

Curriculum Vitæ

Angelo ARLEO

Director of Research CNRS – VISION INSTITUTE

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First name: Angelo
Date of birth: 17/08/1969
Nationality: Italian
Marital status: Married, 2 children
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CURRENT APPOINTMENTS

2014 – Head of the Aging in Vision & Action lab, Institute of Vision, INSERM CNRS UPMC, Paris, France
 2014 – 2019 Chairholder of the ANR–ESSILOR Research Chair Silversight, Institute of Vision, Paris, France

PREVIOUS POSITIONS & TRAINING

2007–2013 Head of the Adaptive NeuroComputation lab, CNRS UPMC, Paris, France
 2004–2006 Associate researcher at CSL Sony Paris, France
 2001–2003 Postdoctoral fellow at Collège de France CNRS, Paris, France
 1997–2000 PhD, Swiss Federal Institute of Technology Lausanne (EPFL), Switzerland
 1996–1997 Internship at the Nomadic Technologies Inc., Palo Alto, USA
 1995–1996 Internship at the EU Joint Research Center (JRC), Ispra, Italy

ACADEMIC APPOINTMENTS & EDUCATION

2012 DR2 CNRS, INSB, Sec. 26
 2007 CR1 CNRS, INSB, Sec. 26
 2005 HDR in Life Science, University Pierre & Marie Curie (UPMC), Paris, France
 1997–2000 PhD in Computational Neuroscience, EPFL, Switzerland
 1991–1996 MSc in Artificial Intelligence, Univ. of Mathematical Science of Milan, Italy

BIOSKETCH

A. Arleo is a Director of Research (DR2) at CNRS, and he is a team leader at the Institute of Vision, where he primarily explores the perceptual and cognitive consequences of visual aging in humans. He is the Chairholder of the ANR Research Chair SilverSight, which pioneers fundamental research to foster innovative health and IT developments. Overall, A. Arleo's research interests have been centered on the adaptive processes mediating the ability of animals and humans to (i) interact with the environment through manifold sensory modalities, and (ii) learn contextual representations underpinning cognitive functions. His approach combines experimental and computational tools in the attempt of studying brain information processes across multiple organization levels, ultimately providing the basis for a better understanding of the action-perception loop.

He received a MSc degree from the Univ. of Mathematical Science of Milan, Italy, in 1996. He joined W. Gerstner's Laboratory of Computational Neuroscience at the EPFL (Swiss Federal Institute of Technology Lausanne, Switzerland) in 1997, where he received his PhD in 2000. He did a postdoctoral training in experimental neuroscience in A. Berthoz's Laboratory of Physiology of Perception and Action at Collège de France, Paris, from 2001 to 2003. He worked as a R&D fellow at CSL Sony, Paris, from 2004 to 2006. He received his Habilitation to Direct Research (HDR) in Life Science from the Univ. Pierre and Marie Curie, Paris, in 2005. He was appointed as CR1 CNRS researcher in 2007. From 2007 to 2013, he directed the Adaptive NeuroComputation (ANC) group in the unit of Neurobiology of Adaptive Processes, directed by J. Mariani, at the Univ. Pierre & Marie Curie, in Paris. In 2012, the CNRS endorsed his action by promoting him DR2. In 2014, A. Arleo's team joined the Vision Institute, directed by J.-A. Sahel, to set the new Aging in Vision & Action group. In 2015, he was awarded the Chairholdership of the ANR research chair Silversight.

Keywords. *Visual aging, spatial cognition, active visual exploration, neural coding, learning & memory, autonomy loss, visual aids, rehabilitation.*

SCIENTIFIC RESPONSIBILITIES & RESEARCH MANAGEMENT

Team leaderships

- 2014– Head of the Aging in Vision & Action team, Vision Institute UMR 7210
 2015–2019 Director of the Research Chair Silversight (ANR-Essilor), Vision Institute UMR 7210
 ~20members (at present)
- 2007–2013 Head of the Adaptive NeuroComputation group, Neurobiology of Adaptive Processes Lab, UMR 7210
 ~10 members in 2013

