

Prof. Dr. habil. Hans-Georg Beyer  
FH Vorarlberg University of Applied Sciences  
Dept. CS, Process- and Product Engineering  
A-6850 Dornbirn, Austria

## Publications and Patents

As for citation counts and H-index, see Google Scholar and ResearchGate.

### Books

1. *Ein Evolutionsverfahren zur mathematischen Modellierung stationärer Zustände in dynamischen Systemen*. Reihe: HAB-Dissertationen, Nr. 16. Hochschule für Architektur und Bauwesen, Weimar, 1989.
2. *The Theory of Evolution Strategies*. Natural Computing Series. Springer, Berlin, Heidelberg, 2001.

### Chapters in Books

1. Local Performance Measures: Evolution Strategies and Evolutionary Programming. In T. Bäck, D. Fogel, and Z. Michalewicz, editors, *Handbook of Evolutionary Computation*. Oxford University Press, New York, 1997.
2. Design Optimization of a Linear Collider Using ES. In T. Bäck, D. Fogel, and Z. Michalewicz, editors, *Handbook of Evolutionary Computation*. Oxford University Press, New York, 1997.
3. together with D. V. Arnold: Theory of Evolution Strategies - A Tutorial. In L. Kallel, B. Naudts, and A. Rogers, editors, *2nd EvoNet Summer School on Theoretical Aspects of Evolutionary Computing*, pages 109–133. Springer, Heidelberg, 2001.
4. together with E. Brucherseifer, W. Jakob, H. Pohlheim, B. Sendhoff, and T. B. To: VDI/VDE-Richtlinie 3550, Blatt 3: Evolutionäre Algorithmen – Begriffe und Definitionen. In *VDI/VDE-Handbuch Regelungstechnik*, Verein Deutscher Ingenieure, Düsseldorf und Beuth Verlag GmbH, Berlin, Feb. 2003.
5. together with B. Sendhoff and M. Olhofer: The influence of stochastic quality functions on evolutionary search. In K.C. Tan, M.H. Lim, X. Yao, and L. Wang, editors, *Recent Advances in Simulated Evolution and Learning*, pages 152–172, World Scientific, New York, 2004.
6. together with S. Meyer-Nieberg: Self-Adaptation in Evolutionary Algorithms. In F. Lobo, C. Lima, and Z. Michalewicz, editors, *Parameter Setting in Evolutionary Algorithms*, pages 47–75, Springer, Berlin, 2007.
7. together with S. Meyer-Nieberg: The Dynamical Systems Approach – Progress Measures and Convergence Properties. In G. Rozenberg, T. Bäck, and J.H. Kok, editors, *Handbook of Natural Computing*, pages 741–814, Springer, Berlin, 2012.

8. together with H. Beismann, J. Bertling, I. Boblan, R. Erb, M. Fischer, M. Herdy, A. Jordan, A. Kesel, S. Menzel, M. Mörtl, G. Pohl, H. Seitz, O. Speck, T. Speck, I. Tesari, J. Tschernjaew, and M. Wirth: VDI-Richtlinie 6220: Bionik – Konzeption und Strategie. Abgrenzung zwischen bionischen und konventionellen Verfahren/Produkten. In *VDI-Handbuch Bionik*, Verein Deutscher Ingenieure, Düsseldorf und Beuth Verlag GmbH, Berlin, 2012.
9. together with J. Edler, M. Herdy, I. Santibanez-Koref, M. Olhofer, G. Rudolph, W. Sachs, S. Schlieve, H. Seitz, and I. Tesari: VDI-Richtlinie 6224, Blatt 1: Bionische Optimierung – Evolutionäre Algorithmen in der Anwendung. In *VDI-Handbuch Bionik*, Verein Deutscher Ingenieure, Düsseldorf und Beuth Verlag GmbH, Berlin, 2012.
10. together with J. Edler, M. Herdy, I. Santibanez-Koref, M. Olhofer, G. Rudolph, W. Sachs, S. Schlieve, H. Seitz, and I. Tesari: VDI-Richtlinie 6224, Blatt 2: Bionische Optimierung – Anwendung biologischer Wachstumsgesetze zur strukturmechanischen Optimierung technischer Bauteile. In *VDI-Handbuch Bionik*, Verein Deutscher Ingenieure, Düsseldorf und Beuth Verlag GmbH, Berlin, 2012.

