List of Publications

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Books:

1) **Robustness in Data Analysis: criteria and methods**, VSP, Utrecht, 2002, xiv+310 pages. Coauthor: Nikita O. Vilchevski (see the VSP site - http://www.vsppub.com).

2) **ProbabilityTopics in Mathematics.** Publishing House "Ivan Fedorov", St. Petersburg, 2001, 588 p. Part 4: *Mathematical Statistics*, pp. 399-588. Coauthor: Yuri D. Maksimov (in Russian).

Papers in peer reviewed journals (in counter-chronological order):

1) Redescending M-estimators. *Journal of Statistical Planning and Inference*, 2008, Vol. 138, pp. 2906-2917. Coauthors: S. Morgenthaler, A. Shurygin

2) Why Gaussianity*? IEEE Signal Processing Magazine*, 2008, Vol. 25, No. 2, pp. 102-113. Coauthor: Kiseon Kim.

3) Robust classification by a nearest mean-median rule for generalized Gaussian pattern distributions. *Pattern Recognition and Image Analysis,* Vol. 18, No.2, 2008, pp. 260-263. Coauthors: M.G. Shevlyakova, V.K. Klavdiev

4) A new fusion formula and its application to continuous-time linear systems with multisensor environment. *Computational Statistics & Data Analysis*, 2007, Vol. 52, pp. 840-854. Coauthors: K.S. Kim, V.I. Shin.

5) A Low-Complexity Suboptimal Filter for Continuous-Discrete Linear Systems with Parametric Uncertainties*, Signal Processing*, Vol. 87, 2007, pp. 2392-2406. Coauthors: V.I. Shin, D.Y. Kim, K.S. Kim.

6) Robust estimation of a correlation coefficient for ε-contaminated bivariate normal distributions. *Automation and Remote Control*, Vol. 67, No 12, 2006, 1940-1957. Coauthor: J.W. Lee, V.I. Shin.

7) Robust minimax detection of a weak signal in noise with a bounded variance and density value at the center of symmetry. *IEEE Transactions on Information Theory*. Vol. 52, No 3, 2006, 1206-1211. Coauthor: Kiseon Kim.

8) Fusion of Local Estimates for Multisensor Environment", *WSEAS Transactions on Signal Processing*, 2006, Issue 2, Vol. 2, 225-229. Coauthors: V. Shin, R. Minhas.

9) Randomized pushing-out in the priority queueing with a finite buffer size. *J. Math. Sc*. Vol. 138, No 1, 2006, 5460-5466. Coauthors: K.E. Avrachenkov, N.O. Vilchevskii.

10) Minimax Estimation and Detection of Signals in Models with Bounded Variances and Subranges, *Pattern Recognition and Image Analysis*, Vol. 15, No. 2, 2005, 323-326. Coauthors: K.S. Kim,V.I. Shin.

 11) An Optimal Mean Square Combination of Estimates with Application to Filtering Problems, *Pattern Recognition and Image Analysis*, Vol. 15, No. 2, 2005, 327-330. Coauthor: V.I. Shin.

12) Huber's Minimax Approach on Distribution Classes with Bounded Variances and Subranges with Applications to Robust Detection of Signals. *Acta Mathematicae Applicatae Sinica*, English Series, Vol. 21, No. 2, 2005, 269-284. Coauthor: Kiseon Kim.

13) Priority queueing with finite buffer size and randomized push-out mechanism. *Performance Evaluation*, Vol. 61, No 1, 2005, 1-16. Coauthors: K.E. Avrachenkov, N.O. Vilchevsky

14) Randomized push-out mechanisms in priority queueing and their probability characteristics. Pliska Studia Mathematica Bulgarica, Vol. 14, 2003, 23-36. Coauthors: K.E. Avrachenkov, N.O. Vilchevsky

15) On a nonparametric robust method of detection of signals. *J. Math. Sc*. Vol. 111, No 6, 2002, 3879-3887. Coauthors: T. Yu. Khvatova, N.O. Vilchevsky.

