Georg Timo von Oertzen

PERSONAL INFORMATION

Home:

Lützelsteiner Weg 30
14195 Berlin
Germany

Office:

+49 89 6004–4456
Department for Psychology
Werner-Heisenberg-Weg 39
University of the Federal Defense Forces
85577 Neubiberg, Geramny

Skype:

ballenys
+49 (0)30 2241 2981

Mobile:

+49 152 53567264

Email:

timo@unibw.de

Web:

http://unibw.de/timo.vonoertzen
http://onyx.brandmaier.de

Date of Birth:

08 August 1975

FORMAL EDUCATION

Vordiplom (B.S.) Computer Science, April 1999,
Saarland University, Saarbrücken, Germany.

Diplom (M.A.) Computer Science, September 1999,
Saarland University, Saarbrücken, Germany (advisor Günter Hotz)
Thesis Topic: *Cedric - an automated geometric prover*

Vordiplom (B.S.) Psychology, July 2001
Saarland University, Saarbrücken, Germany.

Ph.D. Computer Science, February 2003
Saarland University, Saarbrücken, Germany (advisor Günter Hotz)
Dissertation Topic: *The construction problem*

Habilitation Psychology, August 2013
Humboldt University, Berlin, Germany
Habilitation Topic: *Statistical Power, Power Equivalence, and Efficient Parameter Estimation in Structural Equation Modeling*

PROFESSIONAL POSITIONS

2016–present: *Full Professor*, Department of Psychology, University of the Federal Defense Forces

2011–2015: *Assistant Professor*, Department of Psychology, University of Virginia

2011–present: *Faculty*, LIFE Academy; Joint graduate program of University of Virginia, University of Michigan, Max Planck Institute for Human Development, Humbolt University, Free University of Berlin, and University of Zurich.

2011–present: *Visiting Scientist*, Max Planck Institute for Human Development, Center for Lifespan Psychology, Berlin, Germany

2006–2011: *Research Scientist*, Max Planck Institute for Human Development, Center for Lifespan Psychology, Berlin, Germany

4/2009–5/2009: *Visiting Scientist*, Department of Psychology, Georgia Institute of Technology

6/2008–7/2008: *Visiting Scientist*, Department of Psychology, University of Virginia

3/2008–5/2008: *Visiting Scientist*, Department of Psychology, University of Southern California

2002–2006: *Postdoctorate Scientific Assistant*, Department of Mathematics, Saarland University

2000–2002: *Software Developer*, Mainz Academy of Sciences

1997–2000: *Software Developer*, ACS Informatik (Munich) and Dialogika (Saarbrücken)

1996–1997: *Civil Service*, Schneiderschere Kindergarden, Mölln

1991–1997: *Director and Founder*, Volunteer Day-Care Center, Mölln

PROFESSIONAL HONORS

Inauguration Poster Competition 1st Price (2011) from the President's Poster competition 2011 at the University of Virginia

Best Paper Award (2012) from the ECML-PKDD conference

EXTERNAL GRANT SUPPORT

Travel and Research Advising von Oertzen, Funded by Max Planck Society; Summer 2011, Summer 2012, Summer 2013, Sesquicentennial Leave 2014 (total $73,200), Summer 2015.

OpenMx: Multipurpose Software for Statistical Modeling S. M. Boker PI, Funded by the National Institutes of Health Roadmap Initiative (NIH 1R21DA024304-01); September 26, 2007 - August 31, 2012; $1,095,362 Total Costs. Role: Developer Team Member

SFB 378 - Resource-Adaptive Cognitive Processes September 2003 - September 2006. Role: Member

PEER REVIEWED ARTICLES AND PROCEEDINGS PAPERS

Note: Italicized authors are current or former students.

Boker, S., Brick, T., **von Oertzen, T.**, Estabrook, R., Pritikin, J., Hunter, M., Maes, H., Neale, M. (in press): Maintained Individual Data Distributed Likelihood Estimation (MIDDLE). Behavioral Research Methods, 2015.

