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Publications

Editorial: Horizons in neurorobotics 2022

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Editorial: The roles of self-organization and sensory adaptation for locomotion in animals and robots

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Neural Multimodal Control for Versatile Motion Generation and Continuous Transitions of a Lower-Limb Exoskeleton

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A small soft-bodied crawling robot with electromagnetic legs and neural control for locomotion on various metal terrains

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Electromagnetic Feet With Soft Toes for Adaptive, Versatile, and Stable Locomotion of an Inchworm-Inspired Pipe Crawling Robot

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Information Theoretic Self-organised Adaptation in Reservoirs for Temporal Memory Tasks

Dasgupta, S., Wörgötter, F. & Manoonpong, P., 1. Dec 2012, *Engineering Applications of Neural Networks - 13th International Conference, EANN 2012, Proceedings*. Yue, S. & Iliadis, L. (eds.). p. 31-40 10 p. (Communications in Computer and Information Science, Vol. 311).

Multiple chaotic central pattern generators for locomotion generation and leg damage compensation in a hexapod robot

Ren, G., Chen, W., Kolodziejcki, C., Wörgötter, F., Dasgupta, S. & Manoonpong, P., 1. Dec 2012, *2012 IEEE/RSJ International Conference on Intelligent Robots and Systems, IROS 2012*. p. 2756-2761 6 p. 6385573. (IEEE International Conference on Intelligent Robots and Systems).

Adaptive neural oscillator with synaptic plasticity enabling fast resonance tuning

Nachstedt, T., Wörgötter, F. & Manoonpong, P., 25. Oct 2012, *Artificial Neural Networks and Machine Learning, ICANN 2012 - 22nd International Conference on Artificial Neural Networks, Proceedings*. PART 1 ed. p. 451-458 8 p. (Lecture Notes in Computer Science; No. PART 1, Vol. 7552 LNCS).

An Adaptive Neuromechanical Model for Muscle Impedance Modulations of Legged Robots
Xiong, X., Wörgötter, F. & Manoonpong, P., 2012, *Proceedings - dynamic walking*. p. 12-14

A Virtual Musculoskeletal Model for Variable Compliance and Joint Stabilization of a Walking Hexapod
Xiong, X., Wörgötter, F. & Manoonpong, P., 2012, In: *Frontiers in Computational Neuroscience*.

A reconfigurable spherical robot

Chadil, N., Phadoongsidhi, M., Suwannasit, K., Manoonpong, P. & Laksanacharoen, P., 1. Dec 2011, *2011 IEEE International Conference on Robotics and Automation, ICRA 2011*. p. 2380-2385 6 p. 5979756. (IEEE International Conference on Robotics and Automation).

A PZT modeling for energy harvesting circuits

Hatti, N., Tungpimolrut, K., Phontip, J., Pechrach, K., Manoonpong, P. & Komol, K., 5. Oct 2011, *2011 International Symposium on Applications of Ferroelectrics and 2011 International Symposium on Piezoresponse Force Microscopy and Nanoscale Phenomena in Polar Materials, ISAF/PFM 2011*. 6014127

Compliant Ankles and Flat Feet for Improved Self-Stabilization and Passive Dynamics of the Biped Robot RunBot
Manoonpong, P., Kulvicius, T., Wörgötter, F., Kunze, L., Renjewski, D. & Seyfarth, A., 2011, *The 2011 IEEE-RAS International Conference on Humanoid Robots*. p. 276 - 281

Extraction of reward-related feature space using correlation-based and reward-based learning methods

Manoonpong, P., Wörgötter, F. & Morimoto, J., 21. Dec 2010, *Neural Information Processing: Theory and Algorithms - 17th International Conference, ICONIP 2010, Proceedings*. PART 1 ed. p. 414-421 8 p. (Lecture Notes in Computer Science; No. PART 1, Vol. 6443 LNCS).

Designing simple nonlinear filters using hysteresis of single recurrent neurons for acoustic signal recognition in robots

Manoonpong, P., Pasemann, F., Kolodziejski, C. & Wörgötter, F., 8. Nov 2010, *Artificial Neural Networks, ICANN 2010 - 20th International Conference, Proceedings*. PART 1 ed. p. 374-383 10 p. (Lecture Notes in Computer Science; No. PART 1, Vol. 6352 LNCS).