Research contracts and collaborative projects

- 2014–2019 Joint Research Laboratory Vision Institute–Essilor, role: PI, budget: 2.5 M€
 2015–2019 ANR Research Chair “Silversight”, role: PI - Chairholder, budget: 1.6 M€
 2015–2017 EU MSCA-658479 H2020 “SpikeControl”, role: coordinator, budget: 173 K€
 2007–2010 EU IST-028056-IP 6th FP, 12 partners, role: PI, budget: 300 K€
 2007–2010 EU IST-027819-IP 6th FP, 9 partners, role: PI, budget: 150 K€
 2009–2012 ANR-09-EMER-005-02, 3 partners, role: PI, budget: 145 K€
 2011–2012 UPMC EME1114, 3 partners, role: Coordinator, budget: 100 K€
 2010–2013 DGA, N° 2010-168087/DGA/DS/MRIS, role: PI, budget: 120 K€
 2009–2013 CASPUR, Prot. 487/11, 3 partners, 280 K CPU-hours, role: PI
 2008–2009 UPMC, 2 partners, role: coordinator, budget: 40 K€
 2009 FRM research Grant, role: PI, budget: 30 K€

Total amount of funds raised for research: ~5 M€

INTERNATIONAL VISIBILITY

Summary of scientific contributions (see the publication list for more details)

- 27 articles in international journals
- 41 invited talks to international & national conferences/institutions
- 33 articles in peer-reviewed proceedings
- 60 conference abstracts (both poster and oral presentations)
- 1 edition of a special issue of an international journal
- 3 book chapters
- 2 books/dissertations
- 2 software copyrights/licences

Total number of contributions: 128 (~60 as last author); total number of citations: 1100 (Google scholar)

Highest number of citations per paper: 261 (Google scholar); H-index: 15 (Google scholar)

Scientific collaborations (n=14 international; n=10 national)

- 2015– Gollisch T, University of Göttingen, Germany
 2015–2018 Chavarriaga R, Swiss Federal Institute of Technology Lausanne EPFL, Switzerland
 2015–2018 Serre T, Brown University, USA
 2015–2018 Thorpe S, CNRS - Cerco, Toulouse, France
 2015–2018 Delcourt C, University of Bordeaux, France
 2012–2016 Micera S, Swiss Federal Institute of Technology Lausanne EPFL, Switzerland
 2010–2015 Gerstner W, Swiss Federal Institute of Technology Lausanne EPFL, Switzerland
 2011–2015 Procyk E, INSERM University Lyon, France
 2011–2015 Save E, University Aix en Provence, France
 2010–2013 Otani S, Ryotokuji University, Japan (prev. UMR7102)
 2011–2012 Hayward V, University Pierre & Marie Curie Paris, France
 2007–2012 Ros E, University of Granada, Spain
 2009–2012 Johansson RS, University of Umeå, Sweden
 2009–2011 Benchenane K, CNRS, Paris, France
 2011–2012 Jörntell H, University of LUND, Sweden
 2007–2010 D’Angelo E, University of Pavia, Italy
 2007–2010 Nieuws T, Italian Institute of Technology, Italy
 2007–2010 van der Smagt P, German Research Center for Aeronautics & Space, DLR, Germany
 2004–2005 Brunel N, University Descartes P5, Paris, France
 2004–2013 Wiener S, Collège de France, Paris, France
 2004 Smeraldi F, Queen Mary University London, UK

- 2004–2012 Rondi-Reig L, University Pierre & Marie Curie Paris, France
 2004–2008 Meyer JA, University Pierre & Marie Curie Paris, France
 2000–2001 Brandner C, University of Lausanne, Switzerland