## Editorial Work

1. together with K. DeJong, D.B. Fogel, and I. Wegener: *Theory of Evolutionary Algorithms* (Dagstuhl-Seminar-Report 265). IBFI GmbH, Schloß Dagstuhl, Wadern, 2000.
2. together with E. Cantu-Paz, D. Goldberg, I. Parmee, L. Spector, and D. Whitley: *Proceedings of the Genetic and Evolutionary Computation Conference 2000 (GECCO-2000)*. Morgan Kaufmann, San Francisco, CA, 2000.
3. together with K. DeJong, C. Reeves, and I. Wegener: *Theory of Evolutionary Algorithms* (Dagstuhl-Seminar-Report 330). IBFI GmbH, Schloß Dagstuhl, Wadern, 2002.
4. together with P. Adamidis, J.J. Merelo, J.L. Fernandez-Villacanas, and H.-P. Schwefel: *Proceedings of the 7th International Conference on Parallel Problem Solving from Nature (PPSN VII)*. Springer, Heidelberg, 2002.
5. together with E. Cantu-Paz, J.A. Foster, K. Deb, L.D. Davis, R. Roy, U.-M. O’Reilly, R. Standish, G. Kendall, S. Wilson, M. Harman, J. Wegener, D. Dasgupta, M.A. Potter, A.C. Schultz, K.A. Dowsland, N. Jonoska, J. Miller: *Proceedings of the Genetic and Evolutionary Computation Conference 2003 (GECCO-03)*. Springer, Heidelberg, 2003.
6. together with T Jansen, C. Reeves, and M.D. Vose: *Theory of Evolutionary Algorithms* (Dagstuhl Seminar Proceedings 04081). IBFI GmbH, Schloß Dagstuhl, Wadern, 2004.
7. together with E. K. Deb, R. Poli, W. Banzhaf, E. Burke, P. Darwen, D. Dasgupta, D. Floreano, J. Foster, M. Harman, O. Holland, P.L. Lanzi, L. Spector, A. Tettamanzi, D. Thierens, A. Tyrrell: *Proceedings of the Genetic and Evolutionary Computation Conference 2004 (GECCO-04)*. Springer, Heidelberg, 2004.
8. together with: U.-M. O’Reilly, D.V. Arnold, W. Banzhaf, C. Blum, E.W. Bonabeau, E. Cantu-Paz, D. Dasgupta, K. Deb, J.A. Foster, E.D. de Jong, H. Lipson, X. Llorca, S. Mancoridis, N. Pelikan, G.R. Raidl, T. Soule, A. Tyrrell, J.-P. Watson, E. Zitzler: *Proceedings of the Genetic and Evolutionary Computation Conference 2005 (GECCO-05)*. ACM Press, New York, 2005.

9. together with: T.P. Runarsson, E. Burke, J.J. Merelo, D. Whitley, and X. Yao: *Proceedings of the 9th International Conference on Parallel Problem Solving from Nature (PPSN IX)*. Springer, Heidelberg, 2006.
10. together with D. Thierens, J. Bongard, J. Branke, J.A. Clark, D. Cliff, C.B. Congdon, K. Deb, B. Doerr, T. Kovacs, S. Kumar, J.F. Miller, J. Moore, F. Neumann, M. Pelikan, R. Poli, K. Sastry, K.O. Stanley, T. Stützle, R.A. Watson, I. Wegener: *Proceedings of the Genetic and Evolutionary Computation Conference 2007 (GECCO-07)*. ACM Press, New York, 2007.
11. together with G. Raidl, E. Alba, J. Bacardit, M. Birattari, C. Blum, P. Bosman, C.B. Congdon, D. Corne, C. Cotta, M. Di Penta, B. Doerr, R. Drechsler, M. Ebner, J. Grahl, J. van Hemert, T. Jansen, J. Knowles, T. Lenaerts, M. Middendorf, J.F. Miller, M. O’Neill, R. Poli, G. Squillero, K. Stanley, T. Stützle. *Proceedings of the Genetic and Evolutionary Computation Conference 2009 (GECCO-09)*. ACM Press, New York, 2009.
12. together with W.B. Langdon *Foundations of Genetic Algorithms XI (FOGA XI)*. ACM Press, New York, 2011.

## Journal Articles

1. Evolutionsverfahren - Nutzung des Darwinschen Paradigmas zur Feldberechnung. *Wissenschaftliche Zeitschrift der Hochschule für Verkehrswesen Dresden*, 51(Sonderheft):17–40, 1989. Dresden, Germany.
2. Simulation of Steady States in Dissipative Systems by Darwin’s Paradigm of Evolution. *J. Non-Equilib. Thermodyn.*, 15:45–58, 1990.
3. Toward a Theory of Evolution Strategies: Some Asymptotical Results from the  $(1, + \lambda)$ -Theory. *Evolutionary Computation*, 1(2):165–188, 1993.
4. Toward a Theory of Evolution Strategies: The  $(\mu, \lambda)$ -Theory. *Evolutionary Computation*, 2(4):381–407, 1995.
5. Toward a Theory of Evolution Strategies: On the Benefit of Sex – the  $(\mu/\mu, \lambda)$ -Theory. *Evolutionary Computation*, 3(1):81–111, 1995.
6. Toward a Theory of Evolution Strategies: Self-Adaptation. *Evolutionary Computation*, 3(3):311–347, 1996.
7. together with D. B. Fogel: A Note on the Empirical Evaluation of Intermediate Recombination. *Evolutionary Computation*, 3(4):491–495, 1996.
8. An Alternative Explanation for the Manner in which Genetic Algorithms Operate. *BioSystems*, 41:1–15, 1997.
9. Evolutionary Algorithms in Noisy Environments: Theoretical Issues and Guidelines for Practice. *Computer Methods in Applied Mechanics and Engineering*, 186(2–4):239–267, 2000.
10. together with A. I. Oyman and H.-P. Schwefel: Analysis of a Simple ES on the “Parabolic Ridge”. *Evolutionary Computation*, 8(3):249–265, 2000.

