and Robustness Characterization. Signal Processing, Vol. 57, pp. 81-91.
- Koivunen, V. (1996) Nonlinear filtering of multivariate images under robust error criterion., IEEE Transactions on Image Processing, Vol. 5, No.6, pp. 1054-1060.
- Koivunen V. (1995) A Robust Nonlinear Filter for Image Restoration. IEEE Transactions on Image Processing, Vol.4, No. 5, pp. 569-578.
- Koivunen V., Vezien, J-M., (1996) Machine Vision Tools for CAGD. Int. Journal of Pattern Recognition and Artificial Intelligence. Vol. 10, No. 2, pp. 165-182.
- Koivunen, V., Bajcsy, R., (1995) Spline Representations in 3-D Vision. Springer-Verlag Lecture Notes on Computer Science Series (LNCS) 994. pp. 177-190.
- Koivunen V., Vezien, J-M., (1996) Machine Vision Tools for CAGD. Machine Vision for Advanced Production, World Scientific series in Machine Perception and Artificial Intelligence, Vol. 22, 1996.
- Koivunen, V., Vezien, J-M. & Bajcsy, R. (1994) Procedural CAD-Models from Range Data. IFIP Transactions B-17. Eds. Wozny M., Olling G., Elsevier Publishers.
- Koivunen, V. & Pietikäinen, M. (1992) Experiments with Combined Edge and Region-Based Range Image Segmentation. In: Theory and Applications of Image Analysis, World Scientific Publications, pp. 162-176.
- Moring, I., Ailisto, H., Koivunen, V. & Myllylä, R. (1989) Active 3-D Vision System for Automatic Model-Based Shape Inspection. Optics and Lasers Engineering 10, pp. 149-160.
- Koivunen, V., Pietikäinen, M. & Silven O. (1989) Edge Detection in Range Images. in from Pixels to Features, ed. J.C. Simon, North-Holland, pp. 175-184.
- Koivunen, V. (1993) Processing and Interpretation of 3-D Sensory Data with an Application in Geometric Modeling. Dissertation, Univ. of Oulu, Dept. of Electrical Engineering.

Submitted

- Total of 8 other journal papers are under review currently

Refereed Papers in International Conferences

- Janis, P., Tirkkonen, O., Koivunen, V., Hugl, K., (2009) Adjacent channel interference between asynchronous TDD cellular networks, IEEE VTC Spring, To appear.
- Janis, P., Ribeiro, C., Doppler, K., Hugl, K., Korhonen, J., (2009) Interference-aware resource allocation for device-to-device radio underlaying cellular networks. IEEE VTC Spring, To appear.
- Koivisto, T., Koivunen, V., (2009) Diversity Transmission for Correlation-Based Slot Synchronization with Noncoherent Combining, IEEE VTC Spring, To appear.
- Costa, M., Richter, A., Koivunen, V., (2009) Low Complexity Azimuth and Elevation Estimation for Arbitrary Array Configurations (2009) IEEE ICASSP, To appear.
- Werner, S., Huang Y-H., de Campos, M., Koivunen, V., (2009) Distributed Parameter Estimation with Selective Cooperation, IEEE ICASSP, To appear.
- Eriksson, J., Ollila, E., Koivunen, V., (2009) Statistics for Complex Random Variables Revisited. IEEE ICASSP, To Appear.
- Aittomaki, T., Koivunen, V., (2008) MIMO Radar Direction Finding Performance Using Swerling Models, Proceedings of 42nd Asilomar Conference on Signals, Systems and Computers. Pacific Grove, CA, October 26-29, 2008.
- Salmi, J., Richter, A., Koivunen, V., (2008) Proceedings of 42nd Asilomar Conference on Signals, Systems and Computers. Pacific Grove, CA, October 26-29, 2008.
- Pun, M.O., Koivunen V., and Poor, H.V. (2008) "SINR analysis of opportunistic MIMO-SDMA downlink systems with linear combining," IEEE International Conference on Communications (ICC), Beijing, 2008,
- Chaudhari, S., Koivunen, V., and Poor, H.V., (2008) "Distributed autocorrelation-based sequential detection of OFDM signals in cognitive radios," The Third International Congerence on Cognitive Radio Oriented Wireless and Networks and Communications, Singapore, May 15-17, 2008, CD-ROM.
- Lunden, J., Kassam, S.A., and Koivunen, V., (2008) "Nonparametric cyclic correlation based detection for cognitive radio systems," The Third International Congerence on Cognitive Radio Oriented Wireless and Networks and Communications, Singapore, May 15-17, 2008, CD-ROM
- Ollila, E., Koivunen, V., (2008) "Nonparametric tests of circularity of complex-valued random vectors," Nonparametric Statistics and Mixture Models, State College, Pennsylvania, USA, May 23-24, 2008.

