



## Professional Career

- DEC 2005  
PRESENT      Research associate at the Bernstein Center for Computational Neuroscience (Prof. Florentin Wörgötter), University of Göttingen and Max Planck Institute for Dynamics and Self-Organization, Germany.
- JAN 2004  
DEC 2005      Research associate at the Fraunhofer Institute for Autonomous Intelligent Systems, Intelligent Dynamics Department (Prof. Frank Pasemann), Sankt Augustin, Germany.
- SEP 2002  
DEC 2003      Research assistant at the Fraunhofer Institute for Autonomous Intelligent Systems, Intelligent Dynamics Department (Prof. Frank Pasemann) , Sankt Augustin, Germany.
- JAN 2002  
AUG 2002      Research assistant for the *MathWeb* project at the DFKI, Saarland University, Saarbrücken, Germany.
- SEP 1997  
SEP 1998      Alternative civilian service at the university hospital Friedrichstadt, Dresden, Germany.

## Teaching Experience

- 2007      Teaching assistant of Prof. Florentin Wörgötter's lecture *Computational Neuroscience*, Institute of Non-Linear Dynamics, University of Göttingen, Germany.
- Teaching assistant of Prof. Frank Pasemann's lecture *Neurocybernetics*, Institute of Cognitive Science, University of Osnabrück, Germany
- 2006      Teaching assistant of Prof. Florentin Wörgötter's lecture *Computational Neuroscience*, Institute of Non-Linear Dynamics, University of Göttingen, Germany.
- 2005      Teaching assistant of Prof. Frank Pasemann's lecture *Evolutionary Robotics*, Institute of Cognitive Science, University of Osnabrück, Germany.
- Tutor of the tutorial *Techniques in Evolutionary Robotics and Neurodynamics*, 28th German Conference on Artificial Intelligence, Koblenz, Germany.
- 2004      Teaching assistant of Prof. Frank Pasemann's lecture *Modular Neurodynamics*, Institute of Cognitive Science, University of Osnabrück, Germany.
- SINCE 2004      Supervision of undergraduate students (bachelor and master theses, student research projects).

## Other Skills and Interests

LANGUAGES	German (native), English (fluent), Italian (basic), Russian (basic)
COMPUTING	Linux, MS Windows, L <sup>A</sup> T <sub>E</sub> X (advanced) C++, Java, ODE (advanced) Physical-Simulation-Development (advanced) Software-Development (intermediate) C, Matlab/Simulink (intermediate)
RESEARCH INTERESTS	Biological self-organization, cognition, non-linear dynamical systems, evolutionary biology, artificial life, collective behavior, recurrent neural networks, computational neuroscience, complex systems
HOBBIES	Rock climbing, squash, soccer, table soccer, literature, hiking, music, photography, playing bass-guitar.

## Steffen Wischmann - Publications

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- Journal Publications** Wischmann, S., Hülse, M., Knabe, J., and Pasemann, F. Synchronization of internal neural rhythms in multi-robotic systems. *Adaptive Behavior*, 14(2), pages 117-127, 2006.
- Hülse, M., Wischmann, S., and Zahedi, K. ISEE - A framework for the evolution and analysis of recurrent neural networks for embodied agents. *ERCIM News 64*, pages 33-34, 2006.
- Hülse, M., Wischmann, S., and Pasemann, F. Structure and function of evolved neuro-controllers for autonomous robots. *Connection Science*, 16(4), pages 249-266, 2004.
- Hülse, M., Wischmann, S., and Pasemann, F. Different time scales and context-sensitive behavior: A new perspective on action selection mechanisms in situated agents. *submitted*.
- Peer-reviewed Collection Papers** Wischmann, S., Pasemann, F., and Wörgötter, F. Cooperation and competition: Neural mechanisms of evolved communication systems. *Proceedings of the Workshop on the Emergence of Social Behaviour: From Cooperation to Language*, 2007.
- Wischmann, S., Stamm, K., and Wörgötter, F. Embodied evolution and learning: The neglected timing of maturation. In Almeida e Costa, F. et al. (Eds.), *Advances in Artificial Life: 9th European Conference on Artificial Life, ECAL 2007*. LNAI 4648, pages 284-293, Springer Verlag, 2007.
- Hülse, M., Wischmann, S., Manoonpong, P., Twickel, A. v., and Pasemann, F. Dynamical systems in the sensorimotor loop: On the interrelation between internal and external mechanisms of evolved robot behavior. *Proceedings of the 50th Anniversary of Artificial Intelligence*. LNAI, in press, Springer-Verlag, 2007.
- Wischmann, S. and Pasemann, F. The emergence of communication by evolving dynamical systems. In S. Nolfi et al. (Eds.), *From animals to animats 9: Proceedings of the 9th International Conference on the Simulation of Adaptive Behavior*. LNAI Vol. 4095, pages 777-788, Springer-Verlag, 2006.
- Wischmann, S., Hülse, M., and Pasemann, F. (Co)Evolution of (de)centralized neural control for a gravitationally driven machine. In M. Capcarrere et al. (Eds.), *Advances in Artificial Life: 8th European Conference on Artificial Life (ECAL 2005)*. LNAI Vol. 3630, pages 179-188, Springer-Verlag, 2005.
- Wischmann, S., Hülse, M., Knabe, J., and Pasemann, F. Synchronization of internal neural rhythms in multi-robotic systems. In *Proceedings of the Active Agents and Their Environments as Dynamical Systems Workshop*. 2005.

Hülse, M., Wischmann, S., and Pasemann, F. The role of non-linearity for evolved multifunctional robot behavior. In Moreno, J. M. et al. (Eds.), *Evolvable Systems: From Biology to Hardware - 6th International Conference (ICES 2005)*, LNCS Vol. 3637, pages 108-118, Springer Verlag, 2005.

Wischmann, S. and Pasemann, F. From passive to active dynamic 3D bipedal walking - An evolutionary approach. In M. Armada and P. Gonzalez de Santos (Eds.), *Climbing and Walking Robots: Proceedings of the 7th International Conference CLAWAR 2004*, pages 737-744, Springer-Verlag, 2004.

**Peer-reviewed  
Abstracts**

Wischmann, S., Pasemann, F., and Wörgötter, F. Small-scale neural networks and their versatile dynamics for communicative behavior. *Proceedings of the 4th European Conference on Complex Systems, ECCS 2007*, in press, 2007.

Hülse, M., Zahedi, K., Wischmann, S., and Pasemann, F. In the search of principles underlying cognitive phenomena. In *Proceedings of the 50th Anniversary Summit of Artificial Intelligence, ASAI50*, 2006.

Wischmann, S. and Hülse, M. Coordinated action of a large scale robotic system through self-organizing processes. In *Proceedings of the 2nd European Conference on Complex Systems, ECCS 2005*, 2005.

Hülse, M., Wischmann, S., and Pasemann, F. Behavior transitions provided by dynamical features of recurrent neural network - A case study of complex phenomena in behavior based robotics. In *Proceedings of the 2nd European Conference on Complex Systems, ECCS 2005*, 2005.

**Theses**

Wischmann, S. Neural dynamics of social behavior: An evolutionary and mechanistic perspective on communication, cooperation, and competition among situated agents. PhD Thesis, *submitted*.

Wischmann, S. "Entwicklung der Morphologie und Steuerung eines zweibeinigen Laufmodells", Diploma Thesis, Naturwissenschaftlich-Technische Fakultät III, Universität des Saarlandes, Saarbrücken, Germany, 2003.