

# Curriculum Vitæ

Angelo ARLEO

Director of Research CNRS – VISION INSTITUTE, Paris

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## CURRENT APPOINTMENTS

2019–2023 Director of ANR Chair SilverSight II, Vision Institute - Sorbonne University, Paris FR  
 2014– Head of the Aging in Vision & Action lab, Vision Institute-Sorbonne University, Paris, FR  
 2012– Director of Research (DR2) CNRS, INSB Sec. 26, FR (*received on 1<sup>st</sup> attempt*)  
 2014– Senior consultant, Essilor International, Paris, FR

## PREVIOUS APPOINTMENTS

2015–2018 Director of ANR Chair SilverSight I, Vision Institute - Sorbonne University, Paris, FR  
 2014–2015 Director of the Joint Research Lab Vision Institute - Essilor International, Paris, FR  
 2007–2013 Head of Adaptive NeuroComputation lab, University Pierre & Marie Curie, Paris, FR  
 2006–2012 Tenured Researcher (CR1) CNRS, INSB Sec. 26, FR (*received on 1<sup>st</sup> attempt*)  
 2004–2006 Associate researcher, CSL Sony Paris, FR  
 2001–2003 Postdoctoral at Collège de France, Paris, FR  
 1997–2000 Research assistant, Ecole Polytechnique Fédérale de Lausanne EPFL, CH  
 1996–1997 Intern, Nomadic Technologies Inc., Palo Alto, USA  
 1995–1996 Intern, EU Joint Research Center (JRC), Ispra, IT

## ACADEMIC EDUCATION

2005 HDR in Life Science, Sorbonne University - UPMC, Paris, FR  
 1997–2000 PhD ès Science (*Best PhD Award 2000*), Ecole Polytechnique Fédérale de Lausanne, EPFL, CH  
 1991–1996 MSc in Artificial Intelligence (*Summa Cum Laude*), University of Science of Milan, IT

## BIOSKETCH

A. Arleo is a Director of Research at CNRS and a team leader at the Vision Institute, Paris, France. He primarily explores the perceptual and cognitive consequences of visual aging in humans. He is the coordinator of the ANR Research Chairs SilverSight I & II, which pioneer fundamental research to foster innovative health and IT developments. Overall, his research interests span 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. He combines experimental and computational tools in the attempt of cross-linking multiple organization levels, ultimately providing the basis for a better understanding of the action-perception loop. He received a MSc degree from the University 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 permanent (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 Director of Research (DR2). In 2014, he joined the Vision Institute, directed by J.-A. Sahel, to set the new Aging in Vision & Action lab, whose research program whose framed within the academic-clinical-industrial partnership involving the Vision Institute, the Quinze-Vingts National Ophthalmic Hospital, and the Essilor Group. In 2015, he was awarded the Chairholdership of the ANR Research Chair Silversight I (2015-18), which was subsequently renewed by ANR until Dec 2023.

*Keywords.* Visual aging, visuospatial cognition, neural coding, learning & memory, data science, rehabilitation.

**SCIENTIFIC RESPONSIBILITIES & RESEARCH MANAGEMENT****Team leaderships**

- 2014– Head of the Aging in Vision & Action lab, Vision Institute, Paris (25-30 research fellows), FR  
 2015–2023 Director of the Research Chair SilverSight I & II ANR-Essilor-SCNF, Vision Institute, Paris, FR  
 2014–2015 Director of the Joint Research Lab Vision Institute - Essilor, Paris, FR  
 2007–2013 Head of the Adaptive NeuroComputation lab, University Pierre & Marie Curie, Paris, FR