- Ollila, E., Koivunen V., Eriksson, J., (2008) “On the Cramer.Rao Bound for the constrained and unconstrained random parameters,” The Fifth IEEE Sensor Array and Multichannel Signal Processing Workshop, IEEE SAM 2008, Darmstadt, Germany, July 21-23, 2008.
- Pereira da Costa, M., Richter, A., Belloni, F., and Koivunen, V., (2008) “Polynomial rooting-based direction finding for arbitrary array configurations,” The Fifth IEEE Sensor Array and Multichannel Signal Processing Workshop, IEEE SAM 2008, Darmstadt, Germany, July 21-23, 2008.
- Richter, A., Salmi, J., Koivunen, V., (2008) “Tensor decomposition of MIMO channel sounding measurements and its applications,” URSI General Assembly, Chicago, IL, Aug. 7-16, 2008.
- Chaudhari, S., Lunden, J., Koivunen, V., Collaborative Autocorrelation-Based Spectrum Sensing of OFDM signals in Cognitive Radios, in the proceedings of CISS 2008, Princeton, NJ, March 19-21, 2008.
- Oborina, A., Moio, M., Henttonen, T., Pernila, E., Koivunen, V., MIMO performance evaluation in UTRAN long term evolution downlink, in the proceedings of CISS 2008, Princeton, NJ, March 19-21, 2008.
- Abrudan, T., Eriksson, J., Koivunen, V., (2008) Efficient Riemannian Algorithms for Optimization under Unitary Matrix Constraints, IEEE ICASSP, pp. 2353-2356.
- Richter, A., Salmi, J., Koivunen, V., (2008) ML Estimation of Covariance Matrix for Tensor Valued Signals in Noise. IEEE ICASSP, pp. 2349-2352.
- Werner, S., Mobien, M., Huang, Y-H., Koivunen, V., (2008) Decentralized Set-Membership Adaptive Estimation for Clustered Sensor Networks. IEEE ICASSP, pp. 3573-3576.
- Lunden, J., Koivunen, V., Huttunen, A., Poor. H.V. (2007) Censoring for Collaborative Spectrum Sensing in Cognitive Radios. Invited Paper, 41st Asilomar Conference on Signals Systems and Computers, pp. 772-776.
- Aittomaki, T., Koivunen, V., (2007) Signal Covariance Matrix Optimization for Transmit Beamforming in MIMO Radars. Invited Paper, 41st Asilomar Conference on Signals Systems and Computers, pp. 182-186.
- Abrudan, T., Eriksson, J., Koivunen, V., (2007) Efficient Line Search Methods for Riemannian Optimization under Unitary Matrix Constraints. 41st Asilomar Conference on Signals Systems and Computers, pp. 671-675.
- Salmi, J., Richter, A., Koivunen, V., (2007) Tracking of MIMO propagation Parameters under Spatio-Temporal Scattering Models. 41st Asilomar Conference on Signals Systems and Computers, pp. 666-670.

- Polonen, Keijo; Koivunen, Visa (2007) Iterative Interpolation Method for Multiband-OFDM Channel Estimation. 2007 IEEE International Conference on Ultra-Wideband, ICUWB, pp. 225-228, Singapore, September 24-26, 2007.
- Ribeiro C., Richter, A., Koivunen, V., (2008) Detecting Specular Propagation Paths in the Presence of Distributed Scattering in Angle and Delay Domain, 41st Asilomar Conference on Signals Systems and Computers, pp. 2259-2263.
- Roman, T., Koivunen, V., (2007) Carrier frequency synchronization for mobile television receivers. IEEE ISCAS 2007, pp. 261-264.
- Aittomaki, T. Koivunen, V. (2007) Low-Complexity Method for Transmit Beamforming in MIMO Radars IEEE ICASSP 2007, Vol. 2, pp. 305-308.
- Lunden, J., Koivunen, V., Huttunen, A., and Poor, H.V., (2007) Spectrum Sensing in Cognitive Radios Based on Multiple Cyclic Frequencies. Proceedings of CrownCom 2007.
- Yuanning Yu, Athina P. Petropulu, H. Vincent Poor, Visa Koivunen (2007) Blind Estimation of Multiple Carrier Frequency Offsets. To appear in the Proceedings of the 18th Annual IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC), Athens, Greece, September 3-7, 2007
- Lunden, J. Koivunen, V. (2007) Scaled Conjugate Gradient Method for Radar Pulse Modulation Estimation IEEE ICASSP 2007. ICASSP 2007, Hawaii, Vol. 2, pp: 297-300.
- M.O. Pun, V. Koivunen and H.V. Poor, (2007) Opportunistic scheduling and beamforming for MIMO-SDMA downlink systems with linear combining, To appear in the Proceedings of the 18th Annual IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC), Athens, Greece, September 3-7, 2007.
- Melvasalo, Maarit; Jnis, Pekka; Koivunen, Visa (2007) Sparse equalization in high data rate WCDMA systems. 8th IEEE Workshop on Signal Processing Advances for Wireless Communications (SPAWC'07), Helsinki, Finland June 2007.
- Pekka Janis, Maarit Melvasalo, Visa Koivunen (2006) Fast Reduced Rank Equalizer for HSDPA Systems Based on Lanczos Algorithm. Proceedings of IEEE International Workshop on Signal Processing Advances in Wireless Communications, (SPAWC), Cannes France, July 2-5, 2006.
- Richter, Andreas; Salmi, Jussi; Koivunen, Visa (2006) An Algorithm for Estimation and Tracking of Distributed Diffuse Scattering in Mobile Radio Channels, IEEE International Workshop on Signal Processing Advances in Wireless Communications, (SPAWC), Cannes France, July 2-5, 2006

- Richter, Andreas; Salmi, Jussi; Koivunen, Visa (2006) On Distributed Scattering in Radio Channels and Its Contribution to MIMO Channel Capacity. 1st European Conference on Antennas and Propagation EuCAP 2006, Nice France, November 6-10, 2006, WINNER OF THE BEST PAPER AWARD.
- Salmi, Jussi; Richter, Andreas; Koivunen, Visa (2006) MIMO propagation parameter tracking using EKF. in proceedings of Nonlinear Statistical Signal Processing Workshop 2006, Cambridge UK, September 13.-15, 2006
- Salo, J., Eriksson, J., Koivunen, V., Vainikainen, P., (2006) Empirical Characteristic Function Based Estimation of Multiple Scattering Channel Parameters. Proceedings of 17th IEEE Personal, Indoor and Mobile Radio Communications conference (PIMRC'06), Helsinki Finland.
- Lundn, J., Koivunen, V., (2006) Robust estimation of radar pulse modulation. The 6 th IEEE International Symposium on Signal Processing and Information Technology, Vancouver, BC, Canada, August 27-30, 2006 . pp. 271-276.
- Salmi, J., Richter, A., Koivunen, V., (2006) Enhanced Tracking of Radio Propagation Path Parameters Using State-Space Modeling in proceedings of EUSIPCO 2006, Florence, Italy. WINNER OF THE BEST STUDENT PAPER AWARD.
- Roman, T., Richter, A., Koivunen, V., (2006) Blind CFO estimation for OFDM with constant modulus constellations: performance bounds and algorithms in proceedings of EUSIPCO 2006, Florence, Italy.
- Belloni, F., Richter, A., Koivunen, V., (2006) Performance of root-MUSIC algorithm using Real-World Arrays in proceedings of EUSIPCO 2006, Florence, Italy.
- Richter, A., Belloni, F., Koivunen, V., (2006) DoA and Polarization Estimation using Arbitrary Polarimetric Array Configurations. IEEE SAM 2006, Waltham, MA, USA.
- Douglas, S.C., Eriksson, J., Koivunen, V., (2006) The strong uncorrelating projection approximation (SUPA) algorithm for decorrelating complex non-circular data. IEEE SAM 2006, Waltham, MA, USA.
- Salmi, J., Richter, A., Enescu, M., Koivunen, V., (2006) Propagation Parameter Tracking using Variable State Dimension Kalman Filter. IEEE VTC 2006 Spring. Melbourne, Australia.
- Melvasalo, M., Janis, P., Koivunen, V., (2006) MMSE equalizer and chip level inter-antenna interference canceler for HSDPA MIMO systems. IEEE VTC 2006 Spring. Melbourne, Australia.