Self-Organized Adaptation of Simple Neural Circuits Enables Complex Robot Behavior

Steingrube, S., Timme, M., Wörgötter, F. & Manoonpong, P., 17. Jan 2010, In: *Nature Physics*. 6, p. 224-230

Biological inspiration for mechanical design and control of autonomous walking robots: towards life-like robots

Manoonpong, P., Wörgötter, F. & Pasemann, F., 2010, In: *International Journal of Applied Biomedical Engineering*. 3, 1, p. 1-12 12 p.

Using Efference Copy and a Forward Internal Model for Adaptive Biped Walking

Schröder-Schetelig, J., Manoonpong, P. & Wörgötter, F., 2010, In: *Autonomous Robots*. 29, 3-4, p. 357-366

Adaptive sensor-driven neural control for learning in walking machines

Manoonpong, P. & Wörgötter, F., 1. Dec 2009, *Neural Information Processing - 16th International Conference, ICONIP 2009, Proceedings*. PART 2 ed. p. 47-55 9 p. (Lecture Notes in Computer Science; No. PART 2, Vol. 5864 LNCS).

The development of a biomechanical leg system and its neural control

Renjewski, D., Seyfarth, A., Manoonpong, P. & Wörgötter, F., 1. Dec 2009, *2009 IEEE International Conference on Robotics and Biomimetics, ROBIO 2009*. p. 1894-1899 6 p. 5420535

Efference Copies in Neural Control of Dynamic Biped Walking

Manoonpong, P. & Wörgötter, F., 2009, In: *Robotics and Autonomous Systems*. 57, 11, p. 1140-1153

From biomechanical concepts towards fast and robust robots

Renjewski, D., Seyfarth, A., Manoonpong, P. & Wörgötter, F., 1. Dec 2008, *Advances in Mobile Robotics - Proceedings of the 11th International Conference on Climbing and Walking Robots and the Support Technologies for Mobile Machines*,

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Neural control and learning for versatile, adaptive, autonomous behavior of walking machines

Manoonpong, P. & Wörgötter, F., 1. Dec 2008, *Proceedings - 2008 International Conference on Advanced Computer Theory and Engineering, ICACTE 2008*. p. 24-28 5 p. 4736917

Sensor-Driven Neural Control for Omnidirectional Locomotion and Versatile Reactive Behaviors of Walking Machines
Manoonpong, P., Pasemann, F. & Wörgötter, F., 2008, In: *Robotics and Autonomous Systems*. 56, 3, p. 265-288

Dynamical systems in the sensorimotor loop: On the interrelation between internal and external mechanisms of evolved robot behavior

Hülse, M., Wischmann, S., Manoonpong, P., Von Twickel, A. & Pasemann, F., 20. Dec 2007, *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*. Lungarella, M., Pfeifer, R., Iida, F. & Bongard, J. (eds.). p. 186-195 10 p. (Lecture Notes in Computer Science, Vol. 4850 LNAI).

Neural Preprocessing and Control of Reactive Walking Machines: Towards Versatile Artificial Perception-Action Systems

Manoonpong, P., 1. Dec 2007, *Neural Preprocessing and Control of Reactive Walking Machines: Towards Versatile Artificial Perception-Action Systems*. Manoonpong, P. (ed.). (Cognitive Technologies , Vol. 17).

The RunBot architecture for adaptive, fast, dynamic walking

Manoonpong, P., Geng, T., Porr, B. & Wörgötter, F., 27. Sept 2007, *Proceedings - IEEE International Symposium on Circuits and Systems*. p. 1181-1184 4 p. (Proceedings of the IEEE International Symposium on Circuits and Systems).

Adaptive, Fast Walking in a Biped Robot under Neuronal Control and Learning

Manoonpong, P., Geng, T., Kulvicius, T., Porr, B. & Wörgötter, F., 2007, In: *PLOS Computational Biology*. 3, 7, p. 1305-1320

Modular reactive neurocontrol for biologically-inspired walking machines

Manoonpong, P., Pasemann, F. & Roth, H., 2007, In: *International Journal of Robotics Research*. 26, 3, p. 301-331

Neural Preprocessing and Control of Reactive Walking Machines: Towards Versatile Artificial Perception-Action Systems

Manoonpong, P., 2007, 2007 ed. Springer. 188 p. (Cognitive Technologies).

