# CURRICULUM VITAE

Dr.-Ing. Poramate Manoonpong

## Personal Details


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| Name | Poramate Manoonpong |
| Date and Place of Birth | 6 December, 1978, Nan, Thailand |
| Nationality | Thai |
| Marital Status | Single |
| Office Address | Georg-August-Universität Göttingen<br>Bernstein Center for Computational Neuroscience<br>Department for Computational Neuroscience<br>III Physikalisches Institut - Biophysik<br>Friedrich-Hund Platz 1<br>37077, Göttingen, Germany<br>Phone (Office) : +49 (0) 551 3910-763 |
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## Brief Biography

P. Manoonpong was born in Nan, Thailand, in 1978. He received a B.Eng. degree in mechanical engineering from King Mongkut's University of Technology Thonburi, Thailand, in 2000, a M.Sc. degree in mechatronics from Fachhochschule Ravensburg-Weingarten, Germany, in 2002, and a Ph.D. degree in electrical engineering and computer science from the University of Siegen, Germany, in 2006. As a Ph.D. student, he worked in the areas of robotics, mechatronic systems, biologically inspired walking machines, evolutionary robotics and artificial neural networks at Fraunhofer institute for Autonomous Intelligent Systems (AIS), Sankt Augustin, Germany. He is currently a researcher at Bernstein Center for Computational Neuroscience (BCCN) Göttingen, Germany. His research interests include neural locomotion control of walking machines, dynamics of recurrent neural networks, embodied cognitive systems, Biomechanics.

## Education

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| 2002-2006 | Ph.D. Thesis in Electrical Engineering and Computer Science with the Title "Neural Preprocessing and Control of Reactive Walking Machines" under the supervision of<br>- Prof. Dr.-Ing. Hubert Roth from Institute of Automatic Control Engineering at the University of Siegen, Germany |

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| | - Prof. Dr. rer. nat. Frank Pasemann from the Fraunhofer Institute for Autonomous Intelligent Systems (AIS), Sankt Augustin, Germany |
| 2000-2002 | M.Sc. in Mechatronics at Fachhochschule Ravensburg-Weingarten, Weingarten, Germany |
| 1996-2000 | B.Eng. in Mechanical Engineering (Hons.) at King Mongkut's University of Technology Thonburi, Bangkok, Thailand |

## Professional Career

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| Since 2006 | Research associate at Bernstein Center for Computational Neuroscience (BCCN), University of Göttingen and Max Planck Institute for Dynamics and Self-Organization, Germany |
| 2002-2005 | Research assistant at the Fraunhofer Institute for Autonomous Intelligent Systems, Intelligent Dynamics Department, Sankt Augustin, Germany |

## Honors/Awards

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| 2008 | Best Ph.D. thesis award in Engineering and Industrial Research category from the Office of the National Research Council of Thailand (NRCT)<br><br>Finalist of the Tzyh-Jong Tarn best paper award from IEEE International Conference on Robotics and Biomimetics 2008 |
| 2000 | Second Class Honor in Mechanical Engineering (B.Eng.) at King Mongkut's University of Technology Thonburi, Bangkok, Thailand |

## Scientific Activities

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| Since 2007 | **Referee Board** of Frontiers in Neurorobotics (part of Frontiers in Neuroscience). |
| 2006-2009 | **International Scientific Committee:** International Conference on Computer, Electrical, and Systems Science, and Engineering 2008, 2009<br>**Track Program Committee:** 12th IEEE Conference on Emerging Technologies and Factory Automation ETFA07 (Track 9: Intelligent Robots and Systems) 2007 |

**Reviewer for International Journals:** Robotica, Robotics and Autonomous Systems, Advances in Artificial Neural Systems, Biological Cybernetics, Journal of Control, International Journal of Humanoid Robotics, IEEE Transactions on Neural Networks

**Reviewer for International Conferences:** The 2009 IEEE International Conference on Robotics and Automation (ICRA2009)**,** IEEE International Conference on Robotics and Biomimetics ROBIO2008, IEEE International Symposium on Circuits and Systems ISCAS, International Conference on Neural Networks and Artificial Intelligence

## Publications (selected)

Book

Manoonpong, P. (2007) Neural Preprocessing and Control of Reactive Walking Machines: Towards Versatile Artificial Perception-Action Systems (Cognitive Technologies) (Hardcover), Springer-Verlag

Journals

Steingrube, S., Timme, M., Wörgötter, F., Manoonpong, P. (2009) Self-organized adaptation of simple neural circuits enables complex robot behavior, *Nature Physics* (under review).

Schröder-Schetelig, J., Manoonpong, P., Wörgötter, F. (2009) Using efference copy and forward internal model for adaptive biped walking, *Autonomous robots* (under review).

Manoonpong, P., Wörgötter, F. (2009) Efference Copies in Neural Control of Dynamic Biped Walking, *Robotics and Autonomous Systems*, in press.

Manoonpong, P.; Pasemann, F.; Wörgötter, F. (2008) Sensor-Driven Neural Control for Omnidirectional Locomotion and Versatile Reactive Behaviors of Walking Machines. *Robotics and Autonomous Systems*, doi:10.1016/j.robot.2007.07.004, Elsevier Science, Vol 56(3), pp 265-288.

