

Wolfgang Schreiner, PhD
Professor of Medical Computer Sciences



Biosketch

Birthdate: June 24, 1954

Section of Biosimulation and Bioinformatics
Medical University of Vienna
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Current Activity and Accomplishment

- Full Professor of Medical Computer Sciences at Medical University of Vienna
- Head of the Section for Biosimulation and Bioinformatics at the Center for Biostatistics, Informatics and Intelligent Systems, Medical University of Vienna.
- Publication of 130 + articles in international, peer reviewed journals, 3 textbooks
- Research Projects in
 - **Modelling of the cardiovascular system.** Projects on optimization principles explaining vascular structures.
 - **Computational Modelling of T-Cell adaptive immune response.** Projects on modelling, simulation & in silico prediction of MHC-epitope-binding and TCR-activation.
- Coordinator of PhD-program “Medical informatics, biostatistics and complex systems”
- Initiator of IT-Infrastructure facilitating MedUni research on clinical data:
 - Successful **Fund-Lobbying for €36 Mi.** for MedUni-AKH-infrastructure: (City of Vienna + Ministry of Science)
 - Goals relevant for MedUni Research:
 - ✚ **Data-Integration: clinical patient treatment & research**
 - ✚ **Data-Integration: “Omics” & clinical phenotypes**

Professional Experience

since 1995 Full Professor of Medical Computer Sciences

- since 2004 Member of the Austrian Computational Grid Consortium. Project leader of work packages:
- ◆ Computer simulation of T-Cell activation
(http://www.meduniwien.ac.at/msi/biosim/index.php?seite=for_immunoinf)
 - ◆ Virtual arterial tree tomography
- 2003-2005 Additional education in genetics, molecular biology and immunology as a background for computational modelling in these fields.
- 1989-1995 Head of the section for Clinical Documentation and Data Analysis at the 2nd Dept. of Surgery, Univ. of Vienna.
- 1999 IT - Consultant for the social insurance company PVANG, Wien
- 1985-1995 Consultant in IT and biostatistics for the Ludwig Boltzmann Institut für Herzchirurgische Forschung, Wien
- 1991 Winner of the „Österreichischer Staatspreis für Alternativen zum Tierversuch“ (Reduction of animal trials).
- 1991 Associate Professorship (“Habilitation”) for Medical Computer Sciences at Vienna University.
- 1984 – 1991 Assistent at the 2nd Dept. of Surgery, University of Vienna.
- Research and research support through the following fields:
 - > IT-maintenance for the 2nd Dept. of Surgery
 - > Design, setup and maintenance of clinical databases for scientific studies and patient care.
 - > Statistical analysis of clinical studies
 - > Computer-based signal acquisition & processing, specifically intraoperative hemodynamics and automated diagnostics from laboratory devices.
 - Computer science research in
 - > cardiovascular modeling
 - > Signal analysis of intracardial ECG for rejection diagnostics after HTX.
- 1982 – 1884 Co-Authoring of a textbook on „Dosimetry of open radionuclides“.
- 1979 – 1884 Research position at Dept. of Experimental Physics, University of Vienna. Work in computer simulation of thermodynamic model systems, funded by the FWF.
- 1979 Research Fellow at the Royal Holloway College, Dept. of Chemistry, London. Work on Monte Carlo simulations of liquids.

Education

- 1972 – 1973 Matura in Vienna
- 1972 – 1973 Military service at the army hospital Vienna

- 1973 – 1979 Study of physics and mathematics, University of Vienna.
 1979 PhD in Physics at Vienna University
 Thesis on „Computersimulation in der statistischen Mechanik“

Personal

- 24.Juni 1954 born in Vienna, Austria
 since 1988 married to Mag.pharm. Ulrike Schreiner
 Children: Markus (1989), twins Peter & Florian (1992)