16) Robust Lp-norm estimators of multivariate location in models with a bounded variance. *J. Korean Soc. Math. Educ*. Ser. B: Pure Appl. Math. Vol. 9, No 1, 2002, 81-90. Coauthor Jae Won Lee.

17) Estimation of probability characteristics by generalized Bernstein polynomials. *Proc. of Seminars of Steklov Mathematical Institute (St. Petersburg Branch) of the Russian Academy of Sciences*, Vol. 294, 2002, 127-138. Coauthors: Jae Won Lee, N.O. Vilchevsky.

18) Minimax variance estimation of a correlation coefficient for epsilon-contaminated bivariate normal distributions. *Statistics and Probability Letters*, Vol. 57, No 1, 2002, 91-100. Coauthor N.O. Vilchevsky.

19) On the minimax variance estimators of scale in time to failure models. *Bull. Korean Math. Soc*., Vol. 39, No. 1, 2002, 23-31. Coauthor Jae Won Lee.

20) On the minimax robust approach to the truncation of distributions. *J. Korean Soc. Math. Education*. Ser. B: Pure and Applied Mathematics, Vol. 8, No 2, (Issue 15), 2001, 79-85. Coauthors: Jae Won Lee, Sung Wook Park.

21) Robust estimator of a correlation coefficient in the class of contaminated normal distributions. *Theory Prob. Appl.*, Vol. 46, No 1, 2001, 194 -195.

22) On the Bernstein polynomial estimators of distribution and quantile functions. *J. Math. Sc*., Vol. 105, No 6, 2001, 2626-2629. Coauthor N.O. Vilchevskiy.

23) Using the generalized Bernstein polynomials in the problems of estimation of distribution laws. *Theory Prob. Appl*., Vol. 45, No 4, 2000, 803-804. Coauthor N.O. Vilchevsky (in Russian).

24) On the characterization of Fisher information and stability of the least favorable lattice distributions. *J. Math. Sc.,* Vol. 92, No. 4, 1998, 4104-4111. Coauthor N.O. Vilchevsky.

25) Robust estimators of a correlation coefficient: Asymptotics and Monte Carlo. *Korean J. Math. Sc.*. Vol. 4, 1997, 205-212. Coauthor: Jae Won Lee.

26) On robust estimation of a correlation coefficient. *J. Math. Sc.,* Vol. 83, No. 3, Plenum Publ. Corp., 1997, 90-94.

27) Robust estimation of a scale parameter of the exponential distribution. *Automation and Remote Control,* No 2, 1997, 147-153.

28) On Rao-Cramer inequality, Fisher information and lattice least favorable distributions. *Theory Prob. Appl.*, Vol. 42, No 2, 1997, 387-388. Coauthor: N. Vilchevsky.

29) Stability of L1-approximations and robustness of least modules estimates. *J. Math. Sc*., Vol. 81, No 5, Plenum Publ. Corp., 1996, 2293-2999.

30) Robust minimax estimation of a location parameter with a bounded variance. In: *Stability Problems for Stochastic Models*. Ed. by V.M. Zolotarev et al., Moscow/Utrecht, TVP/VSP, 1994, 279-288. Coauthor: N. Vilchevskiy.

31) Classical and robust statistical analysis of the sudden death risk factors. *Automation and Remote Control,* No 1, 1993, 162-170. Coauthor: L. Chireikin .

32) On a median-type Fourier transformation. In: *Modern problems of data analysis and simulation*, Ed. By Yu.S, Kharin, Minsk Univ., 1993, 80-85. Coauthor M. Pashkevich.

33) Breakdown points of L1-regression. *Theory Prob. Appl.,* Vol. 37, 1992, 140-141 (in Russian).

34) Discrete analogues of Fisher information and least informative distribution. *Statistical methods of estimation and testing hypotheses*. Perm Univ., 1991, 5 p. Coauthor: N. Vilchevskiy (translated in English by Plenum Publ. Corp.)

35) Minimization of Fisher information over some classes of continuous and discrete distributions. Multivariate Statistical Analysis. Notes in Mathematical Statistics. (Uchenye zapiski po statistike) Vol. 54, Moscow, 1990, Nauka, 240-243. Coauthor: N. Vilchevskiy (in Russian).