Invited scientific stays in international Institutions

- 2008 University of Pavia, Department of Cellular & Molecular Physiological

Invited talks

25 International conferences and/or institutions

- 2016 Institute of Psychology, University of Lausanne, Switzerland
 2016 International Conference NeuroMath: cell, network and data analysis, Cortona, Italy
 2013 International BCCN Sparks Workshop on NeuroEngineering the Brain, Munich, Germany
 2013 International Workshop on Neuromorphic and Brain-Based Computing Systems, Grenoble, France
 2013 International Workshop on Cerebellum Models, CNS 2013, Paris, France
 2013 Okinawa OIST Computational Neuroscience
 2013 International Workshop on Early Touch, CNS 2013, Paris, France
 2012 Italian Institute of Technology, Genova, Italy
 2011 International Work Conference on Artificial Neural Networks, Torremolinos, Spain
 2011 BioRobotics Institute, Scuola Superiore Sant'Anna, Pise, Italy
 2010 International Conference on Mathematical Biology, Cagliari, Italy
 2009 IEEE International Conference on Humanoid Robots, Paris, France
 2007 Institute of Physiology, University of Lausanne, Switzerland
 2006 Brain & Mind Institute, EPFL, Switzerland
 2004 International Symposium on Spatial Perception and Cognition, APA Annual Meeting, USA
 2004 International Workshop on Neurorobotic Models in Neuroscience and Neuroinformatics, USA
 2004 International Workshop on Towards Artificial Rodents, UPMC, Paris
 2003 International Conference on Embodied Artificial Intelligence, Max Planck Institute, Germany
 2003 International Symposium on Cognitive Robotics, Max Planck Institute, Germany
 2003 Brain & Mind Institute, EPFL, Switzerland
 2002 Brain & Mind Institute, EPFL, Switzerland
 2002 International Workshop on Theoretical Robotics, UK
 2002 Workshop on Brain bases of Spatial Orientation, France
 2001 XXVII International Ethological Conference, Germany
 1999 Institute for Systems, Informatics and Safety, Joint Research Centre (EU), Italy

16 National conferences and/or institutions

- 2016 Ecole Couleur Lumière et leurs enjeux de société, Roussillon en Provence
 2016 Ecole des Mines d'Alès
 2016 Essilor R&D, Paris
 2015 Laboratory for Analysis and Architecture of Systems, Toulouse
 2014 Essilor R&D, Paris
 2013 Institut du Fer à Moulin, Paris
 2013 Vision Institute, Paris, Paris
 2013 CEA - Nano-INNOV Center, Saclay
 2012 CNRS Defisens workshop TACT, Lyon
 2011 GDT Mathematics & Neuroscience, Institut Henri Poincaré, Paris
 2011 Unit of Neurophysics & Physiology, University Descartes P5, Paris
 2011 Unit of Neurobiology of Executive Processes, Inserm Lyon
 2011 Symposium Maths & Brain, Institute of Mathematics Jussieu UPMC, Paris
 2003 AnimatLab, Unit of Computer Science, UPMC, Paris
 2003 Symposium Maths & Brain, Institute of Mathematics Jussieu UPMC, Paris
 2001 Unit of Physiology of Perception and Action, Collège de France, Paris

5 oral presentations (selected but not invited)

- 2001 Fifth European Workshop on Reinforcement Learning, The Netherlands
 2000 Sixth International Conference on Simulation of Adaptive Behavior, SAB'00, France
 1999 International Conference on Artificial Neural Networks, ICANN'99, UK
 1999 Workshop on Embodied Artificial Intelligence, France
 1998 Dixième Journée des Jeunes Chercheurs en Robotique, France

Memberships of boards & committees, collective responsibilities*Editorial boards (n=4)*

- 2013– ISTE-Hermes-Wiley, Neural Engineering, role: Series Editor
- 2007– Frontiers in Computational Neuroscience, role: Review Editor
- 2007– Frontiers in Computational Neuroscience, role: Review Editor
- 2007 Journal of Integrative Neuroscience, role: Guest Editor

Advisory boards & evaluation panels

- 2014 European Commission, H2020 FET Call PROAC
- 2014 UPMC, VAE ED3C
- 2014 3 Professorship Selection Committees, UPMC PR CNU 69, PR CNU 61, MCF CNU 61
- 2013 European Commission, FET Proactive ICT Call 10
- 2007– 16 PhD committees
- 2001– Reviewer for 20 international journals
- 2012– Commission of HDR and PhD thesis in Life Science, UPMC
- 2012 European Commission, FET Proactive ICT Call 9
- 2012 Natural Environment Research Council, UK
- 2011 Human Frontier Science Program
- 2010 Association Française contre les Myopathies
- 2009 Professorship Selection Committees, UPMC MCF CNU 61
- 2011 UPMC-Emergence Programme
- 2011 PEPH CNRS
- 2007 Fondation pour la Recherche Médicale
- 2003 European Commission, Cognitive Systems Call