- Werner, S., Enescu, M., Koivunen, V. (2006) Combined Frequency and Time Domain Channel Estimation in Mobile MIMO-OFDM Systems. in IEEE ICASSP 2006, Toulouse, France.
- Belloni, F., Richter, A., Koivunen, V. (2006) Extension of root-MUSIC to non-ULA Array Configurations. in IEEE ICASSP 2006, Toulouse, France, to appear.
- Douglas, S.C., Eriksson, J., Koivunen, V. (2006) Adaptive Estimation of the Strong Uncorrelating Transform With Applications to Subspace Tracking. in IEEE ICASSP 2006, Toulouse, France, to appear.
- Douglas, S.C., Eriksson, J., Koivunen, V. (2006) equivariant algorithms for estimating the strong-uncorrelation transform in complex independent component analysis. International Conference on Independent Component Analysis and Blind Signal Separation, ICA2006, March 5-8, 2006 Charleston, SC USA. pp. 57-65.
- Douglas, S.C., Eriksson, J., Koivunen, V. (2006) fixed-point complex ICA algorithms for the blind separation of sources using their real or imaginary components. International Conference on Independent Component Analysis and Blind Signal Separation, ICA 2006, March 5-8,2006, Charleston, SC, USA. pp. 343-351.
- Risnen, A., Vainikainen, P., Tretyakov, S., Koivunen, V., Laakso, T. (2006) Smart antennas: overview of research in SMARAD. 2006 IEEE Radio and Wireless Symposium, San Diego, CA, USA, January 17-19, 2006. San Diego, CA, USA 2006, pp.331-334.
- Melvasalo, M., Koivunen, V. (2005) Semi-blind channel estimation in HS-DPA systems. Thirty-Ninth Asilomar Conference on Signals, Systems and Computers, CA USA October 28 - November 1, 2005. pp. 1292-1296.
- Belloni, F., Richter, A., Koivunen, V. (2005) avoiding bias in circular arrays using optimal beampattern shaping and EADF. Thirty-Ninth Asilomar Conference on Signals, Systems and Computers, CA USA October 28 - November 1, 2005. pp. 1390-1393.
- Ribeiro, C., Richter, A., Koivunen, V. (2005) joint maximum likelihood estimation of angular and time-delay MIMO propagation parameters. Thirty-Ninth Asilomar Conference on Signals, Systems and Computers, CA USA October 28 - November 1, 2005. pp. 843-847.
- Abrudan, T., Eriksson, J., Koivunen, V. (2005) optimization under unitary matrix constraint using approximate matrix exponential. Thirty-Ninth Asilomar Conference on Signals, Systems and Computers, CA USA October 28 -November 1, 2005. pp. 242-246.

- Werner, S., Enescu, M., Koivunen, V. (2005) Low-complexity time-domain channel estimation for mobile wireless OFDM systems. IEEE Workshop on Signal Processing Systems SIPS2005 Athens Greece, November 2.-4. 2005.
- Ribeiro, Cassio, Richter, Andreas, Koivunen, Visa, (2005) Stochastic Maximum Likelihood Estimation of Angle- and Delay-Domain Propagation Parameters. 16th Annual IEEE International Symposium on Personal Indoor and Mobile Radio Communications PIMRC2005, Berlin Germany, September 11.-14.2005. WINNER OF THE BEST PAPER AWARD.
- Melvasalo, Maarit, Jänis, Pekka, Koivunen, Visa (2005) Low complexity space-time MMSE equalization in WCDMA systems. 16th Annual IEEE International Symposium on Personal Indoor and Mobile Radio Communications PIMRC 2005, Berlin Germany, September 11.-14.2005.
- Melvasalo, Maarit, Jänis, Pekka, Koivunen, Visa (2005) Semi-blind channel estimation in HSDPA systems, 39th Asilomar Conference on Signals, Systems and Computers, Pacific Grove, CA, Nov. 2005.
- Belloni, F., Richter, A., Koivunen, V., (2005) Avoiding Bias in Circular Arrays Using Optimal Beampattern Shaping and EADF, 39th Asilomar Conference on Signals, Systems and Computers, Pacific Grove, CA, Nov. 2005.
- Lunden, Jarmo, Terho, Liisa, Koivunen, Visa (2005) Waveform recognition in pulse compression radar systems. 2005 IEEE International Workshop on Machine Learning for Signal Processing MLSP2005, Mystic Connecticut USA, September 28-30,2005. pp. 271-276.
- Eriksson, Jan; Seppola, Anne-Mari; Koivunen, Visa (2005) Complex ICA for circular and non-circular sources. 13th European Signal Processing Conference EUSIPCO 2005, September 4.-8.2005 Antalya Turkey
- Eriksson, J., Koivunen, V. (2005) Blind Separation of a Class of Nonlinear ICA Models. IEEE International Symposium on Circuits and Systems ISCAS 2005, Kobe Japan, May 23-26,2005.
- Ribeiro, Cassio, Richter, Andreas, Koivunen, Visa (2005) Recent Advances in Modeling and Estimation of Local and Distributed Scattering of Mobile Radio Channels. Proceedings of XXVIII th URSI General Assembly, New Delhi, India, October 23-29 2005.
- Ribeiro, Cassio, Richter, Andreas, Koivunen, Visa (2005) Joint Maximum Likelihood Estimation of Angular and Time-Delay MIMO Propagation Parameters. 39th Asilomar Conference on Signals, Systems and Computers, Pacific Grove, CA, Nov. 2005.