Manoonpong, P.; Geng, T.; Kulvicius, T.; Porr, B.; Wörgötter, F. (2007) Adaptive, Fast Walking in a Biped Robot under Neuronal Control and Learning. *Public Library of Science Computational Biology* (PLoS Comput Biol), 3(7), e134, doi:10.1371/journal.pcbi.0030134

Manoonpong, P.; Pasemann, F.; Roth, H. (2007). Modular Reactive Neurocontrol for Biologically-Inspired Walking Machines.

*International Journal of Robotics Research (IJRR)*, vol. 26, no. 3, pp. 301-331, dio: 10.1177/0278364906076263

Manoonpong, P.; Pasemann, F.; Fischer, J.; Roth, H. (2005). Neural Processing of Auditory Signals and Modular Neural Control for Sound Tropism of Walking Machines. *International Journal of Advanced Robotic Systems (ARS)*, vol. 2, no. 3, pp. 223–234

Conference papers

Renjewski D., Seyfarth A., Manoonpong P. and Wörgötter F.(2009) The development of a biomechanical leg system and its neural control, Proceedings of the 2009 IEEE International Conference on Robotics and Biomimetics (ROBI09), Guilin, China, 18-22 December 2009.

Manoonpong, P.; Wörgötter, F. (2009) Adaptive Sensor-Driven Neural Control for Learning in Walking Machines, 16th International Conference on Neural Information Processing Bangkok, Thailand, December 1-5 (ICONIP'09), LNCS.

Manoonpong P., Wörgötter F., Pasemann, F. (2008) Neural Preprocessing of Auditory-Wind Sensory Signals and Modular Neural Control for Auditory- and Wind-Evoked Escape Responses of Walking Machines, Proceedings of the 2008 IEEE International Conference on Robotics and Biomimetics, Bangkok, Thailand, 21 - 26 February 2009, pp. 786-793, (Finalist of the Tzyh-Jong Tarn best paper award)

Manoonpong P., Wörgötter, F. (2008) Neural Control and Learning for Versatile, Adaptive, Autonomous Behavior of Walking Machines, Proceedings of the 2008 International Conference on Advanced Computer Theory and Engineering (ICACTE), IEEE Computer Society, Invited speaker paper, Phuket Island, Thailand, 20 - 22 December 2008, pp. 24-28

Renjewski D., Manoonpong P., Seyfarth A. and Wörgötter F. (2008) From biomechanical concepts towards fast and robust robots, In: Proceedings of 11th International Conference on Climbing and Walking Robots and the Support Technologies for Mobile Machines (CLAWAR 2008), Coimbra, Portugal, 08 - 10 September 2008, pp. 630-637

Hülse, M.; Wischmann, S.; Manoonpong, P.; Twickel, A.; Pasemann, F. (2007). Dynamical Systems in the Sensorimotor Loop: On the Interrelation between Internal and External Mechanism of Evolved Robot Behavior. In: 50th Anniversary

Summit of Artificial Intelligence, M. Lungarella and R. Pfeifer (eds.), LNCS, Springer-Verlag, Heidelberg, Vol. 4850, pp. 186-195

Manoonpong, P.; Geng, T.; Bernd Porr; Wörgötter, F. (2007). The RunBot Architecture for Adaptive, Fast, Dynamic Walking. In: Proceedings of the 2007 IEEE International Symposium on Circuits and Systems (ISCAS), SPECIAL SESSION: Live Demonstrations of Circuits & Systems, on CD-ROM and the IEEE Xplore system, New Orleans, USA, May 27-30, pp. 1181-1184

Manoonpong, P.; Geng, T.; Wörgötter, F. (2006). Exploring the dynamic walking range of the biped robot "Runbot" with an active upper-body component. In: Proceedings of the Sixth IEEE-RAS International Conference on Humanoid Robots (Humanoids 2006), 4 – 6 December, Genova, Italy, 2006, pp. 418-424

Manoonpong, P.; Pasemann, F.; Fischer, J. (2005). Modular Neural Control for a Reactive Behavior of Walking Machines. In: Proceedings of the Sixth IEEE Symposium on Computational Intelligence in Robotics and Automation (CIRA 2005), ISBN: 0-7803-9355-4, Helsinki University of Technology, Finland, pp. 403–408

Manoonpong, P.; Pasemann, F.; Fischer, J. (2004). Neural Processing of Auditory-Tactile Sensor Data to Perform Reactive Behavior of Walking Machines. In: Proceedings of the IEEE International Conference on Mechatronics and Robotics (MechRob ’04), Achen, Germany, ISBN: 3-938153-50-X, vol. 1, pp. 189–194

Fischer, J.; Pasemann, F.; Manoonpong, P. (2004). Neuro-Controllers for Walking Machines - An Evolutionary Approach to Robust Behavior. In: M. Armada; P. Gonzalez de Santos (eds.), Proceedings of the Seventh International Conference on Climbing and Walking Robots (CLAWAR ’04), Springer-Verlag, pp. 97–102