Programme committees of international conferences (n=16)

- 2016 International Conference on the Simulation of Adaptive Behavior
- 2015 International Work Conference on Artificial Neural Networks
- 2014 International Conference on the Simulation of Adaptive Behavior
- 2013 International Workshop on Neuromorphic and Brain-based Computing Systems
- 2013 International Work Conference on Artificial Neural Networks
- 2012 International Workshop on Modern Evolutionary Algorithms, (co-organiser)
- 2012 International Conference on the Simulation of Adaptive Behavior
- 2012 EuroHaptics, 2012
- 2012 IEEE International Conference on Biomedical Robotics and Biomechatronics
- 2011 International Work Conference on Artificial Neural Networks
- 2010 International Conference on Simulation of Adaptive Behaviour
- 2010 IEEE International Conference on Biomedical Robotics and Biomechatronics
- 2009 International Workshop of Tactile Sensing, Conference Humanoids
- 2008 International Conference on the Simulation of Adaptive Behavior
- 2006 International Workshop on Spatial Cognition (co-organiser)
- 1999 International Conference on Genetic and Evolutionary Computation

Membership of administration boards (n=3)

- 2015– Scientific board of the SilverSight Chair, President
- 2015– Director board of the SilverSight Chair
- 2011 Board laboratory, UMR 7102 Neurobiology of Adaptive Processes, UPMC

Membership of international organisation & bodies

Faculty Member of the Organization for Computational Neuroscience (OCNS)
 FENS, Federation of European Neuroscience Societies
 IBRO, International Brain Research Organisation
 French Society for Neuroscience

Other memberships & collective responsibilities

- 2015– ENP (Ecole des Neurosciences Paris Ile de France)
- 2010– Correspondent Europe/International CNRS–INSB

AWARDS, HONORS, GRANTS & COMPETITIONS

- 2015 Awarded the Chairholdership of the ANR Research Chair Silversight (4 years)
- 2012 Promotion to Director of Research DR2 at CNRS, national competition
- 2007 Tenured appointment as “Chargé de recherche CR1” at CNRS, national competition
- 2012 Qualification to the functions of Professor of University, national competition (4 years)
- 2006 Qualification to the functions of Professor of University, national competition (4 years)
- 2003 Individual fellowship “Associate Researcher CNRS”
- 2002 Individual fellowship EU Marie Curie
- 2001 Individual fellowship Swiss NSF
- 2001 Individual fellowship EU Neuroinformatics
- 2001 Price from Swiss Annahim Foundation
- 2001 Price for the best PhD thesis of year 2000, EPFL, Switzerland

IN-SERVICE TRAINING

- 2015 Training to emergency care (AFGSU)
- 2011 Managerial communication and leadership
- 2009– First-aid rescue worker
- 2009 Team leadership
- 2007-10 Intensive English
- 2001 EU Advanced Course in Computational Neuroscience

INVOLVEMENT IN RESEARCH TRAINING AND TEACHING**Mentoring post-doctoral fellows ($n=8$)**

- 2016–2018 Ramanoel S (ANR Research Chair grant)
- 2015–2018 Tartaglia E (ANR Research Chair grant)
- 2015–2018 Tatur G (ANR Research Chair grant)
- 2015–2018 Lagrené K (ANR Research Chair grant)
- 2015–2017 Luque N (EU grant)
- 2014–2017 Allard R (Joint Research Laboratory Vision Institute–Essilor grant)
- 2009–2014 Bologna LL (EU grant, 2009-11; UPMC grant, 2012-3; Vision Institute–Essilor grant, 2014)
- 2008–2013 Sheynikhovich D (UPMC grant, 2008-9; ANR grant, 2009-12; Ater 2012-3)

Supervision of PhD students ($n=12$)