Karch, J., Sander, M., **von Oertzen, T.**, *Brandmaier, A.*, Werkle-Bergner, M. (in press): Using within-subject pattern classification to understand lifespan age differences in oscillatory mechanisms of working memory selection and maintenance. NeuroImage, 2015.

Brandmaier, A., **von Oertzen, T.**, Hertzog, C., Ghisletta, P., Lindenberger, U. (in press): LIFESPAN: A Tool for the Computer-Aided Design of Longitudinal Studies. Frontiers, 2015.

Martin, D., **von Oertzen, T.**: Growth Mixture Modeling outperforms simpler Clustering Algorithms when detecting longitudinal heterogeneity, even with small sample sizes. Structural Equation Modeling: An Interdisciplinary Journal, Vol. 22(2), pp. 264–275, 2015.

von Oertzen, T., *Brandmaier, A., Tsang, S.*: Structural Equation Modeling with Ωnyx. Structural Equation Modeling: An Interdisciplinary Journal, Vol. 22(1), pp. 148–162, 2015.

von Oertzen, T., Brick, T.: Efficient Hessian Computation Using Sparse Matrix Derivatives in RAM Notation. Behavioral Research Methods, Vol. 46(2), pp. 385–395, 2014.

von Oertzen, T., *Brandmaier, A.*: Optimal Study Design with Identical Power: An Application of Power Equivalence to Latent Growth Curve Model. Psychology and Aging, Vol. 28, pp. 414–428, 2013.

Brandmaier, A., **von Oertzen, T.**, McArdle, J., Lindenberger, U.: Structural Equation Model Trees. Psychological Methods, Vol. 18, pp. 71-86, 2013.

Sawade, C., Bickel, S., **von Oertzen, T.**, Scheffer, T., Landwehr, N.: Active Evaluation of Ranking Functions based on Graded Relevance. Proceedings of the European Conference on Machine Learning (ECML 2012), 2012.

Wrzus, C., Riediger, M., Wagner, G., *Brandmaier, A.*, **von Oertzen, T.**, Müller, V.: A New Approach for Assessing Sleep Duration and Postures from Ambulatory Accelerometry. PLoS One, 7(10), 2012.

Bodirsky, M., Jonsson, P., **von Oertzen, T.** (in alphabetical order): Essential convexity and complexity of semi-algebraic constraints (Journal Version). Journal of Logical Methods in Computer Science, 8(4), 2012.

Völkle, M., Oud, J., **von Oertzen, T.**, Lindenberger, U.: Maximum likelihood dynamic factor modeling for arbitrary N and T using SEM. Structural Equation Modeling, 19(3), pp. 329–350, 2012.

Bodirsky, M., Jonsson, P., **von Oertzen, T.** (in alphabetical order): Horn versus full first-order: complexity dichotomies in algebraic constraint satisfaction. Journal of Logic and Computation,

22(3), pp. 643–660, 2012.

Kleinspehn-Ammerlan, A., Riediger, M., Li, S.-C., Schmiedek, F., **von Oertzen, T.**, Lindenberger, U.: Dyadic drumming across the lifespan reveals a zone of proximal development in Children. Developmental Psychology, 47, pp. 632-644, 2011.

Lindenberger, U., **von Oertzen, T.**, Ghisletta, P., Hertzog, C.: Cross-sectional age variance extraction: What's change got to do with it? Psychology and Aging, 26, pp. 34-47, 2011.

von Oertzen, T., Hertzog, C., Lindenberger, U., Ghisletta, P.: The effect of multiple indicators on the power to detect interindividual differences in change. British Journal of Mathematical and Statistical Psychology, Volume 63(3), pp. 627–646, 2010.

von Oertzen, T.: Power equivalence in structural equation modeling. British Journal of Mathematical and Statistical Psychology, Vol. 63, pp. 257–272, 2010.

von Oertzen, T., Boker, S.: Time delay embedding increases estimation precision of models of intraindividual variability. Psychometrika, Vol. 75(1), pp. 158–175, 2010.