- Abrudan, T., Eriksson, J., Koivunen, V., (2005) Optimization under Unitary Matrix Constraint using Approximate Matrix Exponential. 39th Asilomar Conference on Signals, Systems and Computers, Pacific Grove, CA, Nov. 2005.
- Richter, Andreas, Koivunen, Visa (2005) Recent advances in radio channel parameter estimation from channel sounding measurements,. Proceedings of XXVIII th URSI General Assembly, New Delhi, India, October 23-29, 2005.
- Enescu, M., Koivunen, V. (2005) Estimating the fading coefficient in mobile OFDM systems using state-space model. IEEE International Symposium on Circuits and Systems ISCAS 2005, Kobe Japan, May 23-26.2005.
- Richter, A., Enescu, M., Koivunen, V., (2005) State-Space Approach to Propagation Path Parameter Estimation and Tracking. The Sixth IEEE International Workshop on Signal Processing Advances in Wireless Communication, SPAWC 2005, New York City USA, June 5-8.2005. pp. 533-537 .
- Roman, Timo, Koivunen, Visa (2005) Subspace method for blind CFO estimation for OFDM systems with constant modulus constellations,. The 61st IEEE Vehicular Technology Conference VTC2005-Spring, Stockholm Sweden.
- Delfino, Eugenio, Sirbu, Marius, Koivunen, Visa (2005) One-Step Code-Phase Tracking Method for Long-Code Navigation Systems. 2005 IEEE 61 st Vehicular Technology Conference VTC2005-Spring, Stockholm Sweden 30 May-1 June 2005.
- Roman, T., Koivunen, V., (2005) One-shot Subspace Based Method for Blind CFO Estimation for OFDM. IEEE ICASSP, Philadelphia, PA.
- Belloni, F., Koivunen, V., (2005) Reducing Bias in Beamspace Methods for Uniform Circular Array. IEEE ICASSP, Philadelphia, PA.
- Ribeiro, C., Ollila, E., Koivunen, V., (2005) Propagation Parameter Estimation in MIMO Systems using Mixture of Angular Distributions Model. IEEE ICASSP, Philadelphia, PA.
- Seppola, A-M., Eriksson, J., Koivunen, V., (2005) Separation of Complex Signals Using Characteristic Functions. 39th Annual Conference on Information Sciences and Systems, CISS 2005, Baltimore, March 16-18, 2005.
- Lunden, J., Terho, L., Koivunen, V., (2005) Classifying Pulse Compression Radar Waveforms using Time-Frequency Distributions. 39th Annual Conference on Information Sciences and Systems, CISS 2005, Baltimore, March 16-18, 2005.

- Koivisto, T., Koivunen, V., (2005) Blind Despreading and Synchronization of Short-Code CDMA Signals. 39th Annual Conference on Information Sciences and Systems, CISS 2005, Baltimore, March 16-18, 2005.
- Nyblom, T., Roman, T., Enescu, M., Koivunen, V., (2004) Time-Varying Carrier Offset Tracking in OFDM Systems Using Particle Filtering. The 4th IEEE International Symposium on Signal Processing and Information Technology IEEE ISSPIT2004, Rome Italy December 18-21, 2004. pp. 217-220.
- Enescu, M., Herdin, M., Roman, T., Koivunen, V., (2004) Parameter estimation of measured channels in mobile MIMO OFDM system. The 4th IEEE International Symposium on Signal Processing and Information Technology IEEE ISSPIT2004, Rome, Italy December 18-21.2004. pp. 123-126.
- Sirbu, M., Delfino, E., Koivunen, V., (2004) A Novel Method for Time-Delay Acquisition in Satellite Navigation Systems. 2004 IEEE International Symposium on Spread-Spectrum Technologies and Applications, Sydney Australia Aug.30- Sept.2, 2004.
- Sirbu, M., Delfino, E., Koivunen, V., (2004) MMSE Delay Acquisition of Pulse-Shaped Signals in Satellite Navigation Systems. IEEE Vehicular Technology Conference 2004-Fall, Los Angeles, California, Sept 26-29, 2004.
- Ollila, E., Koivunen, V. (2004) Generalized Complex Elliptical Distributions. IEEE 3rd Sensor Array and Multichannel Signal Processing Workshop, SAM04, Sitges Spain, 18-21 July 2004.
- Valkama, M., Renfors, M., Koivunen, V., (2004) Blind Image Suppression and Carrier Tracking in Direct-Conversion Receivers Based on I/Q Signal Separation. Proceedings of 38th Asilomar Conference on Signals, Systems, and Computers 2004, Pacific Grove, CA
- Ribeiro, C., Ollila, E., Koivunen, V., (2004) Cramer-Rao Bound for Angular Propagation Parameter Estimation in MIMO Systems. Proceedings of 38th Asilomar Conference on Signals, Systems, and Computers 2004, Pacific Grove, CA
- Belloni, F., Koivunen, V., (2004) Analysis of Beamspace Transform on Uniform Circular Array. Proceedings of 38th Asilomar Conference on Signals, Systems, and Computers 2004, Pacific Grove, CA
- Roman, Timo; Koivunen, Visa (2004) Blind CFO Estimation in OFDM Systems Using Diagonality Criterion. IEEE ICASSP 2004, Montreal Canada, May 17.-21 2004. IV369-IV372.