**Research contracts & collaborative projects**

- 2019–2023 ANR-Essilor-SNCF Research Chair SilverSight II, role: Coordinator, 3.6 M€  
 2022–2025 GENSIGHT PIONEER, role: PI, 100 K€  
 2021–2023 AVIESAN-UNADEV ITMO INSERM, role: Coordinator, 175 K€  
 2022–2025 IHU FOReSight ANR, role: PI, 200 K€  
 2023 FRM research Grant, role: host PI, 40 K€  
 2021 GEROND'IF, Ile de France, role: PI, 24 K€  
 2021–2023 IHU FOReSight ANR, role: Coordinator, 100 K€  
 2019–2022 Fondation pour la Recherche sur Alzheimer's, role: PI, 95 K€  
 2015–2018 ANR-Essilor Research Chair SilverSight I, role: PI, 3.6 M€  
 2019–2021 DFG (German National Research Agency), role: host PI, 100 K€  
 2017–2020 IUIS Sorbonne University, role: host PI, 100 K€  
 2019 ENP (Ecole Neurosciences Paris), role: host PI, 5 K€  
 2018 Mind&Life Varela Research Awards, role: host PI, 15 K€  
 2015–2017 EU MSCA-658479 H2020 SpikeControl, role: Coordinator, 173 K€  
 2014–2015 Joint Research Laboratory Vision Institute - Essilor, role: PI, 500 K€  
 2010–2013 DGA, N° 2010-168087/DGA/DS/MRIS, role: PI, 120 K€  
 2009–2013 CASPUR, Prot. 487/11, 3 partners, 280 K CPU-hours, role: PI  
 2009–2012 ANR-09-EMER-005-02, 3 partners, role: PI, 145 K€  
 2011–2012 UPMC EME1114, 3 partners, role: Coordinator, 100 K€  
 2007–2010 EU IST-028056-IP 6<sup>th</sup> FP, 12 partners, role: PI, 300 K€  
 2007–2010 EU IST-027819-IP 6<sup>th</sup> FP, 9 partners, role: PI, 150 K€  
 2008–2009 UPMC, 2 partners, role: coordinator, 40 K€  
 2009 FRM research Grant, role: host PI, 30 K€

*Total amount of funds raised for research: ~10 M€*

**INTERNATIONAL VISIBILITY****Scientific contributions** (*see the list of publications for more details*)

- Overall: 62 articles in international journals (+10 under review / in preparation)  
 67 invited talks to international conferences & (inter)national institutions  
 34 articles in peer-reviewed proceedings  
 147 conference abstracts (both oral & poster presentations)  
 2 editions of special issues of international journals  
 4 book chapters  
 2 books/dissertations  
 7 patents & copyrights  
 2 software licenses  
 1 technical report

*Total #citations: 2688; highest #citations/paper: 350; h-index: 28 (Google scholar)*

*ORCID ID: <https://orcid.org/0000-0002-1990-1971>*

**Scientific collaborations****International & national collaborations (n=26)**

- 2021– Behrmann M, Carnegie Mellon University, Pittsburgh, USA

2020– Assaiante C, Aix-Marseille University, CNRS, France  
 2019– Gramann K, Technical University of Berlin, Germany  
 2014– Seiple WH, New York University, Lighthouse Inc., NY, USA  
 2015–2019 Chavarriaga R, Swiss Federal Institute of Technology Lausanne EPFL, Switzerland  
 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)  
 2007–2016 Ros E, University of Granada, Spain  
 2011–2012 Hayward V, University Pierre & Marie Curie Paris, France  
 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 (n=2)

2019 Visiting Professor at Lighthouse Inc. - New York University, NY, USA  
 2008 Visiting Scientist at University of Pavia, Department of Cellular & Molecular Physiological

**Boards & committees, collective responsibilities**

Editorial boards (n=7)

2020– Aging Brain, Elsevier, role: editorial board member  
 2020 Frontiers Cellular Neuroscience, role: guest editor for research topic, 2020  
 2019– Journal of Ophthalmic Research, role: editorial board member  
 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

2021– Committee member for Aimé-Cotton laboratory evaluation, CNRS  
 2007– >25 PhD and HDR committees  
 2001– Reviewer for 20 international journals  
 2019 Reviewer for Cambridge University Press  
 2014– 4 Professorship Selection Committees, CNU 69, 61, 7  
 2014–2016 H2020 KIC-Innolife EIT Health, advisory board  
 2016 ENP (Ecole de Neurosciences de Paris), selection committee  
 2014 European Commission, H2020 FET Call PROAC  
 2014 UPMC, VAE ED3C  
 2013 European Commission, FET Proactive ICT Call 10  
 2012–2023 Commission of HDR of Life Science faculty, Sorbonne University  
 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	PEPII CNRS
2007	Fondation pour la Recherche Médicale
2003	European Commission, Cognitive Systems Call

