Curriculum Vitae

VASILIY V. KRIVTSOV
SENIOR STAFF TECHNICAL SPECIALIST
RELIABILITY & RISK ANALYSIS
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EDUCATION

- **PhD, Reliability Engineering**, University of Maryland, USA, 2000
- **PhD, Electrical Engineering**, Kharkov Polytechnic Institute, Ukraine, 1991
- **MS, Electrical Engineering (honors)**, Institute of Mechanization & Electrification, Ukraine, 1986

ACADEMIC EXPERRIENCE

1991-1993 Kharkov Institute of Mechanization and Electrification, Kharkov, Ukraine. **Associate Professor of Electrical Engineering** (1993), **Assistant Professor of Electrical Engineering** (1991-1992). Responsibilities included teaching courses in "Low Voltage Electrical Apparatus", "Relay Protection", "Engineering Statistics", "Theory of Reliability and Maintainability"; supervising graduate projects, co-chairing the Electrical Engineering Department Scientists' Council.

1993-1995 The University of Maryland. **Teaching Assistant** on ENRE 445 "Fundamentals of Reliability Engineering"; ENRE-620, "Mathematical Techniques of Reliability Engineering. Design and development of reliability analysis software tools "RARE".

1996-present The Ford Motor Company. **Lead Instructor of Ford Design Institute (FDI)**. Internal training courses on "Reliability Theory", "Reliability Data Analysis", "Reliability Demonstration Techniques", "Regression Analysis & ANOVA", "Field Data Analysis & Statistical Warranty Forecasting". Educational seminars for global R&D Centers including Ford of Europe, Ford of Asia Pacific, Ford of South America.

NON- ACADEMIC EXPERRIENCE

1996-present The Ford Motor Company. **Senior Staff Technical Specialist in Reliability & Risk Analysis**. Responsibilities: field data analysis and early detection procedures; probabilistic risk assessment; statistical engineering (incl. six sigma) support of product development; warranty cost forecasting; corporate reliability seminars (incl. Ford of North America, Mexico, Brazil, Australia). A technical liaison of Ford's Automotive Safety Office on interactions with the US National Highway Safety Administration. Author of 6 trade secret inventions on statistical algorithms of Ford.

RESEARCH INTERESTS

- Probabilistic models for recurrent repairs in the framework of **g-renewal and quazi-renewal** processes.
- Bivariate (e.g., in time & mileage) **survival regression models** with fixed and time-dependent covariates.
- Regularization techniques for ill-posed reliability estimation problems.
- Reliability **condition-based maintenance** of vehicle fleets based on real-time ("big") data from connected vehicle fleets.

ACADEMIC & PROFESSIONAL ACTIVITY

- **Member of the Editorial Board**, Reliability Engineering and System Safety (RESS), International Journal, 1999 – present.
- **Guest Editor** of the RESS Special Issue on "Recent advances in theory and applications of stochastic point process models in reliability engineering", Reliability Engineering & System Safety, 2007, Vol. 92.
- **Speaker** and/or **Session Chair**; International Symposium on Reliability, Availability, Maintainability (RAMS®), 2000 – present.
- **Vice Chair of Tutorials Committee**; International Symposium on Reliability, Availability, Maintainability; 2014– present.
- **Senior Member, IEEE**; 2010 – present; IEEE Reliability Society, 1997 – present. Publications in IEEE Transactions on Reliability :: Vol 54 (2005), Vol. 61 (2012), Vol 62 (2013).

HONORS AND AWARDS

- **ARS Best Lecture Award**, Applied Reliability Symposium, Indianapolis, June 2014.
- **Ford Corporate Trade Secret Award**, Ford Motor Company, August 2013. (5 more trade secret awards received in 2003, 2004, 2008, 2010, 2011.)
- **Alan O. Plait Best Paper Award**, International Reliability Symposium (RAMS), January 2012.
- **Honorary Professor Diploma**, Kharkov Institute of Electronic & Computer Technology, Ukraine, September 2006.
- **Ford Research Technical Achievement Award**, Ford Motor Company, November 2002.
- **US DOE Outstanding Achievement Award**, Nuclear Regulatory Commission (NRC), December 1996.
- **National "Young Scientist" Award**, Ukrainian Ministry of Education, October 1991.