Reactive Neural Control for Phototaxis and Obstacle Avoidance Behavior of Walking Machines

Manoonpong, P., Pasemann, F. & Wörgötter, F., 2007, In: *International Journal of Mechanical Systems Science and Engineering*. 1, 3, p. 172-177

Exploring the dynamic walking range of the biped robot "RunBot" with an active upper-body component

Wörgötter, F., Geng, T. & Manoonpong, P., 1. Dec 2006, *Proceedings of the 2006 6th IEEE-RAS International Conference on Humanoid Robots, HUMANOIDS*. p. 418-424 7 p. 4115636

A modular neurocontroller for a sensor-driven reactive behavior of biologically inspired walking machines

Manoonpong, P., Pasemann, F. & Roth, H., 2006, In: *International Journal of Computing*. 5, 3, p. 75-86

Modular neural control for a reactive behavior of walking machines

Manoonpong, P., Pasemann, F. & Fischer, J., 12. Dec 2005, p. 403-408. 6 p.

Neural processing of auditory signals and modular neural control for sound tropism of walking machines

Manoonpong, P., Pasemann, F., Fischer, J. & Roth, H., 2005, In: *International Journal of Advanced Robotic Systems*. 2, 3, p. 223-234

Prizes

Sky Talent (“长空英才”)

Manoonpong, P. (Recipient), 2018

The Scandinavian Guest Professorship (Skandinavische Gastdozentur)

Manoonpong, P. (Recipient), 2015

Projects

DLife: A dung beetle's life: how miniature creatures perform extraordinary feats with limited resources

Manoonpong, P. (PI) & Larsen, J. (Co-PI)

01/11/2017 → 31/10/2021

Health-CAT: Health Care Assisting Technology

Manoonpong, P. (Project participant), Bodenhagen, L. (Coordinator), Juel, W. K. (Project participant), Haarslev, F. (Project participant), Palinko, O. (Project participant), Krüger, N. (Project participant), Kollakidou, A. (Project participant) & Naik, L. (Project participant)

01/02/2017 → 15/11/2020

SMOOTH: Innovation fund Denmark: Seamless huMan-robot interactiOn fOr THE support of elderly people

Krüger, N. (Head coordinator) & Manoonpong, P. (PI)

01/04/2017 → 31/03/2020

NEUrorobotic Technology for advanced Robot mOtor coNtrol

Manoonpong, P. (Head coordinator)

01/05/2018 → 30/04/2021

Plan4Act: Predictive Neural Information for Proactive Actions: From Monkey Brain to Smart House Control

Manoonpong, P. (PI) & Larsen, J. (CoI)

01/01/2017 → 31/12/2020

SMOOTH: Seamless huMan-robot interactiOn fOr THE support of elderly people

Bodenhagen, L. (Project participant), Palinko, O. (Project participant), Manoonpong, P. (Project participant), Haarslev, F. (Project participant), Krüger, N. (Coordinator), Juel, W. K. (Project participant), Kollakidou, A. (Project participant) & Naik, L. (Project participant)

01/04/2017 → 31/01/2021

SpikeCPG

Larsen, L. B. (PI), Strohmer, B. (PhD student) & Manoonpong, P. (Supervisor)

01/02/2019 → 28/02/2022

Teaching and supervision

Adaptive embodied locomotion control systems

Manoonpong, P.

01/09/2014 → ...

Bachelor, Master, PhD supervisions

Manoonpong, P.

01/01/2012 → ...

Bio-inspired Autonomous Systems (RM-BAS)

Jørgensen, J., Abbasi, A. R., Christensen, A., Xiong, X. & Manoonpong, P.

01/02/2022 → 30/06/2022

Bio-inspired Autonomous Systems (RM-BAS)

Jørgensen, J., Christensen, A., Abbasi, A. R., Manoonpong, P., Xiong, X., Shaikh, D. & Rano, I.
01/02/2021 → 30/06/2021

MSc thesis: Communication Through Softness — a Visual Aid for Handovers in Collaborative Robotics (40 ECTS)

Jørgensen, J. & Manoonpong, P.
01/09/2020 → 01/06/2021

RT-UAR Underactuated Robotics

Larsen, L. B. & Herp, J.
01/02/2018 → 01/06/2018

Tools of Artificial intelligence

Manoonpong, P.
01/02/2014 → ...