#### Scientific & steering boards

2022–2025	Scientific board of the OPALE Joint Laboratory CNRS - Essilor, member
2019–2022	Scientific board of the SilverSight II Chair, President
2019–2022	Steering board of the SilverSight II Chair, member
2015–2018	Scientific board of the SilverSight Chair, President
2015–2018	Director board of the SilverSight Chair, member
2016–2019	Scientific board of the Opera Joint Laboratory CNRS - Essilor, member
2011	Laboratory board, UMR 7102 Neurobiology of Adaptive Processes, UPMC

#### Event organization

2014–	Series of international seminars at the Vision Institute (~45), organizer & chairman
2015	Meeting of the ANR Research Chair SilverSight (~85 attendees), organizer
2012	International Workshop on Modern Evolutionary Algorithms (USA), co-organizer

#### Programme committees of international conferences (n=19)

2019	International Work Conference on Artificial Neural Networks
2018	International Conference on Computational Neuroscience
2018	International Conference on the Simulation of Adaptive Behavior
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 Biomechanics
2011	International Work Conference on Artificial Neural Networks
2010	International Conference on Simulation of Adaptive Behaviour
2010	IEEE International Conference on Biomedical Robotics and Biomechanics
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

#### International organizations & bodies

2019–	Association for Research in Vision and Ophthalmology (ARVO), member
2017–	Vision Science Society (VSS), member
2014–	French Society for Neuroscience, member
2014–	Organization for Computational Neuroscience (OCNS), faculty member
2012	FENS, Federation of European Neuroscience Societies, member
2012	IBRO, International Brain Research Organisation, member

#### Other memberships & collective responsibilities

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

**AWARDS, HONORS, GRANTS & COMPETITIONS**

2020	Silmo Academy Award, France
2019	Awarded the Chairholdership of the ANR Research Chair Silversight II (4 years)
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**

2009–	First-aid rescue worker
2015	Training to emergency care (AFGSU)
2011	Managerial communication and leadership
2009	Team leadership
2007-2010	Intensive English
2001	EU Advanced Course in Computational Neuroscience

**INVOLVEMENT IN RESEARCH TRAINING AND TEACHING****Mentoring post-doctoral fellows (*n*=13)**

2020–2023	Chopin A (ANR-Essilor-SNCF Research Chair grant)
2019–2021	Schumann F (DMG grant)
2017–2020	Agathos K (ANR-Essilor Research Chair grant)
2014–2019	Allard R (ANR-Essilor Research Chair grant)
2016–2019	Ramanoel S (ANR-Essilor Research Chair grant)
2015–2019	Lagrené K (ANR-Essilor Research Chair grant)
2017–2018	Carrillo R (ANR-Essilor Research Chair grant)
2015–2018	Tartaglia E (ANR-Essilor Research Chair grant)
2015–2018	Tatur G (ANR-Essilor Research Chair grant)
2015–2017	Luque N (EU grant)
2016–2017	Marchesotti S (ANR-Essilor Research Chair grant)
2009–2017	Bologna LL (EU grant, 2009-11; UPMC grant, 2012-3; ANR-Essilor Research Chair grant, 2014-7)
2008–2013	Sheynikhovich D (UPMC grant, 2008-9; ANR grant, 2009-12; Ater 2012-3)

**Supervision and co-supervision of PhD students (*n*=19)**

2022–2025	Roger J (CIFRE SCNF)
2021–2024	Murari J (IHU FOReSIGHT)
2021–2023	Talebi A (EU ENTRAIN VISION)
2019–2022	De Saint Aubert J-B (ANR SilverSight II)
2019–2022	Morin P-O (self-funded)
2019–2022	Delaux A (ANR SilverSight II)
2019–2022	Durteste M (Alzheimer’s Research Foundation doctoral grant)
2017–2020	Raphanel M (IUSI Sorbonne University doctoral grant)
2016–2019	Li T (ANR SilverSight I)
2016–2019	Nael V (Essilor Cifre grant)
2016–2018	Huth J (ANR SilverSight I)
2015–2018	Bécu M (ANR SilverSight I)
2011–2015	Logiaco L (Doctoral fellowship ENS)

- 2014–2018 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)  
 2007–2010 Martinet LE (EU grant 2007-10)  
 2007–2010 Brasselet R (EU grant 2007-9; FRM grant 2009-10)

#### *Visiting PhD students*

- 2018 Shaughness G (2 months rotation, University of Michigan Medical School, USA)  
 2017 Valikodath N (1 month rotation, University of Michigan Medical School, USA)  
 2016 Naveros F (1 year rotation, Granada University, Spain)