Li, S.-C., Chicherio, C., Nyberg, L., **von Oertzen, T.**, Nagel, I., Papenberg, G., Sander, T., Heekeren, H., Lindenberger, U., Bäckman, L.: Ebbinghaus revisited: Influence of the BDNF Val66Met polymorphism on backward serial recall are modulated by human aging. Journal of Cognitive Neuroscience, Vol. 22, No. 10, p. 2164-2173, 2010.

Bodirsky, M., Jonsson, P., **von Oertzen, T.**, (in alphabetical order): Semi-linear program feasibility. Proceedings of the International Colloquium on Automata, Languages and Programming (ICALP 2009), pp. 79–90, 2009.

Bodirsky, M., Nordh, G., **von Oertzen, T.** (in alphabetical order): Integer programming with 2-variable equations and 1-variable inequalities. Information Processing Letters, 109(11), pp. 572-575, 2009.

Bodirsky, M., Chen, H., Kara, J., **von Oertzen, T.** (in alphabetical order): Maximal infinite-valued constraint languages. Theoretical Computer Science, Vol. 410(18), pp. 1684–1693, 2009

Nagel, I., Chicherio, C., Li, S.-C., **von Oertzen, T.**, Sander, T., Villringer, A., Heekeren, H., Bäckman, L., Lindenberger, U.: Human aging magnifies genetic effects on executive functioning and working memory. Frontiers in Human Neuroscience, 2, Article 1, 2008.

Müller, V., Brehmer, Y., **von Oertzen, T.**, Li, S.-C., Lindenberger, U.: Electrophysiological correlates of selective attention: A lifespan comparison. BMC Neuroscience 9, 2008.

Hertzog, C., **von Oertzen, T.**, Lindenberger, U., Ghisletta, P.: Evaluating the power of latent growth curve models to detect individual differences in change. Structural Equation Modeling, Vol. 15, pp. 541-563, 2008.

Brehmer, Y., S.-C. Li, B. Straube, G. Stoll, **von Oertzen, T.**, Müller, V., Lindenberger, U.: Comparing memory skill maintanence across the life span: Preservation in adults, increase in children. Psychology and Aging, 23.2, pp. 227-238, 2008.

Czienskowski, P., Schellenbach, M., **von Oertzen, T.**: Feedback-controlled locomotion in virtual environments. Proceedings of NordiCHI08, October 2008.

Bodirsky, M., Chen, H., Kara, J., **von Oertzen, T.** (in alphabetical order): Maximal infinite-valued constraint languages. Proceedings of the 34th International Colloquium on Automata, Languages and Programming (ICALP 2007), pp. 546-557, 2008.

Brehmer, Y., S.-C. Li, Müller, V., **von Oertzen, T.**, Lindenberger, U.: Memory plasticity across the lifespan: Uncovering childrens' latent potential. Developmental Psychology, 43(2), pp. 465-478, 2007.

Hertzog, C., Lindenberger, U., Ghisletta, P., **von Oertzen, T.**: On the power of multivariate latent growth curve models to detect correlated change. Psychological Methods, 11(3), pp. 244-252, 2006.

von Oertzen, T.: Exact computation of polynomial zeros expressible by square roots. Special Issue of Algorithmica, 46(1), pp. 119-136, September 2006.

Li, S.-C. **von Oertzen, T.**, Lindenberger, U.: Modeling stochastic resonance in neurobiological aging. Journal of Neurocomputing, 69, pp. 1553-1560, August 2006.

von Oertzen, T.: Exact computation of polynomial zeros expressible by square roots (proceedings version). Proceedings of the 15th International Symposium on Algorithms and Computation (ISAAC04). Springer, 2004.

Bodirsky, M., Gärtner, T., **von Oertzen, T.**, Schwinghammer, J. (in alphabetical order): Efficiently computing the density of regular languages. Proceedings of the Latin American Informatics Conference (LATIN04), 262-270, Buenos Aires. Springer LNCS 2976, 2004.