Activities

PhD examination committee

Manoonpong, P. (Examiner)
21. Feb 2020

Tensor of Master thesis

Manoonpong, P. (Examiner)
17. Jan 2020

Frontiers in Robotics and AI (Journal)

Manoonpong, P. (Peer reviewer)
2020

Human-Robot Interaction for Medical Robotics (Online lecture)

Manoonpong, P. (Guest lecturer)
2020

Embodied neural mechanisms for adaptive, versatile, autonomous behaviors of bio-inspired walking robots

Manoonpong, P. (Guest lecturer)
23. Dec 2019

NEUTRON: NEUrorobotic Technology for advanced Robot mOtor control

Manoonpong, P. (Guest lecturer)
7. Jun 2019

Mathematics and Robotics: From Numbers to Complex Robot Behaviors & Learning

Manoonpong, P. (Guest lecturer)
15. May 2019

Embodied neural mechanisms for adaptive, versatile, autonomous behaviors of bio-inspired walking robots

Manoonpong, P. (Guest lecturer)
11. Apr 2019

PhD examination committee

Manoonpong, P. (Examiner)
7. Jan 2019

DLife: Dung beetle-inspired robot development

Manoonpong, P. (Guest lecturer)
2019

Frontiers in Neurobotics (Journal)

Manoonpong, P. (Peer reviewer)
2019

IEEE (External organisation)

Manoonpong, P. (Member)
2019

The Youth Commission of International Society of Bionic Engineering (External organisation)

Manoonpong, P. (Member)
2019

NEUrorobic Technology for advanced Robot mOtor control (NEUTRON)

Manoonpong, P. (Guest lecturer)
4. Dec 2018

Bio-inspired Artificial Intelligence for Service Robots

Manoonpong, P. (Guest lecturer)
21. Nov 2018 → 24. Nov 2018

Robotic technology for the elderly and the disabled

Manoonpong, P. (Guest lecturer)
1. Jun 2018

Neural locomotion control of walking robots

Manoonpong, P. (Guest lecturer)
18. May 2018

Adaptive Behavior (Journal)

Manoonpong, P. (Peer reviewer)
2018

Frontiers in Neurobotics (Journal)

Manoonpong, P. (Peer reviewer)
2018

The 2nd International Youth Conference of Bionic Engineering (IYCBE2018)

Manoonpong, P. (Participant)
2018

The first joint workshop on Biology-inspired robotics and Robotics-inspired Biology (BIRRIB)

Manoonpong, P. (Participant)
2018

Exploiting frictional anisotropy from a scale-like material for energy-efficient robot locomotion

Manoonpong, P. (Guest lecturer)
13. Dec 2017 → 17. Dec 2017

From a dung beetle to a multifunctional robot: A bio-inspired approach

Manoonpong, P. (Guest lecturer)
29. Oct 2017

Exploiting frictional anisotropy from a passive scale-like material for energy-efficient locomotion of a bio-inspired walking robot

Manoonpong, P. (Guest lecturer)
28. Jun 2017

Workshop on Bio-inspired Robotics

Larsen, J. C. (Organizer) & Manoonpong, P. (Organizer)
24. Jun 2017

Building neural circuits for bio-inspired bodies

Manoonpong, P. (Guest lecturer)
15. Jun 2017

Enhanced Locomotion Efficiency of a Bio-inspired Walking Robot using Contact Surfaces with Frictional Anisotropy

Manoonpong, P. (Guest lecturer)
13. Jun 2017 → 14. Jun 2017

Bio-inspired Robotics: From Biology to Technology

Manoonpong, P. (Guest lecturer)
5. Jan 2017

Intelligent Robots: Machines that Act, Learn, and Adapt by themselves

Manoonpong, P. (Lecturer)
8. Dec 2016

Embodied AI & Neurorobotics

Manoonpong, P. (Lecturer)
25. Nov 2016

Learning from a Dung beetle to Advance Robot Development

Manoonpong, P. (Lecturer)
10. Nov 2016

Bio-inspired adaptive combinatorial learning for goal-directed behaviors

Manoonpong, P. (Lecturer)
8. Nov 2016

Embodied neural mechanisms for adaptive, versatile, autonomous behaviors of bio-inspired walking robots

Manoonpong, P. (Lecturer)
28. Sept 2016

PhD examination committee

Manoonpong, P. (Examiner)
16. Sept 2016

Exploiting Neural Mechanisms: "From neural dynamics and synaptic plasticity to adaptive locomotion: An embodied neural computation approach"

Manoonpong, P. (Speaker)
23. Aug 2016

Exploiting Soft Materials, Biomechanical Structures, and Neural Mechanisms for Adaptive Locomotion: Lessons Learned From Nature

Manoonpong, P. (Organizer)
23. Aug 2016

The 14th International Conference on the Simulation of Adaptive Behavior

Larsen, J. C. (Organizer) & Manoonpong, P. (Organizer)
23. Aug 2016

Biologically inspired robots

Manoonpong, P. (Lecturer)
5. Jun 2016 → 9. Jun 2016

Reinforcement Learning

Manoonpong, P. (Lecturer)
14. Apr 2016

Locomotion in invertebrates and robots

Manoonpong, P. (Other)
9. Mar 2016

Tools of Artificial intelligence (RMAI2-U1)

Manoonpong, P. (Lecturer)
5. Feb 2016 → ...