36) Risk factors of sudden cardiac deaths in Arkhangelsk. In: *Ishemic Disease*, Ed. by A. Almazov. Leningrad Inst. of Cardiology, 1990, 15-25. Coauthor: L. Chireikin (in Russian).

37) Robust properties of a median correlation. *Mathematical Methods in Optimal Control and Data Processing*, Ryazan Radio Inst., 1988, 109-112 (in Russian).

38) Robust methods of estimation of a correlation coefficient. *Automation and Remote Control*, No 3, 1987, 70-80. Coauthor: V. Pasman.

39) Robust adaptive approach to identification of regression models. *IFAC Proceedings*, Ser.2, 1987, Pergamon Press, 81-86. Coauthor: N. Vilchevsky.

40) Estimation of the norm of reaction of varieties to the changes in environment conditions. *Agricultural Biology*, No 2, 1987, 117-124. Coauthors: V. Inozemcev, V. Kukekov (in Russian)

41) Discrete analogues of the least favorable distributions in robust estimation. *Mathematical Methods in Optimal Control and Data Processing,* Ryazan, Radio Inst., 1986, 24-28. Coauthor: N. Vilchevsky (in Russian).

42) Robust estimation of a location parameter under a bounded variance. *Automation and Remote Control*, No 8, 1984, 104-109. Coauthor: N. Vilchevskiy.

43) Robust algorithms of detection of signals based on the approximation criteria. *Automation and Remote Control*, No 6, 1983, 109-112. Coauthor: I. Chelpanov .

44) Robust algorithms of estimation of a correlation coefficient. *Mathematical Statistics and its Applications*. Vol. 8, Tomsk Univ., 1983, 151-155. Coauthor: V. Pasman (in Russian).

45) Robust estimation of location under a bounded variance of distributions. *Mathematical Statistics and its Applications*. Vol. 8, Tomsk Univ., 1983, 28-33. Coauthor: N. Vilchevskiy (in Russian).

46) Robust optimal algorithms of identification of regression models. *Mathematical Methods in Optimal Control and Data Processing,* Ryazan Radio Inst., 1983, 14-17. Coauthor: N. Vilchevskiy (in Russian).

47) Robust methods of estimation of the parameters of transition processes. *Proc. Leningrad Polytechnic Inst. (Trudy LPI),* No 388, 1982, 67-71 (in Russian).

48) Nonparametric methods of detection of signals based on the approximation criteria. *Proc. Leningrad Polytechnic Inst. (Trudy LPI)*, No 388, 1982, 50-54 (in Russian).

49) Robust methods in the automatic studies of electrical machines. *Bulletins of Universities (Izvestia VUZov) Seria "Electromechanics"*, No 9, 1981, 964-970. Coauthors: Yu. Zaitsev, Yu. Zubkov (in Russian).

51) On robust methods of smoothing of processes. *Mathematical Statistics and its Applications*. Vol. 7, Tomsk Univ., 1981, 24 -31. Coauthor: E. Guilbo (in Russian).

52) On the stable spherical configurations in the Kerr-Newman field. *Bulletins of Universities (Izvestia VUZov) Seria "Physics",* No 3, 1981, 118-119. Coauthor: E. Levin (in Russian).

53) Robust approximation of functions under uncertainty. *Automation and Remote Control*, No 4, 1979, 51-60. Coauthors: E. Guilbo, I. Chelpanov.

Selected proceedings of conferences (from 1995):

1) Yeon Soo Lee, Vladimir Shin, Georgy Shevlyakov, Artifact-Free Finite Elements Model of the Total Hip Replacement Femur From Post-Operative CT Images, *Proceedings of the 4th Inter. Workshop on Medical Imaging and Augmented Reality (MIAR-2008)*, 1-2 Aug. 2008, Tokyo, Japan, pp.1-15 (ISBN: 978-3-540-79981-8)

2) Nga-Viet Nguyen, Georgy Shevlyakov, Victor Salakhutdinov, Vladimir Shin, A Robust Fusion Algorithm for Contaminated Gaussian Channel Noise, *Proceedings of the 9th Inter. Conf. on Pattern Recognition and Image Analysis (PRIA-2008)*, 14-20 Sept. 2008, Nizhni Novgorod, Russia, vol. 2, pp. 100-103.