11. together with A. I. Oyman: Analysis of the  $(\mu/\mu, \lambda)$ -ES on the Parabolic Ridge. *Evolutionary Computation*, 8(3):267–289, 2000.
12. together with A. I. Oyman and H.-P. Schwefel: Convergence Behavior of the  $(1 \nmid \lambda)$  Evolution Strategy on the Ridge Functions. *Mathware & Soft Computing*, 7(1):35–75, 2000.
13. together with D. B. Fogel: Do Evolutionary Processes Minimize Expected Losses? *Journal of Theoretical Biology*, 207:117–123, 2000.
14. together with K. Deb: Self-Adaptive Genetic Algorithms with Simulated Binary Crossover. *Evolutionary Computation*, 9(2):197–221, 2001.
15. On the Performance of  $(1, \lambda)$ -Evolution Strategies for the Ridge Function Class. *IEEE Transactions on Evolutionary Computation*, 5(3):218–235, 2001.
16. together with K. Deb: On Self-Adaptive Features in Real-Parameter Evolutionary Algorithms. *IEEE Transactions on Evolutionary Computation*, 5(3):250–270, 2001.
17. together with D. V. Arnold: Local Performance of the  $(1+1)$ -ES in a Noisy Environment. *IEEE Transactions on Evolutionary Computation*, 6(1):30–41, 2002.
18. together with H.-P. Schwefel: Evolution Strategies: A Comprehensive Introduction. *Natural Computing*, 1(1):3–52, 2002.
19. together with H.-P. Schwefel and I. Wegener: How to Analyse Evolutionary Algorithms. *Theoretical Computer Science*, 287:101–130, 2002.
20. together with D. V. Arnold: Performance Analysis of Evolution Strategies with Multi-Recombination in High-Dimensional  $\mathbb{R}^N$ -Search Spaces Disturbed by Noise. *Theoretical Computer Science*, 289:629–647, 2002.
21. together with D. V. Arnold: A Comparison of Evolution Strategies with Other Direct Search Methods in the Presence of Noise. *Computational Optimization and Applications*, 24:135–159, 2003.
22. together with D. V. Arnold: Qualms Regarding the Optimality of Cumulative Path Length Control in CSA/CMA-Evolution Strategies. *Evolutionary Computation*, 11(1):19–28, 2003.
23. together with D. V. Arnold: On the Benefits of Populations for Noisy Optimization. *Evolutionary Computation*, 11(2):111–127, 2003.
24. together with M. Olhofer and B. Sendhoff: On the Impact of Systematic Noise on the Evolutionary Optimization Performance – A Sphere Model Analysis. *Genetic Programming and Evolvable Machines*, 5(4):327–360, 2004.
25. together with D. V. Arnold: Performance Analysis of Evolutionary Optimization With Cumulative Step Length Adaptation. *IEEE Transactions on Automatic Control*, 49(4):617–622, 2004.
26. together with D. V. Arnold and S. Meyer-Nieberg: A New Approach for Predicting the Final Outcome of Evolution Strategy Optimization under Noise. *Genetic Programming and Evolvable Machines*, 6(1):7–24, 2005.