- 2016–2019 LI T (ANR Research Chair grant)
- 2016–2019 Nael V (CIFRE grant Essilor)
- 2016–2019 Huth J (ANR Research Chair grant)
- 2015–2018 Bécu M (Vision Institute–Essilor grant)
- 2015–2018 Barhomi Y (ANR Research Chair grant)
- 2011–2015 Logiaco L (Doctoral fellowship ENS), now postdoc at Columbia, NY, USA
- 2012–2015 Jehenne B (Doctoral fellowship)
- 2010–2014 Duvelle E (DGA grant), now postdoc at UCL, UK
- 2010–2013 Pinoteau J (DGA grant), now at ALTEN, France
- 2007–2011 Passot JB (Doctoral fellowship 2007-10; ANR grant 2010-1), now at Brain Corporation USA
- 2007–2010 Martinet LE (EU grant 2007-10), now postdoc at Boston University, USA
- 2007–2010 Brasselet R (EU grant 2007-9; FRM grant 2009-10), now postdoc at Trento University, Italy

International & national agreements for joint supervision of PhD students

- 2016–2019 EPFL, Switzerland; Chavarriaga R, co-supervision of LI T
- 2016–2019 CERCO CNRS; Thorpe S, co-supervision of Huth J
- 2015–2018 Brown University, USA; Serre T, co-supervision of Barhomi Y
- 2012–2015 EPFL, Switzerland; Micera S, co-supervision of Jehenne B
- 2011–2015 EPFL, Switzerland; Gerstner W, co-supervision of Logiaco L
- 2010–2014 University Aix en Provence, France; Save E, co-supervision of Duvelle E

Supervision of graduate & undergraduate students ($n>30$)

- 2007– Master (M1, M2) students, engineer trainees, licence student internships

Teaching activity & responsibilities

Coordination of Master modules

- 2008– Master BI, Neuroscience, UPMC, UE “Neural Networks”, 50 h/year
2015– Master of Vision Science, Univ. d’Orsay, UE “Visual Cognition”, 14 h/year
2013 Master of Bioinformatics, UPMC, UE “Computational Neuroscience”, 30 h/year

Teaching at Masters, Doctoral schools, and summer schools

- 2015– Master of Cognitive Science (CogMaster), ENS-EHESS-Paris 5, 2 h/year
2015– Master of Vision Science, Univ. d’Orsay, 7 h/year
2014– Master BI, Biology of Aging, 2 h/year
2013 OIST Computational Neuroscience Summer School, Okinawa, Japan, 3 h
2013 Marie Curie Training “Prototouch”, France, 3 h
2008– Master BI, Neuroscience, UPMC, teaching at 3 UEs, 10 h/year
2007–14 Master in Artificial Intelligence, UPMC, 2 h/year
2013 Master in Bioinformatics, UPMC, 3 h/year
2012 Doctoral School on Biorobotics, Scuola Superiore Sant’Anna, Pisa, Italy, 3 h
2002–6 Doctoral School on Neuroscience, Univ Geneva & Lausanne, Switzerland, 3 h/year
2002 Summer School on Integrative Neuroscience, Collège de France, France, 3 h
2003 Doctoral School on Cybernetics, Max Planck Institute, Germany, 2 h