3) Du Yong Kim, Vladimir Shin, Georgy Shevlyakov, Kiseon Kim, A Design of Optimal Receding Horizon Filter for Linear Systems with Uncertainty. *Proceedings IEEE TENCON-2007*, 30 Oct. - 02 Nov., Taipei, Taiwan, 2007 (ISBN: 1-4244-1272-2). IEEE Catalog Number: 07CH37911C.

4) Suboptimal Filter for Continuous-Discrete Linear Systems with Parametric Uncertainties, *Proc. IEEE TENCON-2006*, November 14-17, Hong-Kong, 2006. ISBN: 1-4244-0549-1. Coauthors: V. Shin, D. Kim, K.S. Kim

5) A note on the channel aware decision fusion in wireless sensor networks. *Proc. IEEE TENCON-2006*, November 14 -17, Hong-Kong, 2006. ISBN: 1-4244-0549-1. Coauthors: J. T. Park, K.S. Kim

6) Modified discrete Radon transforms and their applications to rotation-invariant image analysis. *Proc. 8th IEEE Intl.Workshop on Multimedia Signal Processing* (MMSP2006), pp. 429-434, October 2006,Victoria, Canada. Coauthors: M. Hejazi, Y.S. Ho

7) A robust minimum distance detection rule in the Neyman-Pearson setting. *Proc. 2006 Asia-Pacific Conference on Communications (APCC-2006)*, August 31- September 01, Busan, Korea, 2006. ISBN: 1-4244-0573-4. Coauthor: K.S. Kim.

8) The lattice analogues of least informative distributions. *Proc. 2006 Int. Conf. Robust Statistics (ICORS06),* pp. 99-100, July 16-21, 2006, Lisbon, Portugal. Coauthors: V.I. Shin, K.S. Kim.

9) Estimation Level Fusion in Multisensor Environment, *Proc. 5th WSEAS Intern. Conf. Signal Processing, Robotics and Automation* (ISPRA '06), pp. 245-251, February 15-17, 2006, Madrid, Spain. Coauthors: R. Minhas, V. Shin.

10) An Adaptive Filter with Given Structure for Discrete-Time Linear Dynamic Systems, *Proc. International Conf. on Instrumentation, Control and Information Technology (SOCE-2005)*, pp. 3751-3755, 8-10 August 2005, Okayama, Japan, 2005. Coauthors: V.I. Shin, K.S. Kim.

11) A radical stable M-estimator of a correlation coefficient for a bivariate normal distribution", *Proc. International Conf. on Robust Statistics (ICORS 2005)*, pp. 91-92, June 12-17, Jyvaskyla, Finland, 2005. Coauthors: V.I. Shin, K.S. Kim.

12) Minimax robust detection of a known signal in a general class of noises. *Proc. Intl. Conf. Acoustics, Speech and Signal Processing (ICASSP 2005),* Philadelpia, March 2005, IV-721 – IV-724. Coauthor: K.S. Kim.

13) An Optimal Mean Square Combination of Estimates with Application to Filtering Problems", *Proc. 7th International Conf. on Pattern Recognition and Image Analysis* (*PRIA-7-2004*), October 2004, St.Petersburg, Russia, vol. 2, pp. 394-397. Coauthor: V.I. Shin.

14) Minimax Estimation and Detection of Signals in Models with Bounded Variances and Subranges, *Proc. 7th International Conf. on Pattern Recognition and Image Analysis* (*PRIA-7-2004*), St.Petersburg, Russia, October 2004, vol. 2, pp. 390-393. Coauthor: V.I. Shin.

15) A robust maximin low-complexity detector in noise models with a bounded variance. *Proc. Intl. Conf. "Communication-2004"*, pp. 328-335, Bishkek, August 22-29, 2004, Kyrgyz Republic. Coauthors: K.S.Kim, S. Koo.