Bodirsky, M., Gärtner, T. **von Oertzen, T.**, Schwinghammer, J. (in alphabetical order): Computing the density of regular languages. Proceedings of the European Summer School of Language, Logic and Information (ESSLLI) 2001 student session, 23-35, 2001.

BOOKS

von Oertzen, T., *Brandmaier, A.*, *Tsang, S.*: Ωnyx 1.0 User Guide. to be found at `http://brandmaier.onyx.de/userguide.pdf`, 2014.

von Oertzen, T.: Statistical Power, Power Equivalence, and Efficient Parameter Estimation in Structural Equation Modeling. Habilitation Thesis, Humboldt University, Department of Psychology, 2013.

Boker, S., Neale, M., Maes, H., Wilde, M., Spiegel, M. Brick, T., Estabrook, R., Bates, T., Mehta, P., **von Oertzen, T.**, Gore, R., Hunter, M., *Hackett, D., Karch, J., Brandmaier, A.*: OpenMx 1.2.0-1919 User Guide. to be found at `http://openmx.psyc.virginia.edu/docs/OpenMx/latest/OpenMxUserGuide.pdf`, 2012.

von Oertzen, T.: Das Konstruktionsproblem [The construction problem]. Doctoral Thesis, Saarland University, Department of Computer Science, 2003.

von Oertzen, T.: Cedric - ein automatisches geometrisches Beweissystem [Cedric - an automatic geometric prover]. Diploma Thesis, Saarland University, Department of Computer Science, 1999.

BOOK CHAPTERS

von Oertzen, T., *Brandmaier, A., Tsang, S.* (in press): Using Ωnyx. In Kruse et al., LIFE Report 2013, 2013.

Brandmaier, A., **von Oertzen, T.**, McArdle, J., Lindenberger, U.: Exploratory Data Mining With Structural Equation Model Trees. In Ritschard, G. & McArdle, J. (Eds.), 2014.

von Oertzen, T., Ghisletta, P., Lindenberger, U.: Simulating statistical power in latent growth curve modeling: A strategy for evaluating age-based changes in cognitive resources. In M. Crocker & J. Siekmann (Eds.), SFB 378 ('Resourcenadaptive Prozesse'), chap. 2.5, pp. 95–117. Springer, 2010.

Demaine, E., Demaine, M., Fleischer, R., Hearn, R., **von Oertzen, T.** (in alphabetical order): The complexity of dyson telescopes. In M.H. Albert & R.J.Nowakowski (Ed.): Games of no chance III, p. 271-284. Cambridge University Press, 2009

Lindenberger, U., **von Oertzen, T.**: Variability in cognitive aging: From taxonomy to theory. In F. I. M. Craik & E. Bialystok (Eds.): Lifespan cognition: Mechanisms of change. Oxford, UK: Oxford University Press, 2006.

Brehmer, Y., Müller, V., **von Oertzen, T.**, Lindenberger, U.: Episodic memory in childhood and old age: The role of cortical coherence. In A. Mecklinger, H. D. Zimmer & U. Lindenberger (Eds.), Bound in memory: Insights from behavioral and neuropsychological studies (pp. 69-91), Shaker Verlag Aachen, 2004

SOFTWARE PUBLICATIONS

von Oertzen, T., *Brandmaier, A. Tsang, S.*: Onyx 1.0 User Guide. to be found at `http://brandmaier.onyx.de/userguide.pdf`, 2014.

Boker, S., Neale, M., Maes, H., Wilde, M., Spiegel, M. Brick, T., Estabrook, R., Bates, T., Mehta, P., **von Oertzen, T.**, Gore, R., Hunter, M., Hackett, D., *Karch, J.*, *Brandmaier, A.*: OpenMx 1.2.0-1919 User Guide. to be found at `http://openmx.psyc.virginia.edu/docs/OpenMx/latest/OpenMxUserGuide.pdf`, 2012.

von Oertzen, T.: The Florence System, to be found at `http:florence.uni-saarland.de`, 2002.