Academic and Faculty Activities

- since 1988 Lecturer of medical informatics at
 University of Vienna, Technical University of Vienna, Medical
 University of Vienna
- since 1999 Establishment and lecturing of the „Publikationsworkshop“ as part of
 the post gradual staff development program at the MUW
- 1992 – 2005 Reviewer for:
- Journal of General Physiology, Journal of Theoretical Biology,
 American Journal of Physiology, Computers in Biology and
 Medicine, Journal of Fluid Engineering, AI in Medicine, Journal
 of Experimental Gerontology, Österreichische Nationalbank.
- 1995 - 2003 Member of several boards of the Medical Faculty:
 „Leitungsausschuß“, „Titel-Kommission“, „Kliniken-Kommission“,
 „Software-Priorisierungs-Kommission“, „Fakultätskollegium“
- 2001 IT- delegate of the AKH to the strategy group for hospital informatics
 of the KAV, Vienna
- 1997 Initiator of the Project AKIM (Allgemeines Krankenhaus
 Informations Management), in collaboration with numerous heads of
 departments of the medical faculty, the dean and the medical director
 of the AKH.
- since 1997 Member of the „AKIM-Arbeitsgremium“ and „AKIM-Kernteam“.
 Main Responsibility: Parts of the AKIM-tender relating to IT-systems
 for research support.
- since 1999 Project leader of the Bioinformatics-Facility within the „AKIM“-
 Project. Focus: Genome – Phenotype analyses in a clinical research
 setting.
- 2003 Member of the evaluation commission for the AKIM tenders 1 & 2
- 2005 Member of the evaluation commission for the AKIM tender 3

12 relevant publications (out of > 100)

1. M. Kenn, R. Ribarics, N. Ilieva, W. Schreiner: Finding semirigid domains in biomolecules by clustering pair-distance variations. *BioMed Research International*, vol. 2014, Article ID 731325, 13 pages, 2014.
2. B. Knapp, G. Dorffner, W. Schreiner: Early Relaxation Dynamics in the LC 13 T Cell Receptor in Reaction to 172 Altered Peptide Ligands: A Molecular Dynamics Simulation Study. *PLoS.ONE* 8(6): e64464, 2013.
3. W. Schreiner, R. Karch, B. Knapp, and N. Ilieva. Relaxation Estimation of RMSD in Molecular Dynamics Immuno-Simulations. *Computational and Mathematical Methods in Medicine* 2012, 2012.
4. B. Knapp, G. Fischer, Hemelen D. Van, I. Fae, B. Maillere, C. Ebner, W. Schreiner, B. Bohle, and B. Jahn-Schmid. Association of HLA-DR1 with the allergic response to the major mugwort pollen allergen: molecular background. *BMC.Immunol.* 13 (1):43, 2012.
5. B. Knapp, U. Omasits, B. Bohle, B. Maillere, C. Ebner, W. Schreiner, and B. Jahn-Schmid. 3-Layer-based analysis of peptide-MHC-interaction: in silico prediction, peptide binding affinity and T cell activation in a relevant allergen-specific model. *Molecular Immunology* 46 (8-9):1839-1844, 2009.
6. R. Karch, F. Neumann, B. K. Podesser, M. Neumann, P. Szawlowski, and W. Schreiner. Fractal properties of perfusion heterogeneity in optimized arterial trees: A model study. *J.Gen.Physiol.* 122 (3):307-321, 2003.
7. W. Schreiner, R. Karch, M. Neumann, F. Neumann, S. M. Roedler, and G. Heinze. Heterogeneous perfusion is a consequence of uniform Shear stress in optimized arterial tree models. *J.Theor.Biol.* 220 (3):285-301, 2003.
8. W. Schreiner, F. Neumann, R. Karch, M. Neumann, S. M. Roedler, and A. End. Shear stress distribution in arterial tree models, generated by constrained constructive optimization. *J.Theor.Biol.* 198 (1):27-45, 1999.
9. W. Schreiner, F. Neumann, M. Neumann, A. End, and S. M. Roedler. Anatomical variability and functional ability of vascular trees modeled by constrained constructive optimization. *J.Theor.Biol.* 187:147-158, 1997.
10. W. Schreiner, F. Neumann, M. Neumann, A. End, and M. R. Müller. Structural quantification and bifurcation symmetry in arterial tree models generated by constrained constructive optimization. *J.Theor.Biol.* 180:161-174, 1996.
11. W. Schreiner, F. Neumann, M. Neumann, A. End, S. M. Roedler, and S. H. Aharinejad. The influence of optimization target selection on the structure of arterial tree models generated by constrained constructive optimization. *J.Gen.Physiol.* 106:583-599, 1995.
12. W. Schreiner, M. Neumann, F. Neumann, S. M. Roedler, A. End, P. F. Buxbaum, M. R. Müller, and P. G. Spieckermann. The branching angles in computer-generated optimized models of arterial trees. *J.Gen.Physiol.* 103:975-989, 1994.