27. together with D. V. Arnold: Expected Sample Moments of Concomitants of Selected Order Statistics. *Statistics and Computing*, 15:241–250, 2005.
28. together with D. V. Arnold: Optimum Tracking with Evolution Strategies. *Evolutionary Computation*, 14:291–308, 2006.
29. together with D. V. Arnold: A General Noise Model and Its Effects on Evolution Strategy Performance. *IEEE Transactions on Evolutionary Computation*, 10(4):380–391, 2006.
30. together with B. Sendhoff: Functions with Noise-Induced Multi-Modality: A Test for Evolutionary Robust Optimization – Properties and Performance Analysis. *IEEE Transactions on Evolutionary Computation*, 10(5):507–526, 2006.
31. together with S. Meyer-Nieberg: Self-Adaptation of Evolution Strategies under Noisy Fitness Evaluations. *Genetic Programming and Evolvable Machines*, 7(4):295–328, 2006.
32. together with B. Sendhoff: Robust Optimization - A Comprehensive Survey. *Computer Methods in Applied Mechanics and Engineering*, 196(33–34):3190–3218, 2007.
33. together with D. V. Arnold: Evolution Strategies with Cumulative Step Length Adaptation on the Noisy Parabolic Ridge. *Natural Computing*, 7(4):555–587, 2008
34. together with S. Finck: Performance of the  $(\mu/\mu_I, \lambda)$ - $\sigma$ SA-ES on PDQFs. *IEEE Transactions on Evolutionary Computation*, 14(4): 400–418, 2010.
35. together with D. V. Arnold: On the Behaviour of Evolution Strategies Optimising Cigar Functions. *Evolutionary Computation*, 18(4): 661–682, 2010.
36. together with S. Finck: Performance Analysis of Simultaneous Perturbation Stochastic Approximation on the Noisy Sphere Model. *Theoretical Computer Science*, 419:50–72, 2012.
37. together with S. Finck: On the Design of Constraint Covariance Matrix Self-Adaptation Evolution Strategies Including a Cardinality Constraint. *IEEE Transactions on Evolutionary Computation*, 16(4):578–596, 2012.
38. together with A. Melkozerov: The Dynamics of Self-Adaptive Multi-Recombinant Evolution Strategies on the General Ellipsoid Model. *IEEE Transactions on Evolutionary Computation*, DOI 10.1109/TEVC.2013.2283968, 18(5): 764–778, 2014.
39. together with S. Finck and T. Breuer: Evolution on Trees: On the Design of an Evolution Strategy for Scenario-Based Multi-Period Portfolio Optimization under Transaction Costs. *Swarm and Evolutionary Computation*, DOI 10.1016/j.swevo.2014.03.002, 17: 74–87, 2014.
40. Convergence Analysis of Evolutionary Algorithms that are Based on the Paradigm of Information Geometry. *Evolutionary Computation*, DOI 10.1162/EVCO\_a.00132, 22(4): 679–709, 2014.
41. together with M. Hellwig: The Dynamics of Cumulative Step-Size Adaptation on the Ellipsoid Model, *Evolutionary Computation*, DOI 10.1162/EVCO\_a.00142, in print.

## Conference Articles (with Peer-Reviewing)

1. Ein Evolutionsverfahren zur mathematischen Modellierung stationärer dynamischer Systeme. In 10. ibausil-*Tagungsbericht, Sektion 4, Glas*, pages 175–180, Weimar, Germany, 1988. Hochschule für Architektur und Bauwesen.
2. On a General Evolution Strategy for Dissipative Systems. In H.-M. Voigt, H. Mühlenschein, and H.-P. Schwefel, editors, *Evolution and Optimization '89*, pages 69–78, Berlin, 1990. Akademie-Verlag.
3. Some Aspects of the ‘Evolution Strategy’ for Solving TSP-like Optimization Problems. In R. Männer and B. Manderick, editors, *Parallel Problem Solving from Nature 2*, pages 361–370, Amsterdam, 1992. Elsevier.
4. together with M. Drevlak, N. Holtkamp, U. van Rienen, V. Tsakanov, R. Wanzenberg, T. Weiland, and M. Zhang: Minimization of Multibunch-BBU in a LINAC by Evolutionary Strategies. In J. Rossbach, editor, *15th Int. Conf. on High Energy Accelerators HEACC'92*, pages 848–850, Hamburg, 1993. Int. J. Mod. Phys. A (Proc. Suppl.) 2B.
5. together with N. Holtkamp, U. van Rienen, V. Tsakanov, R. Wanzenberg, T. Weiland, and M. Zhang: Automatic Computer-Aided Optimization of Cavities for the Desing of Accelerating Structures. In J. Rossbach, editor, *15th Int. Conf. on High Energy Accelerators HEACC'92*, pages 939–941, Hamburg, 1993. Int. J. Mod. Phys. A (Proc. Suppl.) 2B.
6. together with N. Holtkamp, U. van Rienen, K. Steinigke, V. Tsakanov, R. Wanzenberg, T. Weiland, M. Witting, and M. Zhang. Modal Field Matching in Tapered Multicell Structures. In J. Rossbach, editor, *15th Int. Conf. on High Energy Accelerators HEACC'92*, pages 845–847, Hamburg, 1993. Int. J. Mod. Phys. A (Proc. Suppl.) 2B.
7. together with N. Holtkamp, U. van Rienen, V. Tsakanov, R. Wanzenberg, and T. Weiland: Wake Field Effects In Final Focus Quadrupoles For Next Linear Collider. In J. Rossbach, editor, *15th Int. Conf. on High Energy Accelerators HEACC'92*, pages 851–854, Hamburg, 1993. Int. J. Mod. Phys. A (Proc. Suppl.) 2B.
8. together with M. Drevlak, N. Holtkamp, U. van Rienen, V. Tsakanov, R. Wanzenberg, T. Weiland, and M. Zhang: Single and Multi Bunch Instabilities in a  $2 \times 250\text{GeV}$  Linear Collider. In J. Rossbach, editor, *15th Int. Conf. on High Energy Accelerators HEACC'92*, pages 855–857, Hamburg, 1993. Int. J. Mod. Phys. A (Proc. Suppl.) 2B.
9. together with M. Drevlak, N. Holtkamp, U. van Rienen, V. Tsakanov, R. Wanzenberg, T. Weiland, and M. Zhang: Attenuation of Transverse Modes by Variable Cell Geometries in Travelling Wave Tubes. In J. Rossbach, editor, *15th Int. Conf. on High Energy Accelerators HEACC'92*, pages 876–878, Hamburg, 1993. Int. J. Mod. Phys. A (Proc. Suppl.) 2B.
10. Towards a Theory of ‘Evolution Strategies’: Results for  $(1, +\lambda)$ -Strategies on (Nearly) Arbitrary Fitness Functions. In Y. Davidor, R. Männer, and H.-P. Schwefel, editors, *Parallel Problem Solving from Nature 3*, pages 58–67, Heidelberg, 1994. Springer.
11. On the Asymptotic Behavior of Multirecombinant Evolution Strategies. In H.-M. Voigt, W. Ebeling, I. Rechenberg, and H.-P. Schwefel, editors, *Parallel Problem Solving from Nature 4*, pages 122–133, Heidelberg, 1996. Springer.