#### *International & national agreements for joint supervision of PhD students*

- 2019–2022 Technical University of Berlin, Germany; Graman K, co-supervision of Delaux A  
 2019–2022 German Center for Neurodegenerative Diseases, Germany; Wolbers T, co-supervision of Durteste M  
 2016–2019 EPFL, Switzerland; Chavarriaga R, co-supervision of Li T  
 2016–2018 CERCO CNRS; Masquelier T, co-supervision of Huth J  
 2014–2018 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 ( $n>65$ )**

- 2007– MSc, BSc, and engineer 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  
 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, 12 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, Paris

### LIST OF SCIENTIFIC CONTRIBUTIONS

International Journals (n=62 + 10 under review and/or in preparation)

1. Sheynikhovich D, Otani S, Bai J, **Arleo A** (2023) Long-term memory, synaptic plasticity, and dopamine in rodent medial prefrontal cortex: Role in executive functions. *Frontiers in Behavioral Neuroscience*, 16:1068271.
2. Ramanoel S, Durteste M, Bizeul A, Ozier-Lafontaine A, Becu M, Sahel AJ, Habas C, **Arleo A** (2022) Selective neural coding of object, feature, and geometry spatial cues in humans. *Human Brain Mapping*, 43(17):5281-95.
3. Ramanoel S, Durteste M, Delaux A, de Saint Aubert J-B, **Arleo A** (2022) Future trends in brain aging research: visuo-cognitive functions at stake during mobility and spatial navigation. *Aging Brain*, 2:100034.
4. Ramanoël S, Durteste M, Perot V, Habas C, **Arleo A**. (2022) An appraisal of the role of the neocerebellum for spatial navigation in healthy aging. *The Cerebellum*, <https://doi.org/10.1007/s12311-022-01389-1>.
5. Luque NR, Naveros F, Abadiab I, Ros E, **Arleo A** (2022) Electrical coupling regulated by GABAergic nucleo-olivary afferent fibres facilitate cerebellar sensory-motor adaptation. *Neural Networks*, 155:422-38.
6. Luque NR, Naveros F, Sheynikhovich D, Ros E, **Arleo A** (2022) Computational epidemiology study of homeostatic compensation during sensorimotor aging. *Neural Networks*, 146:316-33.
7. Sahel J-A, Boulanger-Scemama E, Pagot C, **Arleo A**, Galluppi F, Martel JN, Degli Esposti S, Delaux A, de Saint Aubert J-B, de Montleau C, Gutman E, Benosman R, Duebel J, Picaud S, Dalkara D, Blouin L, Taiel M, Roska B (2021) Partial recovery of visual function in a blind patient after optogenetic therapy. *Nature Medicine*, 27(7):1223-9.
8. Delaux A, de Saint Aubert J-B, Ramanoel S, Bécu M, Gehrke L, Klug M, Chavarriaga R, Sahel J-A, Gramann K, **Arleo A** (2021) Mobile brain/body imaging of landmark-based navigation with high-density EEG. *European Journal of Neuroscience*, 54(12):8256-8282.
9. Allard R, **Arleo A** (2021) The false aperture problem: Global motion perception without integration of local motion signals. *Psychological Review*, 129(4):732-741.
10. Rossi EA, Norberg N, Eandi C, Kapoor S, Le L, Snyder V, Martel JN, Gautier J, Gocho K, Dansingani KK, Chhablani J, **Arleo A**, Mrejen S, Sahel J-A, Grieve K, Paques M (2021) A new method for visualizing drusen and their progression in flood-illumination adaptive optics ophthalmoscopy. *Translation Vision Science & Technology*, 10(14):19.
11. Braham-Chaouche A, Rezaei M, Silvestre D, **Arleo A**, Allard R (2021) Functionally assessing the age-related decline in the detection rate of photons by cone photoreceptors. *Frontiers in Aging Neuroscience*, 13:870.
12. Allard R, Ramanoel S, Silvestre D, **Arleo A** (2021) Variance-dependent neural activity in an involuntary averaging task. *Attention, Perception, and Psychophysics*, doi:10.3758/s13414-020-02223-8.
13. Bécu M, Sheynikhovich D, Tatur G, Agathos C, Bologna LL, Sahel JA, **Arleo A** (2020) Age-related preference for geometric spatial cues during real-world navigation. *Nature Human Behaviour*, 4(1):88-99.
14. Braham-Chaouche A, Silvestre D, Trognon A, **Arleo A**, Allard R (2020) Age-related decline in motion contrast sensitivity due to lower absorption rate of cones and calculation efficiency. *Scientific Reports*, 10(1):16521.
15. Li T, **Arleo A**, Sheynikhovich D (2020) Modeling place cells and grid cells in multi-compartment environments: hippocampal-entorhinal loop as a multisensory integration circuit. *Neural Networks*, 121:37-51.
16. Traber GL, Della Volpe-Waizel M, Maloca P, Schmidt-Erfurth U, Rubin G, Roska B, Cordeiro MF, Otto T, Weleber R, Lesmes LA, **Arleo A**, Scholl HPN (2020) New technologies for outcome measures in glaucoma. *Ophthalmic Research*, 63:88-96.
17. Ramanoël S, Durteste M, Bizeul A, Bécu M, Habas C, **Arleo A** (2020) Differential brain activity in regions linked to visuospatial processing during landmark-based navigation in young and healthy older adults. *Frontiers in Human Neuroscience*, 14:552111.
18. Agathos CP, Ramanoël S, Bécu M, Bernardin D, Habas C, **Arleo A** (2020) Postural control while walking interferes with spatial learning in older adults navigating in a real environment. *Frontiers in Aging Neuroscience*, 12:588653.
19. Naveros F, Luque NR, Ros E, **Arleo A** (2020) VOR adaptation on a humanoid iCub robot using a spiking cerebellar model. *IEEE Transactions on Cybernetics*, 50(11):4744-57.
20. Silvestre D, **Arleo A**, Allard R (2019) Healthy aging impairs photon absorption efficiency of cones. *Investigative Ophthalmology & Vision Science*, 60(2):544-51.