- Eriksson, J., Koivunen, V. (2004) Complex-Valued ICA Using Second Order Statistics. Workshop on Machine Learning for Signal Processing XIV, Sao Luis Brazil 29.9.-1.10.2004. pp. 183-191
- Roman, T., Visuri, S.; Koivunen, V. (2004) Performance bound for blind CFO estimation in OFDM with real-valued constellations. 2004 IEEE 60th Vehicular Technology Conference, 26-29 September 2004, LA California USA.
- Werner, S., With, M., Koivunen, V. (2004) Householder based Low-Rank Space-time Processor For Anti-jamming Navigation Receivers. XII.European Signal Processing Conference EUSIPCO-2004, Septembr 6-10,2004 Vienna Austria. pp. 825-828.
- Cassio, R., Ollila, E., Koivunen, V., (2004) Stochastic maximum likelihood method for propagation parameter estimation. 2004 IEEE 15th International Symposium on Personal, Indoor and Mobile Radio Communications PIMRC2004, Baarcelona Spain, 5-8 September 2004.
- With, M., Werner, S., Koivunen, V., (2004) Householder-based Anti-jamming Navigation Receiver Structures. SAM2004 Third IEEE Sensor Array Multichannel Signal Processing Workshop 18.-21.7.2004 Siges Barcelona, Spain.
- Abrudan, Traian; Hjorungnes, Are; Koivunen, Visa (2004) A Blind equalizer for MIMO OFDM Systems. International Zurich Seminar on Communications, Zurich Switzerland, 2004. pp. 212-215.
- Sirbu, M., Delfino, E., Koivunen, V., (2004) A novel method for delay acquisition in satellite navigation systems, IEEE ISSSTA, 2004, Sydney.
- Aittomaki, Tuomas; Koivunen, Visa Recursive Householder-based Space-time Processor for Jammer Mitigation in Navigation Receivers. 38th Annual CISS2004 Conference on Information Sciences and Systems, USA, March 17-19 2004.
- Ollila, E. and Koivunen, V., "Influence functions for array covariance matrix estimators," in Proc. IEEE Workshop on Statistical Signal Processing (SSP'03), St.Louis, USA, Sept. 28- Oct. 1, 2003, pp. 445-448.
- Ollila, E and Koivunen, V., "Robust space-time scatter matrix estimator for broadband antenna arrays," in Proc. IEEE Vehicular Technology Conference (VTC'03-Fall), Orlando, USA, Oct. 6-9, 2003.
- Abrudan, T., Sirbu, M., Koivunen, V. "Block-Toeplitz VCMA Equalizer for MIMO-OFDM Systems". Proceedings of 37th Asilomar Conference on Signals, Systems, and Computers 2003, Nov. 9-12, 2003, Pacific Grove, CA

- Järvinen, J., Koivunen, V. “ δ -Signed Correlation Method for Noisy Channel Identification.”. Proceedings of 37th Asilomar Conference on Signals, Systems, and Computers 2003, Nov. 9-12, 2003, Pacific Grove, CA
- Enescu, M., Koivunen, V., “On the estimation of noise statistics in a class of state-space models.” Proceedings of 37th Asilomar Conference on Signals, Systems, and Computers 2003, Nov. 9-12, 2003, Pacific Grove, CA
- Roman, T., Enescu, M., Koivunen, V. (2003) “Time-domain method for tracking dispersive channels in MIMO OFDM systems” IEEE International Conference on Multimedia and Expo, 2003. ICME '03, Volume: 2 , 6-9 July 2003 Page(s): 609 -612
- Belloni, F., Koivunen, V., (2003) “Unitary root-MUSIC Technique for Uniform Circular Array”, To appear in IEEE International Symposium on Signal Processing and Information Technology (ISSPIT 2003), Darmstadt, Germany, Dec. 14-17, 2003.
- Roman, Timo; Enescu, Mihai; Koivunen, Visa Recursive Estimation of Time-Varying Channel and Frequency Offset in MIMO OFDM Systems. The 14 th IEEE 2003 International Symposium on Personal, Indoor and Mobile Radio Communications, PIMRC 2003, Beijing, China, September 7.-10.2003. pp. 1934-1938.
- Ollila, Esa; Koivunen, Visa Robust Antenna Array Processing Using M-estimators of Pseudo-Covariance. The 14th IEEE 2003 International Symposium on Personal, Indoor and Mobile Radio Communications, PIMRC 2003, Beijing, China, September 7-10.2003. pp. 2659-2663.
- Sirbu M. and Koivunen, V., “ One-step refinement method for joint channel estimation and timing acquisition in OFDM transmission, Proceedings of the IEE&IEEE International Workshop on Signal Processing for Wireless Communications 2003, May 2003, pp. 261-264.
- Abrudan, T., Sirbu, M., Koivunen, V., (2003) “Blind Multi-user Receiver for MIMO-OFDM System”, IEEE Signal Processing Advances in Wireless Communications (SPAWC) 2003, Rome, Italy.
- Roman, T., Enescu, M., Koivunen, V., (2003) “Joint time-domain tracking of channel and frequency offset for OFDM system”, IEEE SPAWC 2003, Rome, Italy.
- Ollila, E., Quattropiani, L., Koivunen, V., (2003) “ Robust Space-Time Covariance Estimation for Smart Antennas”, NATO RTO/SET Symposium on Smart Antennas, Chester, UK, April 2003, To appear.
- Oja, E., Koivunen, V., (2003) “Tracking Mobile Radios Using Antenna Arrays and Particle Filters” NATO RTO/SET Symposium on Smart Antennas, Chester, UK, April 2003, To appear.

- Ollila E., Koivunen, V., (2003) “ML-estimation of the Transmitter Location using Directional Data”, International Conference on Robust Statistics, ICORS 2003.
- Roman, T. Enescu, M., Koivunen, V., (2003) Time Domain Methods for Tracking Dispersive Channels in MIMO-OFDM Systems, IEEE ICASSP 2003. Volume: 4 , April 6-10, 2003 Page(s): 393-396.
- Eriksson, J. and Koivunen, V. “Identifiability and Separability of Linear ICA Models Revisited”, Proc. of ICA2003, Nara, Japan, April 2003.
- Roman, T., Enescu, M., Koivunen, V., (2003) Time Domain Method for Channel Tracking in OFDM systems, IEEE VTC Spring 2003, Jeju, Korea.
- Enescu, M., Koivunen, V., (2002) On the estimation of state transition matrix and noise statistics in state-space models. IEEE VTC2002-Vancouver, BC, Canada 24-28 September 2002.
- Venäläinen, J., Terho, L., Koivunen, V., (2002) Modulation Recognition System for Frequency Selective Channels, In the proceedings of IEEE Nordic Signal Processing Conference NORSIG 2002.
- Venäläinen, J., Terho, L., Koivunen, V., (2002) Modulation Classification in Fading Multipath Channel. 36th Asilomar Conference on Signals, Systems and Computers, Pacific Grove, CA USA, November 3-6. 2002.
- Visuri, S., Koivunen, V., (2002) Resolving Ambiguities in Subspace-Based Blind Receiver for MIMO Channels. 36th Asilomar Conference on Signals, Systems and Computers, Pacific Grove, CA USA, November 3-6. 2002.
- Eriksson, J., Koivunen, V., (2002) Blind Identifiability of Class of Nonlinear Instantaneous ICA Models. XI European Signal Processing Conference EUSIPCO2002, Toulouse France, 3-6 September 2002. pp.7-10.
- Enescu, M., Koivunen, V., (2002) Kalman smoothing based channel estimation for space-time block coding. European Conference on Signal Processing EUSIPCO2002, Toulouse France, 3-6 September 2002.
- Enescu, M., Sirbu, M., Koivunen, V., (2002) Recursive Estimation of Noise Statistics in Kalman Filter Based MIMO Equalization. In the proceedings of XXVIIth General Assembly of the International Union of Radio Science, Maastricht the Netherlands, 17-24 August 2002.
- Sirbu, M., Koivunen, V., (2002) In the proceedings of Propagation delay estimation in asynchronous DS/CDMA using multiple antennas. XI European Signal Processing Conference EUSIPCO 2002, Toulouse France 3-6 September 2002.