12. together with H.-T. Nürnberg: The Dynamics of Evolution Strategies in the Optimization of Traveling Salesman Problems. In P.J. Angeline, R.G. Reynolds, J.R. McDonnell, and R. Eberhart, editors, *Evolutionary Programming VI: Proceedings of the Sixth Annual Conference on Evolutionary Programming*, pages 349–359, Heidelberg, 1997. Springer-Verlag.
13. together with D. B. Fogel: A Note on the Escape Probabilities for Two Alternative Methods of Selection under Gaussian Mutation. In P.J. Angeline, R.G. Reynolds, J.R. McDonnell, and R. Eberhart, editors, *Evolutionary Programming VI: Proceedings of the Sixth Annual Conference on Evolutionary Programming*, pages 265–274, Heidelberg, 1997. Springer-Verlag.
14. On the “Explorative Power” of ES/EP-like Algorithms. In V.W. Porto, N. Saravanan, D. Waagen, and A.E. Eiben, editors, *Evolutionary Programming VII: Proceedings of the Seventh Annual Conference on Evolutionary Programming*, pages 323–334, Heidelberg, 1998. Springer-Verlag.
15. Mutate Large, But Inherit Small! On the Analysis of Rescaled Mutations in  $(\tilde{\lambda}, \tilde{\lambda})$ -ES with Noisy Fitness Data. In A. E. Eiben, T. Bäck, M. Schoenauer, and H.-P. Schwefel, editors, *Parallel Problem Solving from Nature 5*, pages 109–118, Heidelberg, 1998. Springer.
16. together with A. I. Oyman and H.-P. Schwefel: Where Elitists Start Limping: Evolution Strategies at Ridge Functions. In A. E. Eiben, T. Bäck, M. Schoenauer, and H.-P. Schwefel, editors, *Parallel Problem Solving from Nature 5*, pages 34–43, Heidelberg, 1998. Springer.
17. On the Dynamics of EAs without Selection. In W. Banzhaf and C. Reeves, editors, *Foundations of Genetic Algorithms, 5*, pages 5–26, San Mateo, CA, 1999. Morgan Kaufmann.
18. together with L. Grünz: Some Observations on the Interaction of Recombination and Self-Adaptation in Evolution Strategies. In P.J. Angeline, editor, *Proceedings of the CEC’99 Conference*, pages 639–645, Piscataway, NJ, 1999. IEEE.
19. together with K. Deb: Self-Adaptation in Real-Parameter Genetic Algorithms with Simulated Binary Crossover. In W. Banzhaf, J. Daida, A.E. Eiben, M.H. Garzon, V. Honavar, M. Jakiela, and R.E. Smith, editors, *GECCO-99: Proceedings of the Genetic and Evolutionary Computation Conference*, pages 172–179, San Francisco, CA, 1999. Morgan Kaufmann.
20. together with D. V. Arnold: Fitness Noise and Localization Errors of the Optimum in General Quadratic Fitness Models. In W. Banzhaf, J. Daida, A.E. Eiben, M.H. Garzon, V. Honavar, M. Jakiela, and R.E. Smith, editors, *GECCO-99: Proceedings of the Genetic and Evolutionary Computation Conference*, pages 817–824, San Francisco, CA, 1999. Morgan Kaufmann.
21. together with K. Deb and A. I. Oyman: An Alternative Constraint Handling Method for Evolution Strategies. In P.J. Angeline, editor, *Proceedings of the CEC’99 Conference*, pages 612–619, Piscataway, NJ, 1999. IEEE.