21. Ramanoel S, York E, Le Petit M, Lagrené K, Habas C, **Arleo A** (2019) Age-related difference in functional and structural connectivity in the spatial navigation brain network. *Frontiers in Neural Circuits*, 13:69.
22. Luque NR, Naveros F, Carrillo RR, Ros E, **Arleo A** (2019) Spike burst-pause dynamics of Purkinje cells regulate sensorimotor adaptation. *PLoS Computational Biology*, 5(3):e1006298.
23. Duvelle E, Grieves RaHV, Poucet B, **Arleo A**, Jeffery K and Save E (2019) Insensitivity of place cells to the value of spatial goals in a two-choice flexible navigation task. *Journal of Neuroscience*, 39(13):2522-41.
24. Nael V, Moreau G, Monferme S, Cougnard-Gregoire A, Scherlen AC, **Arleo A**, Korobelnik JF, Delcourt C and Helmer C (2019) Prevalence and Associated Factors of Uncorrected Refractive Error in Older Adults in a Population-Based Study in France. *JAMA Ophthalmology*, 137(1):3-11.
25. Nael V, Peres K, Dartigues JF, Letenneur L, Amieva H, **Arleo A**, Scherlen AC, Tzourio C, Berr C, Carriere I, Delcourt C and Helmer C (2019) Vision loss and 12-year risk of dementia in older adults: the 3C cohort study. *European Journal of Epidemiology*, 34(2):141-52.
26. Raphanel M, Shaughnessy G, H. Seiple W, **Arleo A** (2018) Current practice in low vision rehabilitation of age-related macular degeneration and usefulness of virtual reality as a rehabilitation tool. *Journal of Aging Science*, 6(2):194.
27. Huth J, Masquelier T, **Arleo A** (2018) Convis: A toolbox to fit and simulate filter-based models of early visual processing. *Frontiers in Neuroinformatics*, 12:9.
28. Sheynikhovich D, Bécu M, Wu C, **Arleo A** (2018) Unsupervised detection of microsaccades in high-noise regime. *Journal of Vision*, 18(6):19.
29. Silvestre D, **Arleo A**, Allard R (2018) Internal noise sources limiting contrast sensitivity. *Scientific Reports*, 8(1):2596.
30. Brasselet R and **Arleo A** (2018) Category structure and categorical perception jointly explained by similarity-based information theory. *Entropy*, 20(7):527.
31. Nael V, Pérès K, Carrière I, Daien V, Scherlen AC, **Arleo A**, Korobelnik JF, Delcourt C, Helmer C (2017) Visual impairment, under corrected refractive error and activity limitations in older adults: findings from the 3C-Alienor study. *Investigative Ophthalmology & Visual Science*, 58(4):2359-65.
32. Allard R, **Arleo A** (2017) Factorizing the motion sensitivity function into equivalent input noise and calculation efficiency. *Journal of Vision*, 17(1):17.
33. Silvestre D, Cavanagh P, **Arleo A**, Allard R (2017) Adding temporally localized noise can enhance the contribution of target knowledge on contrast detection. *Journal of Vision*, 17(2):5.
34. Allard R, **Arleo A** (2017) Reducing luminance intensity can improve motion sensitivity in noise. *Scientific Reports*, 7:43140.
35. Jules Etienne C, **Arleo A**, Allard R (2016) Maximizing noise energy for noise-masking studies. *Behavioral Research Methods*, 49(4):1278-90.
36. Loggiaco 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.
37. **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]
38. Sheynikhovich D, Otani S, **Arleo A** (2013) Dopaminergic control of LTD/LTP threshold in prefrontal cortex. *Journal of Neuroscience*, 33(34):13914-26.
39. 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. [awarded as journal's highlight of 2013]
40. 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).
41. 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.
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47. 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.
48. **Arleo A**, Nieuws 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.
49. 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.
50. Sheynikhovich D, Chavarriaga R, Strosslin T, **Arleo A**, and Gerstner W (2009) Is there a geometric module for spatial orientation? Insights from a rodent navigation model. *Psychological Review*, 116(3):540-66.
51. **Arleo A** and 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.
52. **Arleo A**, Chavarriaga R (2007) Multisensory integration and parallel memory systems for spatial cognition (editorial). *Journal of Integrative Neuroscience*, 6(3):1-4.
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54. 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.
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57. 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.
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59. Wiener SI and **Arleo A** (2003) Persistent activity in limbic system neurons: neurophysiological and modelling perspectives. *Journal of Physiology P*, 97(4-6):547-55.
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61. **Arleo A** and Gerstner W (2000) Spatial cognition and neuromimetic navigation: A model of hippocampal place cell activity. *Biological Cybernetics*, 83:287-99.
62. **Arleo A**, Millán J del R, and Floreano D (1999) Efficient learning of variable-resolution cognitive maps for autonomous indoor navigation. *IEEE Transactions on Robotics and Automation*, 15(6):990-1000.