COMMENTS AND REVIEW ARTICLES

von Oertzen, T., Schömer, E.: Über Cinderella - Eine Programmbeschreibung. [About Cinderella - a program description] DMV - Mitteilungen 3/2000, pp. 32 - 35, 2000.

von Oertzen, T.: Review of 'Parallel scientific computing' by Rob H. Bisseling for the Jahresbericht der DMV, 2005

von Oertzen, T.: Review of 'Introduction to parallel computing' by W.P. Petersen and P. Arbenz for the Jahresbericht der DMV, 2005

CONFERENCE PAPERS, COLLOQUIA, SYMPOSIA, and POSTERS

Martin, D., **von Oertzen, T.**, Rimm-Kaufmann, S.: Efficiently Exploring Multilevel Data with Recursive Partitioning. Poster presented at the Conference of the Society for Research on Educational Effectiveness (SREE 2015), 2015.

Schminkey, D., **von Oertzen, T.**, Burnett, Bullock, S. (2015): Paradoxical reactions: How the timing of stress and social support during pregnancy make a difference in birth outcomes, 2015 Prematurity Prevention Conference: Quality Improvement, Evidence and Practice, 2015.

Schminkey, D., **von Oertzen, T.**, Bullock, L.: Adaptive reproduction: How timing of psychosocial stimulus affects birth outcome. Brain, Behavior and Immunity 40:E2, 2014.

Schminkey, D., **von Oertzen, T.**, Bullock, L.: Timing impacts how prenatal psychosocial context affects birth outcomes. Proceedings of the 142nd APHA Annual Meeting and Exposition, 2014.

Martin, D., **von Oertzen, T.**, Smyth, F., Melcher, T., & Mitrea, I.: Implicit math gender stereotypes changing over time: An application of latent growth curve modeling. Poster presented at the 25th annual meeting of the Association for Psychological Science, Washington, D.C., 2013

Kim, B., **von Oertzen, T.**: Adopting Support Vector Machines in Psychological Studies to Detect Group Differences. Poster presented at MathPsych 2012, Ohio, USA, 2012

Czienskowski, U., *Liske, N.*, **von Oertzen, T.**, Kaczmirek, L., Galesic, M., Reips, U.: Response time measurement in the lab and on the web: A comparison. Paper presented at the XXIXth International Conference of Psychology, Berlin, Germany, 2008

Galesic, M., Reips, U., Kaczmirek, L., Czienskowski, U., *Liske, N.*, **von Oertzen, T.**: Response time measurement in the lab and on the web: A comparison. Poster presented at the 10th Congress of the Swiss Society of Psychology, Zurich, Switzerland, 2007

Lindenberger, U., Brehmer, Y., Shing, Y.-L., Werkle-Bergner, M., Lövden, M., Müller, V., **von Oertzen, T.**, Li, S.-C.: Episodic memory across the lifespan: Plasticity and components. Conference Paper presented at Cognitive Aging Conference 'Expanding the horizon of aging research',

2005.

Brehmer, Y., Stoll, G., Bergner, S., Benoit, R., **von Oertzen, T.**, Lindenberger, U.: Selection of high-imagery words for the study of episodic memory from middle childhood to old age. Saarland University, Technical Report, 2005.

Brehmer, Y., Müller, V., **von Oertzen, T.**, Lindenberger, U.: Lifespan differences in upper limits of episodic learning: Middle childhood to old age. Poster presented at the 18th International Society for the Study of Behavioral Development (ISSBD) Meeting, Ghent, Belgium, 2004.

Brehmer, Y., Li, S.-C.., **von Oertzen, T.**, Lindenberger, U.: Episodisches Lernen über die Lebensspanne: Mittlere Kindheit bis ins Hohe Alter [Episodic learning across the lifespan: Middle childhood to old age]. Paper presented at the 44th Congress of the German Foundation for Psychology, Göttingen, Germany, 2004.