22. together with D. V. Arnold: Efficiency and Mutation Strength Adaptation of the  $(\mu/\mu_I, \lambda)$ -ES in a Noisy Environment. In M. Schoenauer et al., editors, *Parallel Problem Solving from Nature 6*, pages 39–48, Heidelberg, 2000. Springer.
23. together with K. Deb: On the Desired Behaviors of Self-Adaptive Evolutionary Algorithms. In M. Schoenauer et al., editors, *Parallel Problem Solving from Nature 6*, pages 59–68, Heidelberg, 2000. Springer.
24. together with D. V. Arnold: Local Performance of the  $(\mu/\mu_I, \lambda)$ -ES in a Noisy Environment. In W. Martin and W. Spears, editors, *Foundations of Genetic Algorithms, 6*, pages 127–141, San Francisco, CA, 2001. Morgan Kaufmann.
25. together with D. V. Arnold: Investigation of the  $(\mu, \lambda)$ -ES in the Presence of Noise. *Proceedings of the CEC'01 Conference*, Seoul, Korea, pages 332–339, Piscataway, NJ, 2001. IEEE.
26. together with D. V. Arnold, T. Bäck, T. Beielstein, and S. Markon: Thresholding – a Selection Operator for Noisy ES. *Proceedings of the CEC'01 Conference*, Seoul, Korea, pages 465–472, Piscataway, NJ, 2001. IEEE.
27. together with D. V. Arnold: Random Dynamics Optimum Tracking with Evolution Strategies. In J.J. Merelo Guervós et al., editors, *Parallel Problem Solving from Nature 7*, pages 3–12, Heidelberg, 2002. Springer.
28. together with B. Sendhoff and M. Olhofer: On Noise Induced Multi-Modality in Evolutionary Algorithms. *Proceedings of the 4th Asia-Pacific Conference on Simulated Evolution and Learning – SEAL*, pages 219–224, 2002.
29. together with M. Olhofer and B. Sendhoff: On the Behavior of  $(\mu/\mu_I, \lambda)$ -ES Optimizing Functions Disturbed by Generalized Noise. In K. De Jong, R. Poli, and J. Rowe, editors, *Foundations of Genetic Algorithms, 7*, pages 307–328, San Francisco, CA, 2003. Morgan Kaufmann.
30. together with D. V. Arnold: The Steady State Behavior of  $(\mu/\mu_I, \lambda)$ -ES on Ellipsoidal Fitness Models Disturbed by Noise. In E. Cantú-Paz et al., editors, *GECCO-2003: Genetic and Evolutionary Computation Conference*, pages 525–536, Berlin, 2003. Springer.
31. together with D. V. Arnold: On the Effects of Outliers on Evolutionary Optimization. In J. Liu, Y.-M. Cheung, and H. Yin, editors, *Fourth International Conference on Intelligent Data Engineering and Automated Learning (IDEAL 2003)*, pages 151–160, Berlin, 2003. Springer.
32. together with S. Meyer-Nieberg: Evolutionary Optimization under Noise – Predicting the Solution Quality. In I. Boblan and R. Bannasch, editors, *International Industrial Conference Bionik 2004*, pages 49–55, Düsseldorf, 2004. VDI Verlag GmbH.
33. Actuator Noise in Recombinant Evolution Strategies on General Quadratic Fitness Models. In K. Deb et al., editors, *GECCO-2004: Genetic and Evolutionary Computation Conference*, pages 654–665, Berlin, 2004. Springer.