INVITED SPEAKER AND/OR SESSION ORGANIZER - CONFERENCES

- **8th International Conference on Availability, Reliability & Security**, Statistical Methods in Reliability Assessment of Complex Systems, Fribourg, **Switzerland**, September 2014.
- **International Applied Reliability Symposium**, Survival Regression in Automotive Reliability Applications, Indianapolis, Indiana, **USA**, June 2014.
- **University of Maryland Reliability Symposium**, Promise of a Discipline: Reliability & Risk in Theory & Practice, College Park, Maryland, **USA**, April 2014.
- **3rd World Business Research Conference on Field Service**, Preventive Maintenance Schedule Optimization, Palm Springs, California, **USA**, April 2013.
- **2nd World Business Research Conference on Field Service**, Optimization of Preventive Maintenance Schedules in FS Operations, Las Vegas, Nevada, **USA**, April 2012.
- **Applied Stochastic Models International Conference**, Gini: From Economics to Reliability, Rome, **Italy**, June 2011.
- **Guest Lecture at Maine Maritime Academy**, Probability Models in Reliability Engineering, Casting, Maine, November 2010.
- **Mathematical Methods in Reliability Engineering Seminar**, Kharkov Institute of Electric Power & Computer Technology Kharkov, **Ukraine**, June 2010.
- **6th International Conference on Mathematical Methods in Reliability**, A Gini–Type Index for Aging/Rejuvenating Objects, Moscow, **Russia**, June 2009.
- **5th International Conference on Mathematical Methods in Reliability**, Bayesian Probability Papers, Glasgow, **Scotland**, July 2007.
- **International Symposium on Stochastic Models in Reliability**, Application Extensions of Non-Homogeneous Poisson Process, Be'er Sheva, **Israel**, February 2005.
- **International Conference on Statistics & Analytical Methods in Automotive Engineering**, Application of Proportional Hazard Model to Tire Design Analysis, London, **England**, September 2002.
- **2nd International Conference on Mathematical Methods in Reliability**, An MC Approach to Estimation of G-Renewal Process in Warranty Data Analysis, Bordeaux, **France**, June 2000.

PUBLICATIONS

[Google Scholar Citation Index: **745**; h-index: **9**]

Books & Book Chapters

• M.P. Kaminskiy and V.V. Krivtsov (2011), A Gini-Type Index for Aging/Rejuvenating Objects - in Mathematical and Statistical Models and Methods in Reliability, Springer, Birkhäuser Boston, ISBN: 978-0-8176-4970-8.
• M. Modarres, M. P. Kaminsky, V.V. Krivtsov (2009), Reliability Engineering and Risk Analysis, 2nd edition, Taylor & Francis, London, ISBN: 0-8493-9247-0.
• V.V. Krivtsov and V.I. Gurevich (2003), Reliability Optimization for the Series Configuration of Electronic Components - in Protection Devices and Systems for High-Voltage Applications, Marcel Dekker, New York, ISBN: 0-8247-4056-4.
• V.V. Krivtsov, D.E. Tananko and T.P. Davis (2002), Application of Proportional Hazard Model to Tire Design Analysis, in Statistical and Analytical Methods in Automotive Engineering, Professional Engineering Publishing, London, ISBN:1-86058-387-3.
• M. Modarres, M. P. Kaminsky, V.V. Krivtsov (1999), Reliability Engineering and Risk Analysis: Practical Guide, Marcel Dekker, New York, ISBN: 0-8247-2000-8.
• M.P. Kaminsky and V.V. Krivtsov (1998), A Monte Carlo Approach to Repairable System Reliability Analysis - in Probabilistic Safety Assessment and Management, Springer, Birkhäuser Boston, ISBN: 3-540-76262-0.
• V.V. Krivtsov (1991), Parameter Correction Methods of Magnetically Controlled High-Voltage Interface Devices (in Russian), Kharkov Polytechnic Institute, Kharkov, Ukraine, 236 p.