CLASSROOM TEACHING

Quantitative Psychology for Graduate Students Lecture at the University of Virginia. Fall 2015.

Research Methods and Data Analysis II Lecture at the University of Virginia. Spring 2015.

Structural Equation Modeling Lecture at the University of Virginia. Fall 2012.

Mathematical Foundations of Psychology Lecture at the University of Virginia. Spring 2012; Fall 2013.

Multi Level Modeling Lecture at the University of Virginia. Fall 2011; Spring 2013.

Data Mining and Machine Learning Lecture at the University of Virginia. Spring 2011; Spring 2012; Spring 2013.

Machine Learning Applications in the Social Sciences Lecture at Free University Berlin. Winter 2009/10.

Computer Algebra Lecture at Free University Berlin. Summer 2009

Formal Statistical Modeling Lecture at Free University Berlin. Winter 2007/08.

Mathematics for Computer Scientist I Lecture at Saarland University together with F. Schreyer. Winter 2005/06.

Formal Models for Psychological Processes Seminar at the Summer Academy of the German National Academic Foundation together with S.-C. Li and U. Lindenberger. Summer 2005

Computer Algebra Lecture at Saarland University together with F. Schreyer. Summer 2005.

Symbolic Integration Seminar at Saarland University together with S. Papadikis and F. Schreyer. Winter 2004/05.

Linear Algebra in Computer Algebra Lecture at Saarland University. Winter 2004/05.

CAGD Systems Seminar at Saarland University together with F. Schreyer. Summer 2004.

Visualizing Space Curves Practical Course at Saarland University together with A. Zeller. Summer 2004

Algorithms for Univariate Polynomials Lecture at Saarland University. Winter 2003/04.

Quick Groebner Basis Computation with Flexible Polynomial Representations Practical Course at Saarland University together with A. Zeller. Summer 2003.

Algorithms for Multivariate Polynomials and Geometric Applications Seminar at Saarland University together with G. Hotz, W. Decker, F. Schreyer, and T. Gärtner. Summer 2002.

WORKSHOPS

Structural Equation Modeling with Ωnyx Institut für Qualitätsentwicklung im Bildungswesen, Berlin, Germany; December 2012.

Structural Equation Modeling with Ωnyx University of Zürich, Zürich, Switzerland; December 2012.

What You always Wanted to know About Statistics Max Planck Institute for Human Development, April 2006

MENTORING

Bachelor Thesis Direction

- Christoph Barbian, 2005

Diploma Thesis Direction

- Florian Schilling, 2012
- Julian Karch, 2012
- Paul Czienskowski, 2010
- Michael Beckmann, 2008

Master's Thesis/Predissertation Direction and Co–Direction

- Michael Joe Meyer (in progress)
- Dan Martin, 2013
- Bommae Kim, 2013

Ph.D. Dissertation Direction and Co–Direction

- Bommae Kim (in progress)
- Dan Martin, 2015
- Siny Tsang, 2015
- Donna Schminkey, 2013
- Andreas Brandmaier, 2012

Distinguished Major Direction

- Cailey Fitzgerald, 2014

AD HOC REVIEWER

Journals: Lecture Notes in Computer Science, Numerical Algorithms, American Psychologist, Biological Psychology, British Journal of Mathematical and Statistical Psychology, International Journal of Artificial Intelligence Tools, Psychological Methods, Psychological Science, Scandinavian Journal of Organizational Psychology, Developmental Psychology

Funding Agencies: Jefferson Trust for Big Data

PAST AND CURRENT PROFESSIONAL MEMBERSHIPS

American Psychological Society (APS), German National Academic Foundation (SDV), Mainzer Akademie der Wissenschaft (Coworker), Sonderforschungsbereich Resource-Adaptive Cognitive Processes (SFB378), German Society for Psychology (DGP)