Embodied neural computation for locomotion and navigation of insect-like robots

Manoonpong, P. (Lecturer)
21. Jan 2016

Frontiers in Neurorobotics (Journal)

Manoonpong, P. (Editor)
2016

Bio-inspired robotics for the factory of the future

Manoonpong, P. (Speaker)
15. Dec 2015

Sharing experience & knowledge

Manoonpong, P. (Speaker)
14. Dec 2015

Locomotion in invertebrates and robots

Manoonpong, P. (Participant)
25. Nov 2015 → 26. Nov 2015

PhD thesis examiner

Manoonpong, P. (Advisor)
19. Nov 2015

From Neural Dynamics and Synaptic Plasticity to Complex Behaviors: An Embodied Neural Computation Approach

Manoonpong, P. (Lecturer)
18. Nov 2015

Neural Dynamics and Synaptic Plasticity

Manoonpong, P. (Lecturer)
18. Nov 2015

Building neural circuits for complex behaviors of walking robots

Manoonpong, P. (Lecturer)
17. Nov 2015

Neural Control, Learning, and Memory for Complex Behaviors of Bio-inspired Walking Machines

Manoonpong, P. (Speaker)
2. Nov 2015

Embodied Artificial Intelligence

Manoonpong, P. (Other)
Nov 2015 → Feb 2016

Embodied sensorimotor interaction: from locomotion to collective behavior workshop

Manoonpong, P. (Organizer)
28. Oct 2015

Plasticity in a recurrent neural network for complex behaviors of a walking robot

Manoonpong, P. (Speaker)
28. Oct 2015

Self-organized sensorimotor coordination for adaptive locomotion of artificial behaving machines

Manoonpong, P. (Lecturer)
27. Oct 2015

Christian-Albrechts-University Kiel

Manoonpong, P. (Visiting researcher)
1. Oct 2015 → 29. Feb 2016

Adaptive Embodied Locomotion Control Systems (RMAI3-U1)

Manoonpong, P. (Lecturer)
4. Sept 2015 → ...

Project in Artificial Intelligence (RMAI4-U1)

Manoonpong, P. (Lecturer)
Sept 2015 → ...

Robotic technology

Manoonpong, P. (Speaker)
3. Aug 2015

How to do research

Manoonpong, P. (Lecturer)
Aug 2015 → ...

Bio-inspired robotics

Manoonpong, P. (Lecturer)
22. Jul 2015

Bio-inspired robotics

Manoonpong, P. (Lecturer)
14. Jul 2015

King Mongkut's University of Technology Thonburi (KMUTT)

Manoonpong, P. (Visiting researcher)
21. Jun 2015 → 17. Aug 2015

Multiple Decoupled CPGs with Local Sensory Feedback for Adaptive Locomotion Behaviors of Bio-inspired Walking Robots

Manoonpong, P. (Speaker)
29. May 2015

Embodied Artificial Intelligence Workshop

Manoonpong, P. (Speaker)
11. May 2015

Reinforcement Learning

Manoonpong, P. (Lecturer)
22. Apr 2015

Tools of Artificial intelligence (RMAI2-U1)

Manoonpong, P. (Lecturer)
6. Feb 2015 → ...

Bio-inspired Robots

Manoonpong, P. (Lecturer)
8. Jan 2015

Bachelor thesis co-supervisor & co-examiner

Manoonpong, P. (Advisor)
2015

Frontiers in Neurobotics (Journal)

Manoonpong, P. (Associate editor)
2015 → ...

Frontiers in Neurobotics (Journal)

Manoonpong, P. (Associate editor)
2015

Neural Control, Learning, and Memory of Bio-inspired Walking Robots

Manoonpong, P. (Lecturer)
18. Dec 2014

Neural Control, Learning, and Memory for Complex Behaviors of Autonomous Walking Robots

Manoonpong, P. (Lecturer)
21. Nov 2014

Adaptive Embodied Locomotion Control Systems (RMAI3-U1)

Manoonpong, P. (Lecturer)
2014 → ...

Tools of Artificial intelligence (RMAI2-U1)

Manoonpong, P. (Lecturer)

2014 → ...

Advances in Robotics Research (Journal)

Manoonpong, P. (Member of editorial review board)

2013 → ...

International Journal of Advanced Robotic Systems (Journal)

Manoonpong, P. (Member of editorial review board)

2013 → ...