Refereed Journals

• V.V. Krivtsov and A.Yu. Yevkin (2013), Estimation of G-Renewal Process Parameters as an Ill-Posed Inverse Problem - Reliability Engineering & System Safety, Vol. 115, pp. 10-18.
• A.Yu. Yevkin and V.V. Krivtsov (2013), Comparative Analysis of Optimal Maintenance Policies under General Repair with Underlying Weibull Distribution - IEEE Transactions on Reliability, Vol. 62, Issue 1, pp. 82-91.
• A.Yu. Yevkin and V.V. Krivtsov (2012), Approximate Solution to G-Renewal Equation with Underlying Weibull Distribution - IEEE Transactions on Reliability, Vol. 61, Issue 1, pp. 68-73.
• V.V. Krivtsov (2011), Field Data Analysis & Statistical Warranty Forecasting - Alan O. Plait Best Paper Award, IEEE Catalog No CFP11RAM-CDR, ISBN: 978-1-4244-8855-1.
• M.P. Kaminsky and V.V. Krivtsov (2010), G1-Renewal Process as Repairable System Model, Reliability and Risk Analysis: Theory & Applications, #3, Vol.1, pp. 7-14. Also available in Cornell University Archive - Statistical methodology, arXiv:1006.3718v1 [stat.ME].
• V.V. Krivtsov, I.M. Kolmanovsky, and T.P. Davis (2008), A Constrained Quadratic Spline as a Model for Cumulative Hazard Function, Int. J. Reliability and Safety, Vol. 2, No. 3, pp.170-178.
• V.V. Krivtsov (2008), On the NHPP with Underlying Distributions of the Location–Scale Family, Reliability Edge, Vol. 9, #1, pp. 20-24.
• M.P. Kaminsky and V.V. Krivtsov (2008), An Integral Measure of Aging/Rejuvenation for Repairable and Non-repairable Systems, Reliability and Risk Analysis: Theory & Applications, Vol. 1, pp. 69-76. Also available in Cornell University Archive - Statistical methodology, arXiv:0711.3218v1 [stat.ME].
• V.V. Krivtsov (2007), Recent Advances in Theory & Applications of Stochastic Point Processes in Reliability Engineering, Editorial Review, Reliability Engineering & System Safety, Vol. 92, # 5, pp. 549-551.
• V.V. Krivtsov (2007), Practical Extensions to NHPP Application in Repairable System Reliability Analysis, Reliability Engineering & System Safety, Vol. 92, # 5, pp. 560-562.
• M.P. Kaminsky and V.V. Krivtsov (2006), Bayesian Probability Papers, Reliability: Theory & Applications, No 1(2), pp. 57-62.
• M.P. Kaminsky and V.V. Krivtsov (2006), G-Renewal Process in Warranty Data Analysis, Reliability: Theory & Applications, No 1(1), pp. 29-34 (also translated into Russian).
• M.P. Kaminsky and V.V.Krivtsov (2005), A Simple Procedure for Bayesian Estimation of Weibull Distribution, IEEE Transactions on Reliability, Vol. 54, pp. 612-616.
• M.I. Awad, M.A. Dejack, and V.V. Krivtsov (2004), Evaluation of Fatigue Life Regression Models - SAE Technical Paper Series, # 2004-01-0625.

• D.E. Tananko, V.V. Krivtsov and D.C. Rohweder (2003), Do We Really Need a Spec on Tire Static Balance? - SAE Technical Paper Series, # 2003-01-0151.
• V.V. Krivtsov, D.E. Tananko and T.P. Davis (2002), A Regression Approach to Tire Reliability Analysis, Reliability Engineering & System Safety, vol. 78, # 3, pp. 267-273.
• V.V. Krivtsov and J. W. Case (1999), Peculiarities of Censored Data Analysis in Automotive Industry Applications - SAE Technical Paper Series, # 1999-01-3220.
• M.P. Kaminsky and V.V. Krivtsov (1997), A Monte Carlo Approach to Warranty Repair Predictions - SAE Technical Paper Series, # 972582.
• V.I. Gurevich and V.V. Krivtsov (1992), New Relay Technology for the Power Network System Automation (originally in Russian) - Electrical Power Engineering, #4, pp. 44-46.
• V.V. Krivtsov and V.I. Gurevich (1991), New Design Principles of the Overcurrent Protection Based on Magnetically Excited Contacts (originally in Russian) - Power Engineering, 1991, #6, pp. 38-43.
• V.I. Gurevich and V.V. Krivtsov (1991), High Voltage Hercone-Semiconducting Commutation Devices for REA Electric Power Supply Systems (originally in Russian) -Telecommunications And Radio Engineering - U.S.A., Scripta Technica Inc., #4, pp. 46-48.
• V.I. Gurevich, V.V. Krivtsov, P.I. Savchenko (1990), Interface Relays (originally in Russian) - Soviet Electrical Engineering, Allerton Press, Inc., Vol. 61, #6, pp. 71-75.
• V.I. Gurevich, P.I. Savchenko, V.V. Krivtsov (1988), Reed Interface Parameter Correction (originally in Russian) - Electronic Engineering, #3(122), pp. 89-93.