Publication List

Angelo ARLEO

Director of Research CNRS – VISION INSTITUTE

LIST OF PUBLICATIONS

International Journals

1. Logiacco L, Quilodran R, Procyk E, Arleo A (2015) Spatiotemporal spike coding of behavioral adaptation in the dorsal anterior cingulate cortex. *PLoS Biology*, 13(8):e1002222.
2. Arleo A, Déjean C, Allegraud P, Khamassi M, Zugaro MB, Wiener SI (2013) Optic flow stimuli update anterodorsal thalamus head direction neuronal activity in rats. *Journal of Neuroscience*, 33(42):16790-5. [highlight in F1000Prime in 2014]
3. Sheynikhovich D, Otani S, Arleo A (2013) Dopaminergic control of LTD/LTP threshold in prefrontal cortex. *Journal of Neuroscience*, 33(34):13914-26.
4. Bologna LL, Pinoteau J, Passot J-B, Garrido JA, Vogel J, Ros Vidal E, Arleo A (2013) A closed-loop neurobotic system for fine touch sensing. *Journal of Neural Engineering*, 10(4):046019. [journal's highlight of 2013]
5. Passot J-B, Luque NR, Arleo A (2013) Coupling internal cerebellar models enhances online adaptation and supports online consolidation in sensorimotor tasks. *Frontiers in Computational Neuroscience*, 7(95).
6. Jarlier F* & Arleo A*, Petit G, Fouquet C, Burguière E, Rondi-Reig L (2013) A Navigation Analysis Tool (NAT) to assess spatial behavior in open-field and structured mazes. *Journal of Neuroscience Methods*, 215(2):196-209. (* shared 1st authorship)
7. Bengtsson F, Brasselet R, Johansson RS, Arleo A, Jörntell H (2013) Integration of sensory quanta in cuneate nucleus neurons *in vivo*. *PLoS ONE*, 8(2):e56630.
8. Passot J-B, Sheynikhovich D, Duvelle E, Arleo A (2012) Contribution of cerebellar sensorimotor adaptation to hippocampal spatial memory. *PLoS ONE*, 7(4):e32560.
9. Martinet L-E, Sheynikhovich D, Benchenane K, Arleo A (2011) Spatial Learning and Action Planning in a Prefrontal Cortical Network Model. *PLoS Computational Biology*, 7 (5):e1002045.
10. Brasselet R, Johansson RS, Arleo A (2011) Quantifying neurotransmission reliability through metrics based information analysis. *Neural Computation*, 23(4):852-81.
11. Sheynikhovich D, Otani S, Arleo A (2011) The role of tonic and phasic dopamine for long-term synaptic plasticity in the prefrontal cortex: a computational model. *Journal of Physiology P*, 105(1-3):45-52.
12. Bologna LL, Pinoteau J, Brasselet R, Maggiali M, Arleo A (2011) Encoding/decoding of first and second order tactile afferents in a neurobotic application. *Journal of Physiology P*, 105(1-3):25-35.
13. Arleo A, Nieuwenhuis T, Bezzi M, D'Errico A, D'Angelo E, Coenen OJMD (2010) How synaptic release probability shapes neuronal transmission: Information theoretic analysis in a cerebellar granule cell, *Neural Computation*, 22(8):2031-58.
14. Sheynikhovich D, Arleo A (2010) A reinforcement learning approach to model interactions between landmarks and geometric cues during spatial learning. *Brain Research*, 1365:35-47.
15. Sheynikhovich D, Chavarriaga R, Strosslin T, Arleo A, Gerstner W (2009) Is there a geometric module for spatial orientation? Insights from a rodent navigation model, *Psychological Review*, 116(3):540-66.
16. Arleo A, Rondi-Reig L (2007) Multimodal sensory integration and concurrent navigation strategies for spatial cognition in real and artificial organisms, *Journal of Integrative Neuroscience*, 6(3):327-66.
17. Arleo A, Chavarriaga R (2007) Multisensory integration and parallel memory systems for spatial cognition (editorial). *Journal of Integrative Neuroscience*, 6(3):1-4.
18. Burguière E, Arleo A, Hojjati MR, Elgersma Y, DeZeeuw CI, Berthoz A, Rondi-Reig L (2005) Spatial navigation impairment in mice lacking cerebellar LTD: a motor adaptation deficit? *Nature Neuroscience*, 8(10):1292-4.
19. Boucheny C, Brunel N, Arleo A (2005) A continuous attractor network model without recurrent excitation: maintenance and integration in the head direction cell system, *Journal of Computational Neuroscience*, 18(2):205-27.
20. Arleo A* & Zugaro MB*, Burguière E, Déjean C, Khamassi M, Wiener SI (2004) Rat anterodorsal thalamic head direction neurons depend upon dynamic visual signals to select anchoring landmark cues, *European Journal of Neuroscience*, 20:530-6. (* shared 1st authorship)
21. Arleo A, Smeraldi F, Gerstner W (2004) Cognitive navigation based on non-uniform Gabor space sampling, unsupervised growing networks, and reinforcement learning, *IEEE Transactions on Neural Networks*, 15(3):639-52.