- Sirbu, M., Koivunen, V., (2002) Multichannel stochastic gradient method for adaptive equalization in uplink asynchronous DS/CDMA. Second IEEE Sensor Array and Multichannel Signal Processing workshop SAM2002, Rosslyn VA USA, August 2002.
- Sirbu, M., Koivunen, V., (2002) Channel estimation and tracking in uplink asynchronous DS/CDMA using multiple antennas. 14th International Conference on Digital Signal Processing DSP2002, Santorini Greece, July 2002. pp.635-638.
- Melvasalo, M., Koivunen, V., (2002) Blind Channel Estimation in Multicode CDMA System with Antenna Array. Second IEEE Sensor Array and Multichannel Signal Processing workshop SAM2002, VA USA, 4.-6.August 2002.
- Melvasalo, M., Koivunen, V., (2002) Blind Channel Estimators for Multicode Transmission in Long Code CDMA Systems. 36th Conference on Information Sciences and Systems (CISS 2002). Princeton, NJ, March 2002, .
- Enescu, M., Koivunen, V., (2002) Time-varying Channel Tracking for Space-Time Block Coding. In the proceedings of IEEE Vehicular Technology Conference, Spring 2002, Birmingham, Alabama. May 2002.
- Sirbu, M., Enescu, M., Koivunen, V. (2001) Estimating Noise Statistics in Adaptive Semiblind Equalization. 35th Asilomar Conference on Signals, Systems and Computers, Pacific Grove, CA USA, November 4-9. 2001.
- Eriksson, J., Kankainen, A., Koivunen, V., (2001) Novel Characteristic Function Based Criteria For ICA. 3rd International Conference on Independent Component Analysis and Blind Signal Separation, ICA 2001, San Diego USA Dec 2001 . pp. 108-113.
- Karvanen, J., Koivunen, V., (2001) Blind Separation using Absolute Moments Based Adaptive Estimating Function. 3rd International Conference on Independent Component Analysis and Blind Signal Separation, ICA 2001, San Diego USA, Dec 2001. pp. 218-223.
- Sirbu, M., Mannerkoski, J., Zhang, Y., Koivunen, V., (2001) Feasibility of fractionally spaced blind equalization with GMSK modulated signals, 15th European Conference on Circuit Theory and Design ECCTD'01, Espoo Finland, 28-31 August 2001. pp. 45-48.
- Zhang, Y., Mannerkoski, J., Koivunen, V., Kassam, S.A., Blind Equalization for GSM Systems via Source Separation, ECCTD'01-European Conference on Circuit Theory and Design, Espoo Finland, August 28-31, 2001. pp. 37-40.

- Visuri, S., Koivunen, V., Terho, L., Direction of Arrival Estimation in Nonstandard Conditions Using Nonparametric Statistics. NATO SET SYMPOSIUM on PASSIVE AND LPI RADIO FREQUENCY SENSORS, CD-ROM Proceedings, Warsaw Poland, April 21-25, 2001.
- Visuri, S., Oja, H., Koivunen, V., (2001) Blind channel identification using robust subspace estimation. The 11th IEEE Workshop on Statistical Signal Processing, Singapore, August 2001. pp. 281-284.
- Enescu, M., Sirbu, M., Koivunen, V., (2001) Recursive Semi Blind Equalizer For Time Varying Mimo Channels, The 11th IEEE Workshop on Statistical Signal Processing, Singapore, August 2001. pp. 289-292.
- Sirbu, M., Enescu, M., and Koivunen, V., (2001) Real-Time Semi-Blind Equalization of Time Varying Channels, IEEE-EURASIP Workshop on Nonlinear Signal and Image Processing, CD-ROM Proceedings, Baltimore, MD USA, June 3-6, 2001.
- Eriksson, J., Koivunen, V., (2001) Blind Separation using Characteristic Function Based Criterion. The Thirty-Fifth Annual Conference on Information Sciences and Systems, Baltimor USA, March 19-23, 2001. pp.781-785.
- Karvanen, J., Koivunen, V., (2001) Blind Separation of Communication Signals using Pearson System Based Method. The Thirty-Fifth Annual Conference on Information Sciences and Systems, March 19-23, 2001. pp. 764-767.
- Valkama, M., Renfors, M., Koivunen V., (2001) Compensation of Frequency Selective I/Q Imbalances in Wideband Receivers: Models and Algorithms. 2001 IEEE Third Workshop on Signal Processing Advances in Wireless Communications, SPAWC'01, Taoyuan, Taiwan, R.O.C, March 20-23,2001. pp. 42-45.
- Enescu,M., Zhang, Y., Kassam, S.A., Koivunen, V., (2001) Recursive Estimator for Blind Equalization via BSS and Fractional Sampling. 2001 IEEE Third Workshop on Signal Processing Advances in Wireless Communications, SPAWC'01, Taoyuan, Taiwan, R.O.C, March 20-23, 2001. pp. 94-97.
- Sirbu. M., Mannerkoski, J., Koivunen, V., (2000) On the feasibility of blind equalization for EDGE systems To appear in IEEE Signal Processing Advances in Wireless Communications 2001, Taiwan.
- Karvanen, J., Eriksson, J., Koivunen, V., (2000) Maximum Likelihood Estimation of ICA-model for Wide Class of Source Distributions, IEEE Neural Networks for Signal Processing 2000, pp. 445-454.