Conference Proceedings

• V.V. Krivtsov and M. Frankstein (2014), Reliability Analysis of "Sibling" Components - in Proc. Annual Reliability and Maintainability Symposium, Colorado Springs, CO, January 2014.
• M.P. Kaminsky and V.V. Krivtsov (2011), Gini: from Economics to Reliability - in Proc. Applied Stochastic Models and Data Analysis, Rome, Italy, June 2011, pp. 100-102.
• M.P. Kaminsky and V.V. Krivtsov (2009), A Gini–Type Index for Aging/Rejuvenating Objects - in Proc. Mathematical Methods in Reliability, Moscow, Russia, June 2009, pp. 391-394.
• V.V. Krivtsov (2008), Statistical Warranty Forecasting - in Proc. Annual Reliability and Maintainability Symposium, Las Vegas, NV, January 2008.
• V.V. Krivtsov and M. Frankstein (2006), Automotive Component Reliability: Should it be measured in Time or Mileage? - in Proc. Annual Reliability and Maintainability Symposium, Newport Beach, CA, January 2006, pp.601-605.
• V.V. Krivtsov (2005), Application Extensions of Nonhomogeneous Poisson Process, Invited Speech - in Proc. International Symposium on Stochastic Models in Reliability, Beer Sheva, Israel, February 2005, pp. 217-220.
• M.P. Kaminsky and V.V. Krivtsov (2004), An Approach to Evaluating the Joint Prior Distribution of Weibull Parameters - in Proc. 4th International Conference on Mathematical Methods in Reliability, Santa Fe, New Mexico, June 2004.
• V.V. Krivtsov and M. Frankstein (2004), Nonparametric Estimation of Marginal Failure Distributions from Dually Censored Automotive Data - in Proc. Annual Reliability and Maintainability Symposium, Los Angeles, CA, January 2004, pp. 86-89.
• V.V. Krivtsov and M. Frankstein (2001), Statistical Estimation of Hazard Function from Censored Automotive Data - in Proc. Spring Research Conference on Statistics in Industry & Technology, Roanoke, VA , June 2001.
• M.P. Kaminsky and V.V. Krivtsov (2000), A Monte Carlo Approach to Estimation of G-Renewal Process in Warranty Data Analysis - in Proc. 2nd International Conference on Mathematical Methods in Reliability, Bordeaux, France, June 2000, pp. 583-586.
• V.V. Krivtsov and J.W. Wasiloff (2000), Classical Vs. Bayesian Reliability Growth in Theory and Practice - in Proc. ASQ 54th Quality Congress, Indianapolis, IN, May 2000, pp. 311-316.
• M.P. Kaminsky and V.V. Krivtsov (2000), G-Renewal Process as a Model for Statistical Warranty Claim Prediction - in Proc. Annual Reliability & Maintainability Symposium, Los Angeles, January 2000, pp. 276-280.
• V.V. Krivtsov (1999), Bayesian Reliability Analysis in Automotive Industry Applications - in Proc. 11th SAE Aerospace International Reliability, Supportability & Logistics Conference, Auburn Hills, MI, May 1999.
• M.P. Kaminsky and V.V. Krivtsov (1999), A Statistical Estimation of the Cost Impact from Introducing a Mileage Limit in Automobile Warranty Policy - Proc., Institute of Mathematical Statistics, Vol. 28, # 2, p. 73.

• V.V. Krivtsov (1998), A Monte Carlo Simulation of Stochastic Point Processes for Automotive Industry Applications - Proc., Institute of Mathematical Statistics, Vol. 27, # 2, p. 98.
• M.P. Kaminsky and V.V. Krivtsov (1997), A Validation of Accelerated Test life Data - in Proc. 9th SAE Aerospace International Reliability, Supportability & Logistics Conference and Workshop, Dallas, TX, June 1997.
• V.V. Krivtsov, et. al (1996) A Reactor Safety Assessment System: Summary of Methods and Experiences - in Proc. International Conference on Probabilistic Safety Assessment and Management ESRA, Crete, Greece, June 1996, pp. 30-36.
• V.V. Krivtsov and V.I. Gurevich (1991), Calculation of the Rational Parameters for the Electromagnet Forcing Excitation Circuit - in Proc. National Conf. of Young Scientists on Electrotechnical Equipment of HV Conversion and Solid-State Techniques (National Research Institute of EE, Moscow, USSR, Oct. 1991), pp. 27-30.
• V.I. Gurevich and V.V. Krivtsov (1991), HV Reed-Semiconductor Switching Devices and their Application - in Proc. 5th All Union Sc. & Tech. Conf. on Conversion Techniques Problems (Ukr. Academy of Sciences Inst. of Electrodynamics, Kiev, Ukraine, Sept. 1991), pp. 189-191.
• V.I. Gurevich and V.V. Krivtsov (1990), Hybrid HV Reed-Solid-State Commutation Devices - in Proc. National Conf. on Power Electronics Equipment (National Research Institute of Electrical Engineering, Moscow, USSR, Jan. 1990), p.13.
• V.V. Krivtsov, V.I. Gurevich, K.K. Namitokov (1990), Methods of the Reed-Interface Operating Time Reduction - INFORMELECTRO, #9.
• V.V. Krivtsov, V.I. Gurevich, P.I. Savchenko (1989), A Monte Carlo Simulation for the Statistical Estimation of the Reed-Interface Parameters - INFORMELECTRO, 1989, #2.
• V.V. Krivtsov, V.I. Gurevich, P.I. Savchenko (1988), The Application of the Monte Carlo Method to the Hercotrone Operating Parameter Estimation - in Proc. 20th Ukr. Conf. on the Problems of the Safe and Reliable Power Supply and Energy Savings (Sebastopol, USSR, June 1988), pp. 35-36.