

Norbert Stoop
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EDUCATION

1988-1994 Primary school in Humlikon
1994-2000 Gymnasium Rychenberg in Winterthur
2001 Gymnasium graduation
2001-2006 Physics studies at ETH Zurich
2006 Diploma in theoretical physics, ETH Zurich (Group of Prof. M. Troyer)
Diploma thesis on **Optimized ensembles for quantum spin systems**
2007-2011 PhD student at ETH Zurich (Group of Prof. Hans Herrmann)
April 2011 Dissertation on **Morphogenesis in constrained spaces**

PROFESSIONAL EXPERIENCE

- **Linux/Unix system advisor (part-time), Gymnasium Bühlrain, Winterthur (1999-2001)**
Planning and implementation of a heterogeneous Linux-based network with Windows and Apple clients, setup of platform-independent authentication systems (LDAP), process automation for user management
- **Affiliated partner at Vitus GmbH (since 2001)**
Development and implementation of a web-based project tracking tool with reporting functionality for clients, planning and evaluation of client intranet solutions, IT/technical consulting for clients
- **Academic guest (maître de conference invité) at the Université Paul-Verlaine Metz, France (June 2011)**

CERTIFICATES, AWARDS AND MEMBERSHIPS

- C++ certificate by ISSC (International School for Scientific Computing)
- Member of the Schweizerische Studienstiftung (national foundation to promote students of outstanding intellectual abilities and personality) (2001-2006)
- Alumni-Member of the Schweizerische Studienstiftung (since 2006)
- IOP poster prize (2nd place) at Nonlinear Dynamics and Chaos: Advances and Perspectives, Aberdeen, UK, 2008
- Qualification for the final in the International Management Cup, organized by the Convention of National Societies of Electrical Engineers of Europe (EUREL), September 1-3, 2010

PUBLICATIONS

- Packing of elastic wires in spherical cavities, N. Stoop, J. Najafi, F.K. Wittel, M. Habibi, and H.J. Herrmann, Phys. Rev. Lett. 106, 214102 (2011), *selected as an editor's suggestion, PRL cover image, highlighted in APS 'Physics' and in the SoftMatterWorld Newsletter (June 2011, issue 30)*
- Self-contact and instabilities in the anisotropic growth of elastic membranes, N. Stoop, F.K. Wittel, M.B. Amar, M.M. Müller, and H.J. Herrmann, Phys. Rev. Lett. 105(6) (2010)

- Biophysical Parameters Modification Could Overcome Essential Hearing Gaps, A. Kern, C. Heid, W.-H. Steeb, N. Stoop, and R. Stoop, *PLoS Computational Biology*, 4(8), e1000161 (2008)
- Morphological phases of crumpled wire, N. Stoop, F.K. Wittel, H.J. Herrmann, *Phys. Rev. Lett.*, 101, 094101 (2008), *featured in Physics Today*; *Aug. 2008 (web and print)*, as a *PRL cover image*, and in the *German FAZ*
- Optimized Broad-Histogram Ensembles for the Simulation of Quantum Systems, S. Wessel, N. Stoop, E. Gull, S. Trebst, M. Troyer, *JSTAT*, P12005 (2007)
- Managing autonomy and control in social systems, M. Christen, G. Bongard, A. Pausits, N. Stoop, R. Stoop, "Managing Complexity" by D. Helbing (eds.), Springer, Berlin (2007)
- Periodic economic cycles: the effect of evolution and control, M. Christen, T. Ott, A. Kern, N. Stoop, R. Stoop, *JSTAT*, P 11013 (2005)
- Shiner-Davison-Landsberg complexity revisited, R. Stoop, N. Stoop, A. Kern, W.-H. Steeb, *JSTAT*, P11009 (2005)
- Complexity of Dynamics as Variability of Predictability, R. Stoop, N. Stoop, L.A. Bunimovich, *J. Stat. Phys.*, 114: (3) 1127-1137 (2004)
- Natural computation measured as reduction of complexity, R. Stoop, N. Stoop, *Chaos*, 14: (3) 675-679 (2004)
- Towards genuine machine autonomy, J.-J. van der Vyver, M. Christen, N. Stoop, T. Ott, W.-H. Steeb, R. Stoop, *Robotics and Autonomous Systems*, 46: (3) 151-157 (2004)

ATTENDED CONFERENCES & WORKSHOPS

- **Nonlinear Dynamics in Biophysics**, poster presentation, Max-Planck Institute, Dresden, June 20 - July 15, 2005
- **Vitus Partnertag 2005**: Seminar about data clustering algorithms, Fehrltorf, November 22, 2005
- **AIMS 2006**, Session talk, Poitiers, France, June 25 - 27, 2006
- **Vitus Partnertag 2006**: Seminar about emerging Web 2.0 technologies, Fehrltorf, November 28, 2006
- **Statphys 2007**, Poster presentation, Genova, Italy, July 8 - 14, 2007
- **Nonlinear Dynamics and Chaos: Advances and Perspectives**, Poster presentation, Aberdeen, UK, September 17 - 21, 2007
- **Complex Systems 2008**, Session talk, Lavin, Switzerland, January 18 - 22, 2008
- **Dynamics and Statistics of Spatially Extended Systems**, Banff, Canada, January 18 - 23, 2009
- **Journées de Physique Statistique 2009**, Session talk, Paris, France, January 29 - 30, 2009
- **Les Houches Summer School** on "The Physics and Mechanics of Biological Systems", Les Houches, France, July 6-31, 2009
- **5th Material Research Center Graduate Symposium**, ETH Zurich, Switzerland, May 10, 2010

SUPERVISED STUDENT THESES

- Surya Kusuma, **Behavioral Study of Crumpled Wire in Three Dimensions**, Master Project Work (6/2009)
- Viktor Lienhard, **Improvement of Contact-Evaluation in Thin-Shell Finite Element Analysis**, Semester Thesis (3/2010)
- Thomas Jenni, **Implementation of an Adaptive Mesh Refinement Scheme for Thin-Shell Finite-Element Analysis based on Loop Subdivision Surfaces**, Semester Thesis (3/2010)
- Viktor Lienhard, **Kinetic Friction in a Spherical Confined Thin Shell Growth Model**, Master Thesis (6/2010)

- Thomas Jenni, **Extensions and Benchmark Tests of a Finite Element Solver based on Loop Sub-division Elements**, Semester Thesis (6/2010)
- Roman Vetter, **Packing of elastic wires in three-dimensional cavities**, Master Thesis (6/2011)

LANGUAGES

- German: mother tongue
- English: fluent written and spoken
- French: school knowledge
- Italian: learning

IT SKILLS

- Operating systems: Mac OSX, Linux, MS Windows
- Office software: MS Office (Word, Excel, Powerpoint), Apple iWork, Openoffice, Adobe Illustrator
- Computer languages: C++ (very good), Python (good), PHP (good), SQL (very good)
- Databases: IBM DB2, MySQL, Zope Object Database (ZODB)
- Others: Mathematica, Matlab, Latex, Abaqus CAE finite element software, libMesh finite element library (C++), PETSC, various web technologies (HTML, CSS, Javascript), Zope/Plone Content Management System