22. Degris T, Sigaud O, Wiener SI, Arleo A (2004) Rapid response of head direction cells to reorienting visual cues: a computational model, *Neurocomputing*, 58-60C:675-82.
23. Zugaro MB, Arleo A, Berthoz A, Wiener SI (2003) Rapid spatial reorientation and head direction cells, *Journal of Neuroscience*, 23(8):3478-82.
24. Wiener SI, Arleo A (2003) Persistent activity in limbic system neurons: neurophysiological and modelling perspectives, *Journal of Physiology P*, 97(4-6):547-55.
25. Arleo A, Gerstner W (2001) Spatial orientation in navigating agents: modeling head-direction cells, *Neurocomputing*, 38-40(1-4):1059-65.
26. Arleo A, Gerstner W (2000) Spatial cognition and neuromimetic navigation: A model of hippocampal place cell activity, *Biological Cybernetics*, 83:287-99.
27. Arleo A, Millán J del R, Floreano D (1999) Efficient learning of variable-resolution cognitive maps for autonomous indoor navigation, *IEEE Transactions on Robotics and Automation*, 15(6):990-1000.

Peer-reviewed proceedings

1. Jehenne B, Raspopovic S, Capogrosso M, Arleo A & Micera S (2015) Recording properties of an electrode implanted in the peripheral nervous system: a human computational model. In *IEEE EMBS Neural Engineering*.
2. Pinoteau J, Bologna LL, Garrido J, Arleo A (2012) A closed-loop neurobotic system for investigating Braille-reading finger kinematics. *LNCS–Haptics*, 7282:407-18.
3. Sheynikhovich D, Grèzes F, King JR, Arleo A (2012) Exploratory behaviour depends on multisensory integration during spatial learning. *LNCS–Artificial Neural Networks* (in press).
4. Bologna LL, Pinoteau J, Garrido J, Arleo A (2012) Active tactile sensing in a neurobotic Braille-reading system. *Proceedings of 4th IEEE Int Conf on Biomedical Robotics and Biomechatronics*, 1925-30.
5. Basselet R, Johansson RS, Arleo A (2011) Isometric coding of spiking haptic signals by peripheral somatosensory neurons. *LNCS–Advances on Computational Intelligence*, 6691:528-36.
6. Martinet L-E, Arleo A (2010) A cortical column model for multiscale spatial planning. *LNAI–Simulation of Adaptive Behavior*, 6226:347-58.
7. Passot J-B, Luque N, Arleo A (2010) Internal models in the cerebellum: a coupling scheme for online and offline learning in procedural tasks. *LNAI–Simulation of Adaptive Behavior*, 6226:435-46.
8. Sheynikhovich D, Dolle L, Chavarriga R, Arleo A (2010) Minimal model of strategy switching in the plus-maze navigation task. *LNAI–Simulation of Adaptive Behavior*, 6226:390-401.
9. Basselet R, Arleo A (2010) Local metrical information: application to the perceptual magnet effect. *Proceedings of the 5th French Conference on Computational Neuroscience*, 132-6.
10. Sheynikhovich D, Otani S, Arleo A (2010) A modeling study of the role of tonic vs. phasic dopamine input to the prefrontal cortex. *Proceedings of the 5th French Conference on Computational Neuroscience*, 77-81.
11. Bologna LL, Basselet R, Maggiali M, Arleo A (2010) Effective encoding/decoding of spiking signals from an artificial touch sensor. *Proceedings of the 5th French Conference on Computational Neuroscience*, 120-5.
12. Martinet L-E, Arleo A (2010) A model of prefrontal columnar organisation for multiscale spatial planning. *Proceedings of the 5th French Conference on Computational Neuroscience*, 167-72.
13. Passot JB, Arleo A (2010) A new coupling scheme of cerebellar internal models: online and offline adaptation in procedural tasks. *Proceedings of the 5th French Conference on Computational Neuroscience*, 95-9.
14. Bologna LL, Basselet R, Maggiali M, Arleo A (2010) Neuromimetic encoding/decoding of spatiotemporal spiking from an artificial touch sensor. *Proceedings of the International Joint Conference on Neural Networks (IJCNN)*.
15. Basselet R, Johansson RS, Arleo A (2009) Optimal context separation of spiking haptic signals by second-order somatosensory neurons. *Advances in Neural Information Processing Systems*, 22:180-8.
16. Passot JB, Rondi-Reig L, Arleo A (2009) Cerebellum and spatial cognition: a connectionist approach. *Proceedings of the European Symposium on Artificial Neural Network*, 17:287-92.
17. Martinet LE, Passot JB, Fouque B, Meyer JA, Arleo A (2008) Map-based spatial navigation: A cortical column model for action planning. *LNAI–Spatial Cognition*, 5248:39-55.
18. Martinet LE, Fouque B, Passot JB, Meyer JA, Arleo A (2008) Modelling the cortical columnar organisation for topological state-space representation, and action planning. *LNAI–Simulation of Adaptive Behavior*, 5040:137-47.
19. Bezzi M, Arleo A, Coenen OJM, Nieuwenhuis T, D'Angelo E (2006) Quantitative characterization of information transmission in a single neuron. *Proceedings of the 1st French Conference on Computational Neuroscience*, 134-6.
20. D'Angelo E, Nieuwenhuis T, Bezzi M, Arleo A, Coenen OJMD (2005) Modeling synaptic transmission and quantifying information transfer in the granular layer of the cerebellum. *LNCS–Computational Intelligence and Bioinspired Systems*, 3512:107-14.