34. together with S. Meyer-Nieberg: On the Quality Gain of  $(1, \lambda)$ -ES under Fitness Noise. In X. Yao et al., editors, *Parallel Problem Solving from Nature 8*, pages 1–10, Berlin, 2004. Springer.
35. together with S. Meyer-Nieberg: On the Prediction of the Solution Quality in Noisy Optimization. In A.H. Wright et al., editors, *Foundations of Genetic Algorithms, 8*, pages 238–259, Berlin, 2005, Springer-Verlag.
36. together with S. Meyer-Nieberg: On the Analysis of Self-Adaptive Recombination Strategies: First Results. *Proceedings of the CEC'05 Conference*, Edinburgh, UK, pages 2341–2348, Piscataway, NJ, 2005. IEEE.
37. together with B. Sendhoff: Evolution Strategies for Robust Optimization. *Proceedings of WCCI'06*, Vancouver, Canada, pages 4489–4496, Piscataway, NJ, 2006. IEEE.
38. together with S. Meyer-Nieberg: Self-Adaptation on the Ridge Function Class: First Results for the Sharp Ridge. In T.P. Runarsson et al., editors, *Parallel Problem Solving from Nature 9*, pages 71–80, Berlin, 2006. Springer.
39. together with S. Meyer-Nieberg: Mutative Self-Adaptation on the Sharp and Parabolic Ridge. In C. Stephens et al., editors, *Foundations of Genetic Algorithms, 9*, pages 70–96, Berlin, 2007, Springer-Verlag.
40. together with B. Sendhoff: Evolutionary Algorithms in the Presence of Noise: To Sample or Not to Sample. *First IEEE Symposium on Foundations of Computational Intelligence (FOCI'07)*, Honolulu, Hawaii, pages 17–24, Piscataway, NJ, 2007. IEEE.
41. together with S. Finck: On the Performance of Evolution Strategies on Noisy PD-QFs: Progress Rate Analysis. *Proceedings of WCCI'08*, Hong Kong, pages 495–502, Piscataway, NJ, 2008. IEEE.
42. together with S. Meyer-Nieberg: Why Noise may be Good: Additive Noise on the Sharp Ridge. In M. Keijzer et al., editors, *GECCO-2008: Genetic and Evolutionary Computation Conference*, pages 511–518, 2008. ACM.
43. together with A. Melkozerov: Mutative  $\sigma$ -Self-Adaptation Can Beat Cumulative Step Size Adaptation when Using Weighted Recombination. In M. Keijzer et al., editors, *GECCO-2008: Genetic and Evolutionary Computation Conference*, pages, 487–494, 2008. ACM.
44. together with B. Sendhoff: Covariance Matrix Adaptation Revisited – the CMSA Evolution Strategy In G. Rudolph et al., editors, *Parallel Problem Solving from Nature 10*, pages, 123–132, Berlin, 2008. Springer.
45. together with A. Melkozerov:  $\sigma$ -Self-Adaptive Weighted Multirecombination Evolution Strategy with Scaled Weights on the Noisy Sphere. In G. Rudolph et al., editors, *Parallel Problem Solving from Nature 10*, pages, 11–20, Berlin, 2008. Springer.
46. together with S. Finck: Weighted Recombination Evolution Strategy on PDQF's. In T. Jansen et al., editors, *Foundations of Genetic Algorithms, 10*, pages 1–12, 2009, ACM.

47. together with D.V. Arnold and A. Melkozerov: On the Behaviour of Weighted Multi-Recombination Evolution Strategies Optimising Noisy Cigar Functions. In G. Raidl et al., editors, *GECCO-2009: Genetic and Evolutionary Computation Conference*, pages 483–490, 2009. ACM.
48. together with M. Dobler, C. Hämmerle, and P. Masser: On Strategy Parameter Control by Meta-ES. In G. Raidl et al., editors, *GECCO-2009: Genetic and Evolutionary Computation Conference*, pages 499–506, 2009. ACM.
49. together with A. Melkozerov: On the Analysis of Self-Adaptativ Evolution Strategies on Elliptic Model: First Results. In J. Branke et al., editors, *GECCO-2010: Genetic and Evolutionary Computation Conference*, pages 369–376, 2010. ACM.
50. together with S. Finck and A. Melkozerov: Noisy Optimization: A Theoretical Strategy Comparison of ES, EGS, SPSA & IF on the Noisy Sphere. In N. Krasnogor et al., editors, *GECCO-2011: Genetic and Evolutionary Computation Conference*, pages 813–820, 2011. ACM.
51. together with M. Hellwig: Mutation Strength Control by Meta-ES on the Sharp Ridge. In T. Soule et al., editors, *GECCO-2012: Genetic and Evolutionary Computation Conference*, pages 305–312, 2012. ACM.
52. together with S. Finck: HappyCat – A Simple Function Class Where Well-Known Direct Search Algorithms Do Fail. In C.A. Coello Coello et al., editors, *Parallel Problem Solving from Nature 12*, pages 367–376, Berlin, 2012. Springer.
53. together with M. Hellwig: Controlling Population Size and Mutation Strength by Meta-ES under Fitness Noise. In Neumann, F. and De Jong, K., editors, *Foundations of Genetic Algorithms, 12*, pages 11–24, 2013, ACM.

### Online Articles (Peer-Reviewed)

1. Evolution Strategies: [www.scholarpedia.org/article/Evolution\\_Strategies](http://www.scholarpedia.org/article/Evolution_Strategies), *Scholarpedia*, 2(8): 1965, 2007.

### Further Conference Articles

1. Reduction of the Multibunch-BBU by Evolutionary Strategies. In V. Balakin, S. Lepshokov, and N. Solyak, editors, *Third International Workshop on Linear Colliders LC91*, pages 237–238 (Vol. 1) and 160–164 (Vol. 2), Protvino, USSR, 1991. BINP.
2. together with J. Jasper, J. Mehnen, H.-P. Schwefel, and K. Weinert: Entwicklung von Prozeßmodellen der spanenden Bearbeitung mit Methoden der nichtlinearen Dynamik. In H.-P. Wiendahl, editor, *1. Symposium des Förderschwerpunktes “Untersuchung nichtlinear-dynamischer Effekte in produktionstechnischen Systemen” der VW Stiftung*, pages 1–24, Universität Hannover, September 1997. Institut für Fabrikanlagen.
3. together with S. Finck: Benchmarking CMA-EGS on the BBOB 2010 Noiseless Function Testbed. In J. Branke et al., editors, *GECCO 2010 Workshop on Black Box Optimization Benchmarking 2010 (BBOB 2010), Proceedings of the Genetic and Evolutionary Computation Conference*, pages 1633–1639, 2010.

