

Dr. Holger Ulmer

Background

- 1990-1997 study of physics at the [Universität Konstanz](#)
- Master thesis at the Department of Physics, Prof. Dr. Leiderer: "Benetzungsphänomene von superfluidem Helium studiert mit Oberflächenplasmonen"
- 1997-2001 software development at [debis Systemhaus](#) in Leinfelden-Echterdingen
- Since January 2001 research assistant at the Dept. of Computer Architecture, Eberhard-Karls-Universität Tübingen



Research interests

- Neural networks
- Evolutionary algorithms
- Machine learning
- Distributed and parallel programming in java

Current projects

- BMBF-Project "Automatisierte Kristallisation"
- JavaEva, a framework for evolutionary and general optimising algorithms.

Publications

Hybrid Representation for Compositional Optimization and Parallelizing MOEAs

F. Streichert, H. Ulmer, and A. Zell
Dagstuhl Seminar Proceedings (04461) on Practical Approaches to Multi-Objective Optimization

Parallelization of Multi-Objective Evolutionary Algorithms using Clustering Algorithms

Felix Streichert, Holger Ulmer, and Andreas Zell
Conference on Evolutionary Multi-Criterion Optimization (EMO 2005), Guanajuato, Mexico
LNCS 3410, pp. 92-107, 2005, Springer-Verlag

Comparing Discrete and Continuous Genotypes on the Constrained Portfolio Selection Problem

Felix Streichert, Holger Ulmer, and Andreas Zell
Genetic and Evolutionary Computation Conference - GECCO 2004,
Seattle, WA, USA, June 26-30, 2004, Proceedings, Part II. pp. 1239-1250, © Springer-Verlag (LNCS 3103), ISBN 3-540-22343-6

Comparing Genetic Programming and Evolution Strategies on Inferring Gene Regulatory Networks

Felix Streichert, Hannes Planatscher, Christian Spieth, Holger Ulmer and Andreas Zell
Genetic and Evolutionary Computation Conference - GECCO 2004,
Seattle, WA, USA, June 26-30, 2004, Proceedings, Part I. pp. 471-480, © Springer-Verlag (LNCS 3102), ISBN 3-540-22344-4

How to evolve the Head-Tail Pattern from Reaction-Diffusion Systems

Felix Streichert, Christian Spieth, Holger Ulmer and Andreas Zell
Proceedings of the 2004 NASA/DoD Conference on Evolvable Hardware
Seattle, WA, USA, June 24-26, 2004, Proceedings pp. 261-268, IEEE Press, ISBN 0-7695-2145-2

Evolution Strategies with Controlled Model Assistance

Holger Ulmer, Felix Streichert, and Andreas Zell
Congress on Evolutionary Computation (CEC 2004)
Portland, OR, USA, June 19-23, 2004, Proceedings Part II pp. 1569-1576, IEEE Press, ISBN 0-7803-8515-2

Evaluating a Hybrid Encoding and Three Crossover Operators on the Constrained Portfolio Selection Problem

Felix Streichert, Holger Ulmer, and Andreas Zell
Congress on Evolutionary Computation (CEC 2004)
Portland, OR, USA, June 19-23, 2004, Proceedings Part I pp. 932-939, IEEE Press, ISBN 0-7803-8515-2

Learning to Detect Proximity to a Gas Source with a Mobile Robot

Achim Lilienthal, Holger Ulmer,
IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2004),
Sendai, Japan, September 28 - October 2, 2004, pp. 1444-1449

Gas Source Declaration with a Mobile Robot

Achim Lilienthal, Holger Ulmer, Holger Fröhlich, Andreas Stützle, Felix Werner and
Andreas Zell
Proceedings of the IEEE International Conference on Robotics and Automation (ICRA
2004), New Orleans, USA, April 26 - May 1, 2004, pp. 1430-1435

Evolution Strategies assisted by Gaussian Processes with improved Pre-Selection Criterion

Holger Ulmer, Felix Streichert, and Andreas Zell
IEEE Congress on Evolutionary Computation, CEC 2003, Canberra, Australia, Dec. 8.-12,
2003,
Proceedings, Part I. 692-699, IEEE-Press, ISBN 0-7803-7804-0

Optimization by Gaussian Processes Assisted Evolution Strategies

Holger Ulmer, Felix Streichert, and Andreas Zell
Selected Papers of the International Conference on Operations Research (OR 2003),
Heidelberg, September 3-5, 2003, Springer, p. 435 - 442