16) A low-complexity robust bivariate boxplot. *Proc. VII Inter. Conf. Computer Data Analysis and Modeling*. pp. 85-91, Minsk, Belarus, September 2004. Coauthor: T. Khvatova.

17) Low-complexity robust minimax power detection of a weak signal in noise with a bounded variance. Proc. Nordic Radio Symp. 2004, p. 35, August 16-18, Oulu, Finland, 2004.

18) On adaptive robust approach to estimation of the precision parameters in finite distribution models. *Proc. of the 5th International Scientific School "Fundamental and Practical Problems of Precision Theory",* pp. 98-104, June 27-July 5, St. Petersburg, 2002. Eds. V.P. Bulatov and L.V. Efremov, St. Petersburg, 2002.

19) On robust estimation of correlation matrices. *Proc. Inter. Conf. "Computer Data Analysis and Modeling".* Vol. 2, pp. 101-106, September 1998, Minsk, Belarus. Coauthor: T. Khvatova.

20) On robust estimation of a correlation coefficient and correlation matrix. *In: MODA 5 - Advances in Model-Oriented Data Analysis,* Atkinson A. C., Luc Pronzato, and Wynn, H. P. (Eds.), Proc. of MODA 5, pp. 153-162, Physica Verlag, Heidelberg, 1998. Coauthor: T. Khvatova.

21) Robust minimax adaptive M-estimators of regression parameters. - *In: MODA-4 Advances in Model-Oriented Data Analysis,* Kitsos C.P., and Muller, W.G. Eds. Proc. of MODA-4, Physica Verlag, Heidelberg, 1995, pp. 235-239. Coauthor: N. Vilchevskiy.

22) Robust minimax adaptive approach to regression problems in interval computations. *APIC'95, El Paso, Extended Abstracts, A Supplement to the International Journal of Reliable Computing*, pp. 185-187.

23) On the choice of an optimization criterion under uncertainty in interval computations. *APIC'95, El Paso, Extended Abstracts, A Supplement to the International Journal of Reliable Computing,* pp. 187-188. Coauthor: N. Vilchevskiy.

24) Robust estimate of a parameter of the exponential distribution. *Proc. Inter. Conf. "Computer Data Analysis and Modeling".* Vol. 1, pp. 90-95, Minsk, 1995.

Selected scientific reports:

1) Priority Queueing and Generalized Processor Sharing with Applications to ATM networks and Differentiated Services in the Internet. *Liapunov Institute Research Report*, May 2003. Coauthors: K.E. Avrachenkov , N.O. Vilchevsky.

2) Priority Queueing and Generalized Processor Sharing with Applications to ATM networks and Differentiated Services in the Internet. *Liapunov Institute Research Report*, December 2002. Coauthors: K.E. Avrachenkov , N.O. Vilchevsky.

3) Priority queueing with finite buffer size and randomized push-out mechanism, INRIA Research Report No. 4434, 2002, available at http://www.inria.fr/rrrt/rr-4434.html. Coauthors: K.E. Avrachenkov, N.O. Vilchevsky

4) Methods and algorithms of data analysis under the conditions of uncertainty (with applications in cardiology). Dissertation thesis for the degree of Doctor of Sciences in Physics and Mathematics. St. Petersburg State Technical University, 1991, 357 p. (in Russian)

5) Robust estimation and detection based on the method of the least absolute deviations. Dissertation thesis for the degree of the candidate of sciences (Russian equivalent for Ph.D.), Leningrad Polytechnic Institute, 1976, 208 p. (in Russian).

Submitted papers:

1) Robust distance-based detection of a weak signal in partially known noise. Coauthors: V.I Shin, K.S. Kim.

2) A new asymptotic approach to robust detection of a weak signal. Coauthors: V.I Shin, K.S. Kim.

3) Robust detection of a weak signal with redescending M-estimators: a comparative study. Coauthors: V.I Shin, K.S. Kim, J.W. Lee, K.M. Lee.