- Valkama, M., Renfors, M., Koivunen, V. (2000) Blind Source Separation Based I/Q Imbalance Compensation. Symposium 2000 on Adaptive Systems for Signal Processing, Communication and Control, AS-SPCC, pp. 310-314, Lake Louise, Canada.
- Enescu, M., Koivunen, V., (2000) Recursive Estimator for Separation of Arbitrarily Kurtotic Sources. IEEE Statistical Signal and Array Processing 2000, pp. 301-305. Pocono Manor, PA, USA.
- Karvanen, J., Eriksson, J., Koivunen, V., (2000) Flexible Approach to Maximum Likelihood Estimation of ICA Model, ICA-2000, Helsinki, Finland, pp. 227-232.
- Valkama, M., Renfors, M., Koivunen, V. (2000) BSS Based I/Q Imbalance Compensation in the Presence of Timing Errors. ICA-2000, Helsinki, Finland, pp. 393-398.
- Karvanen, J., Eriksson, J., Koivunen, V., (2000) Pearson System Based method for Blind Separation. ICA-2000, Helsinki, Finland, pp. 585-590.
- Valkama, M., Renfors, M., Koivunen, V. (2000) On the Performance of Interference Canceller Based I/Q Imbalance Compensation, ICASSP'2000, Vol. 5, pp. 2885-2888, Istanbul, Turkey.
- Visuri S., Oja, H., Koivunen, V., (2000) Nonparametric Statistics for DoA Estimation in the Presence of Multipath. In IEEE Sensor Array and Multichannel Signal Processing (SAM-2000), pp. 356-360, Boston, USA, March 15-17, 2000.
- Enescu, M., Koivunen, V., (2000) Tracking Time Varying Mixing System in Blind Separation, In IEEE Sensor Array and Multichannel Signal Processing (SAM-2000), pp. 291-295, Boston, USA, March 15-17, 2000.
- Rosti, A., Koivunen, V., (2000) Classification of MFSK Modulated Signals Using the Mean of Complex Envelope, EUSIPCO-2000, Tampere, Finland, pp. 581-584.
- Visuri, S., Oja, H., Koivunen, V., (2000) Nonparametric method for subspace based frequency estimation, EUSIPCO-2000, Tampere, Finland, pp. 1261-1264.
- Mannerkoski, J., Koivunen, V., (2000) Are Blind Equalizers Assuming White Data Applicable to Block Encoded Sequences? EUSIPCO-2000, Tampere, Finland, pp. 613-616.
- Visuri, S., Oja, H., Koivunen, V. (2000) Robust Subspace DoA Estimation for Wireless Communications. IEEE VTC-2000, pp. 2551-2555, Tokyo, Japan.

- Mannerkoski, J., Koivunen, V., (2000) Sensitivity of SIMO Blind Equalizers to Channel Precursor Magnitude IEEE VTC-2000, pp. 1879-1883, Tokyo, Japan.
- Mannerkoski, J., Koivunen, V., (1999) Prediction-based Blind Equalization using Channel Encoded Data. ISSPA'99. Brisbane, Australia, pp. 769-772.
- Visuri, S., Oja, H., Koivunen V.,(1999) Multichannel Signal Processing using Rank Covariance Matrices, IEEE-EURASIP NSIP'99, Vol. I, pp. 75-79.
- Möttönen, J., Oja, H., Koivunen, V., (1999) Robust autocovariance estimation based on sign and rank correlation coefficients. IEEE HOS'99, pp. 187-190.
- Mannerkoski, J., Koivunen, V., (1999) Analytical Performance Bound on a Correlation Matrix based Blind Equalizer. IEEE Workshop on Signal Processing Advances in Wireless Communications (SPAWC'99). Annapolis, MD, pp. 86-89.
- Mannerkoski, J., Koivunen, V., Taylor, D., (1999) Prediction-Based Adaptive Blind Equalization: A Performance Study, IEEE ICASSP'99, Vol. 5., pp. 2491-2494.
- Mannerkoski, J., Koivunen, V., (1999) Error Analysis of a Multi-step Prediction Based Blind Equalizer, IEEE ISCAS'99, Vol. 3, pp. 86-89.
- Koivunen, V., Oja, E., (1999) Predictor-corrector structure for real-time blind separation from noisy mixtures, In ICA'99, Aussois, France, pp. 479-484.
- Sepponen, M., Koivunen V., (1998) Coding of arbitrarily shaped video objects using B-spline wavelets, Eusipco'98, Vol. III, pp. 1501-1504.
- Koivunen, V., Pajunen, P., Karhunen, J., Oja, E., (1998) Blind Separation from ϵ -contaminated mixtures, Eusipco'98, Vol. III, pp. 1817-1820.
- Koivunen, V., Sepponen, M., (1998) Texture Map Coding for Arbitrarily Shaped 2-D and 3-D Video Objects. NMBIA'98, Glasgow, Scotland, pp. 97-102.
- Koivunen, V, Luukkonen, S, Oja, H. (1998) Affine Equivariance in Multi-channel OS-filtering. ICASSP'98, Vol. V, pp. 2881-2884.
- Luukkonen, S, Koivunen, V, Oja, H. (1996) Multivariate Median Filter for Correlated Noise. Proceedings of IEEE NORISIG'96, pp. 411-414.
- Koivunen, V., Kuosmanen, P., Astola, J., (1996) Orthogonal Spline Fitting in Range Data. IEEE International Conference on Image Processing (ICIP-96), Vol. II, pp. 385-388.