21. Rondi-Reig L, Petit G, Arleo A, Burguière E (2005) The starmaze: a new paradigm to characterize multiple spatial navigation strategies. *Proceedings of the 5th International Conference on Methods and Techniques in Behavioral Research*, 386-390.
22. Bezzi M, Arleo A, Coenen OJMD (2005) Exploring the neural code by information theory. *Proceedings of the NeuroMat Workshop*, 183-9.
23. Bezzi M, Nieuws T, Arleo A, D'Angelo E, Coenen OJMD (2005) Reti neuronali impulsive per il controllo di robot: il progetto SpikeForce. *Atti del Convegno Nazionale ANIPLA-BIOSYS*, 226-35.
24. d'Erfurth A, Peyrache A, Guillot A, Arleo A (2005) Un modèle computationnel biomimétique de navigation pour le robot-rat Psikharpax. *Proceedings of the National Conference RJCIA*, 327-30.
25. Degris T, Lachèze L, Boucheny C, Arleo A (2004) A spiking neuron model of head-direction cells for robot orientation. *Proceedings of the 8th International Conference on Simulation of Adaptive Behavior*, 8:255-63.
26. Strösslin T, Krebsler C, Arleo A, W. Gerstner (2002) Combining Multimodal Sensory Input for Spatial Learning. *LNC5–Artificial Neural Networks*, 2415:87-92.
27. Arleo A, Gerstner W (2001) Hippocampal Spatial Model for State Space Representation in Robotic Reinforcement Learning. *Proceedings of 5th European Workshop on Reinforcement Learning*.
28. Arleo A, Smeraldi F, Hug S, Gerstner W (2001) Place Cells and Spatial Navigation based on 2d Visual Feature Extraction, Path Integration, and Reinforcement Learning. *Advances in Neural Information Processing Systems*, 13:89-95.
29. Arleo A, Gerstner W (2000) Modeling rodent head-direction cells and place cells for spatial learning in biomimetic robotics. *Proceedings of the 6th International Conference on Simulation of Adaptive Behavior*, 236-45.
30. Arleo A, Gerstner W (1999) A vision-driven model of hippocampal place cells and temporally asymmetric LTP induction for action learning. *Proceedings of the 9th International Conference on Artificial Neural Networks*, 1:132-7.
31. Arleo A, Gerstner W (1999). Neuromimetic navigation systems: A computational model of the hippocampus. *Proceedings of the International Conference on Situated Artificial Intelligence*, 193-211.
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