4. together with S. Finck: Benchmarking CMA-EGS on the BBOB 2010 Noisy Function Testbed. In J. Branke et al., editors, *GECCO 2010 Workshop on Black Box Optimization Benchmarking 2010 (BBOB 2010), Proceedings of the Genetic and Evolutionary Computation Conference*, pages 1641–1647, 2010.
5. together with S. Finck: Benchmarking SPSA on the BBOB 2010 Noiseless Function Testbed. In J. Branke et al., editors, *GECCO 2010 Workshop on Black Box Optimization Benchmarking 2010 (BBOB 2010), Proceedings of the Genetic and Evolutionary Computation Conference*, pages 1657–1663, 2010.
6. together with S. Finck: Benchmarking SPSA on the BBOB 2010 Noisy Function Testbed. In J. Branke et al., editors, *GECCO 2010 Workshop on Black Box Optimization Benchmarking 2010 (BBOB 2010), Proceedings of the Genetic and Evolutionary Computation Conference*, pages 1665–1671, 2010.
7. together with S. Finck: On the Evaluation of Direct Search Methods In F. Hoffmann and E. Hüllermeier, editors, *Proceedings 20. Workshop Computational Intelligence, Haus Bommerholz*, pages 13–32, KIT Scientific Publishing, Karlsruhe, 2010.

## Book Reviews and Editorials

1. Book Review of M. Vose’s: “The Simple Genetic Algorithm – Foundations and Theory.” *IEEE Transactions on Evolutionary Computation*, 4(2):191–192, 2000.
2. Guest Editorial: “Special Issue: Best of GECCO 2005.” *Genetic Programming and Evolvable Machines*, 7(2):129–130, 2006.
3. Guest Editorial: “Special Issue: Best of GECCO 2005.” *Natural Computing*, 5(3):225–227, 2006.

## Technical Reports (not published elsewhere) and Miscellaneous

1. Der Zufall aus naturwissenschaftlicher Sicht, sein Wesen, seine Nutzung. A philosophical essay on chance and necessity, Dec. 1988.
2. together with K. Balewski et al.: Status Report of a 500 GeV S-Band Linear Collider Study. Technical Report 91-153, DESY, Dez 1991.
3. Benutzeranleitung für ein EVO-LAN-Programm zur Minimierung der BBU durch evolutionsstrategische Optimierung der Anordnungsreihenfolge der Beschleunigungsstrukturen. Technical report, Institut für HF-Technik, Fachgebiet TEMF, Technische Hochschule Darmstadt, 1992.
4. Anwendung des PARSYTEC-Transputersystems zur Designoptimierung bei einem 0.5 TeV Linear Collider: Evolutionsstrategie zur Lösung eines TSP-ähnlichen Reihenfolgeproblems. Technical report, Institut für HF-Technik, Fachgebiet TEMF, Technische Hochschule Darmstadt, 1992.
5. Optimization of large-scale order problems by the Evolution Strategy. In R. Schumacher, editor, *One Year KSR1 at the University of Mannheim*, pages 11–16. Computing Center, University of Mannheim, Germany, 1993. Report-No. RUM 35/93.

6. How GAs do *NOT* Work – Understanding GAs without Schemata and Building Blocks. Technical Report SYS-2/95, Informatik XI, Universität Dortmund, 1995.
7. *Zur Analyse der Evolutionsstrategien*. Habilitationsschrift, Universität Dortmund, 1996.
8. together with E. Brucherseifer, W. Jakob, H. Pohlheim, B. Sendhoff, and T. B. To: Evolutionary Algorithms – Terms and Definitions. On-Line Glossar verfügbar unter <http://ls11-www.cs.uni-dortmund.de/people/beyer/EA-glossary/def-engl-html.html>, 2002.
9. together with S. Röhl and J. Schumacher: An optimization model for storing and delivering a spare part. Technical Report, Research Center PPE, Vorarlberg University of Applied Sciences, 2006.

## Patents

1. WP DD 220 168 A1 (Aktenzeichen: WP H 01 H 258 369 8)  
Digitale Anordnung zur Reduzierung des Prellverhaltens mechanischer Relais
2. WP DD 220 423 A1 (Aktenzeichen: WP H 01 R 258 282 4)  
Schaltung zur Niederspannungsmessung an durch Hochspannung belasteten Objekten
3. WP DD 222 458 A1 (Aktenzeichen: WP H 03 K 261 254 2)  
Anordnung zum Schalten hoher Spannungen bei kleinen Strömen
4. USA Patent 7783583  
Evolutionary search for robust solutions