- Koivunen, V., Kassam, S.A., (1996) Covariance Estimation in Multivariate OS-filtering. IEEE International Conference on Image Processing (ICIP-96), Vol. I, pp. 981-984.
- Koivunen, V., Himayat, N., Kassam, S.A., (1995) Multivariate MTM filters - analysis and design options. IEEE International Conference on Image Processing (ICIP-95), pp. 354-357.
- Koivunen, V., Kassam, S.A., (1995) Nearest Neighbor Filters for Multivariate Data. 1995 IEEE Workshop on Nonlinear Signal and Image Processing, pp.734-737.
- Koivunen, V. (1994) A robust approach to enhancement of multivariate images. IEEE International Conference on Image Processing (ICIP-94), Austin, TX, USA. pp. 462-466.
- Koivunen, V., Himayat, N., Kassam, S.A., (1994) Median and robust polynomial filters for multivariate image data. IEEE International Conference on Image Processing, Austin (ICIP-94), Austin, TX, USA, pp. 487-491.
- Coyne, R., Finger, S., Konda, S., Monarch, I., Prinz, F., Siewiorek, D., Subrahmanian, E., Tenenbaum, M., Weber, J., Cutkosky, M., Leifer, L., Bajcsy, R., Koivunen, V., Birmingham, W., (1994) Creating an Advanced Collaborative Open Resource Network. ASME Design Theory and Methodology Conference.
- Koivunen, V. & Vezien, J-M. (1994) Multiple representation approach to geometric model construction from range data. IEEE Cad-Based Vision Workshop '94, Seven Springs, PA, pp. 132-139.
- Koivunen, V. (1993) Robust Approach to Filtering of Scalar and Vector Valued Signals. IEEE Workshop on Image and Multidimensional Signal Processing, Cannes, France, pp. 34-35.
- Koivunen V. & Bajcsy, R. (1993) Machine Vision for Rapid Geometric Modeling. Solid Free-Form Fabrication Symposium, Austin, TX, pp. 275-282.
- Koivunen, V. & Bajcsy, R. (1993) Geometric Methods for Building CAD Models from Range Data. Geometric Methods in Computer Vision II, SPIE Vol. 2031, pp. 205-216.
- Koivunen, V. & Bajcsy, R. (1993) Building Procedural CAD Models using 3-D Machine Vision. 9th International Conference on CAD/CAM, Robotics and Factories of the Future, Newark, NJ.
- Koivunen, V., Vezien, J-M. & Bajcsy, R. (1993) Procedural CAD-Models from Range Data. Towards World Class Manufacturing '93, Phoenix, Arizona.

- Vezien, J-M. & Koivunen, V. (1993) Registration and data description in geometric model construction from range data. Videometrics II, SPIE Vol. 2067, Boston, MA.
- Koivunen, V., Vezien, J-M., Kumar, V., Bajcsy, R., "Rapid Prototyping from Physical Models", Proceedings of the DARPA Workshop for Manufacturing Automation and Concurrent Engineering, June 16-18, Palo Alto, CA, pp. 721-724, 1992.
- Koivunen V. & Pietikäinen M. (1992) Evaluating Quality of Surface Description Using Robust Methods. 11th International Conference on Pattern Recognition, The Hague, Netherlands, Vol. III, pp. 214-218.
- Koivunen, V. & Pietikäinen, M. (1991) Improving the Robustness of Edge and Region-Based Range Image Segmentation. SPIE Conference on Intelligent Robots and Computer Vision X, SPIE Vol. 1608, Boston, USA.
- Riekkilä, J., Rönning, J., Silven, O., Pietikäinen, M. & Koivunen, V. (1991) Pick-and-place guidance utilizing an integrated control method and structured light ranging. Proc. of Intelligent Robots and Computer Vision X, SPIE Vol. 1607, Boston, MA.
- A few additional papers published in SPIE and STEP (Finnish Artificial Intelligence) conferences.

Refereed papers in Finnish Conferences

- Enescu, M., Koivunen, V., (1999), Blind Source Separation Using Subspace Tracking and Recursive Estimation. IEEE FINSIG'99. pp. 127-131.
- Visuri, S., Oja, H., Koivunen V.,(1999) Matrix Perturbations in Covariance Matrix Estimation, IEEE FINSIG'99. pp. 142-146.
- Sepponen, M., Koivunen, V. (1997) Image Patch Coding Methods for Low Bit-Rates. IEEE FINSIG'97.

Other reports

- Richter, Andreas; Enescu, Mihai; Koivunen, Visa A State Space Approach to Propagation Path Parameter Estimation and Tracking. COST 273 temporary document vol. 5.
- Ribeiro, Cassio; Ollila, Esa; Koivunen, Visa Stochastic ML method for propagation parameter estimation using mixture of angular distribution models. Italia: 2005. COST 273 Temporary Document vol. 5.

Educational Material

- Lecture Notes on Digital Filter Design, Tampere Univ. of Technology. 1997, In Finnish. \approx 240 pages. With Matlab exercises and workbook.
- Lecture Notes on Signals and Systems, Tampere Univ. of Technology, 170 pages + images, examples and exercises.
- Lecture Notes on Statistical Signal Processing, Helsinki Univ. of Technology, 2006, In English, \approx 540 pages. With examples.
- Lecture Notes on Video Coding, Helsinki Univ. of Technology, 170 pages + images, examples and exercises.
- Lecture Notes on Selected topics in Communications Signal Processing, Helsinki Univ. of Technology, 170 pages + images, examples and exercises.
- Lecture Notes on Random Processes for Communications, 2002, Helsinki Univ. of Technology, 350 pages + images, examples and exercises.
- Lecture Notes on Array Signal Processing, Princeton University, 2007, 130 pages.
- Tutorial in IEEE ICASSP 2007, Circular and Non-circular complex random signals with applications in wireless communications. with Dr. Mikko Valkama.

Software

- Eriksson, J., Karvanen, J., Koivunen, V., (2000) Software for Maximum Likelihood Blind Source Separation using EGLD Model. Available at ICA CENTRAL. Available at <http://sig.enst.fr/~cardoso/icacentral/index.html>.
- Karvanen, J., Eriksson, J., Koivunen, V., (2000) Software for Blind Source Separation using the Pearson System. Available at ICA CENTRAL. Available at <http://sig.enst.fr/~cardoso/icacentral/index.html>.