Evolutionary Algorithms and the Cardinality Constrained Portfolio Selection Problem

Felix Streichert, Holger Ulmer, and Andreas Zell
Selected Papers of the International Conference on Operations Research (OR 2003),
Heidelberg, September 3-5, 2003, Springer, p. 253 - 260

Model-Assisted Steady-State Evolution Strategies

Holger Ulmer, Felix Streichert, and Andreas Zell
Genetic and Evolutionary Computation - GECCO 2003, Genetic and Evolutionary
Computation Conference, Chicago, IL, USA, July 12-16, 2003. Proceedings, Part I. 610-621,
[© Springer-Verlag](#) (LNCS 2723), ISBN 3-540-40602-6

Evolving the Ability of Limited Growth and Self-Repair for Artificial Embryos

Felix Streichert, Christian. Spieth, Holger Ulmer, and Andreas Zell
Advances in Artificial Life - Proceedings of the 7th European Conference on Artificial Life
(ECAL)
Dortmund, Germany, September 14-17, 2003, Proceedings p. 289-298, [© Springer-Verlag](#)
(LNAI 2801), ISBN 3-540-20057-6

Darstellung perimetrischer Befunde auf mobilen kabellosen Geräten mit dynamisch generierten Grafiken.

Clemens Jürgens, Holger Ulmer, Simon Wiest, Ulrich Schiefer, Andreas Zell.
To be presented: GMDS Annual Meeting, Münster Germany, Sep. 2003.
To be published in: Informatik, Biometrie und Epidemiologie in Medizin und Biologie.

A Clustering Based Niching EA for Multimodal Search Spaces

Felix Streichert, Gunnar Stein, Holger Ulmer, and Andreas Zell
Evolution Artificielle 6th International Conference (EA 2003)
Marseille, France, October 27-30, 2003, Proceedings pp. 169-180, ISBN 2-72261-12667-8
Evolution Artificielle, pp. 293-304, © Springer-Verlag (LNCS 2936), ISBN 3-540-21523-9

Book Chapters

Model Assisted Evolution Strategies

Holger Ulmer, Felix Streichert, and Andreas Zell
in "[Knowledge Incorporation in Evolutionary Computation](#)", in Studies in Fuzziness and

Soft Computing Series, J. Yaochu (Ed.)
Chapter 16, pp. 333-358, Springer, ISBN 3-540-22902-7, 2004.

Awards

doIT Award 2004

for JavaEvA - a Java based framework for Evolutionary Algorithms
2nd price endowed with 10,000 €
[doIT Software-Award & doIT Software-Forschungstag](#) (German only)

Posters

A Clustering Based Niching Method for Evolutionary Algorithms

Felix Streichert, Gunnar Stein, Holger Ulmer, and Andreas Zell
Genetic and Evolutionary Computation - GECCO 2003, Genetic and Evolutionary
Computation Conference,
Chicago, IL, USA, July 12-16, 2003. Proceedings, Part I. 644-645, © [Springer-Verlag](#) (LNCS
2723), ISBN 3-540-40602-6

Misc

JavaEvA - Java-Softwarepaket für Evolutionäre Algorithmen

F. Streichert, H. Ulmer and A. Zell
Aktuelle Trends in der Softwareforschung
Tagungsband zum doIT Software-Forschungstag 2004, pp.40-51, 2005, ISBN
3-8167-6715-X

JavaEvA - A Java based framework for Evolutionary Algorithms

F. Streichert and H. Ulmer
Technical Report: WSI-2005-06, Universitätsbibliothek Tübingen, 2005
URN: urn:nbn:de:bsz:21-opus-17001
<http://w210.ub.uni-tuebingen.de/dbt/volltexte/2005/1702>

Do-IT-Award würdigt Plattformsdesigns

Computerzeitung Nr.45/2, page 8, Nov. 2004

Diploma Thesis

Benetzungssphänomene von superfluidem Helium studiert mit Oberflächenplasmonen

Holger Ulmer, Diplomarbeit, at the [Universität Konstanz](#), Department of Physics, Prof. Dr.
Leiderer, 1997.

Address, phone and fax number, email

Eberhard-Karls-Universität Tübingen
Wilhelm-Schickard-Institut für Informatik
Lehrstuhl Rechnerarchitektur

Sand 1
D - 72076 Tübingen
Germany
Phone: (+49/0) 7071 / 29 70441
Fax: (+49/0) 7071 / 29 5091
Email: Holger.Ulmer at gmx.de