#### Preprints, under review, and under submission (n=10)

1. Durteste M, Van Poucke L, Combariza S, Benziane B, J-A. Sahel, Ramanoël S, **Arleo A**. The vertical position of visual information conditions spatial memory performance in healthy aging. *bioRxiv*, 2022.10.05.510774 & *under review by Communications Psychology (2nd round)*.
2. Li T, **Arleo A**, Sheynikhovich D. A model of a panoramic visual representation in the dorsal visual pathway: the case of spatial reorientation and memory-based search. *bioRxiv*, 827667 & *under review by eLife (2nd round)*.
3. Bécu M, Sheynikhovich D, Ramanoël S, Tatur G, Ozier-Lafontaine A, Sahel J-A, **Arleo A**. Evolution of landmark-based spatial navigation across the human lifespan. *bioRxiv*, 945808. *Under review by eLife (2nd round)*.
4. Tartaglia EM, Boucly C, Tatur G, **Arleo A**. Eye-movements as a signature of age-related differences in global planning strategies for spatial navigation. *bioRxiv*:481788.
5. Sheynikhovich D, Lagrené D, Tremolada A, Combariza S, Tzvetkov-Ricard F, Bécu M, Sahel J-A, Mohand-Saïd S, Abois A, Paques M, Seiple W, **Arleo A**. Lack of support for a common cause hypothesis of visual aging: a cohort study. (*In preparation*)
6. Gautier J\*, Lagrené K\*, Seiple WH, Mohand-Saïd, Paques M, Sahel J-A, **Arleo A**. Visual ageing: from cellular to functional changes. *Invited review paper for Retinal & Eye Research Journal*. (*In preparation*)
7. Tatur G, Tartaglia E, **Arleo A**. Spatial map learning and detour planning in children, young and older adults, a virtual reality approach. (*In preparation*)
8. Trognon A, Silvestre D, Braham-Chaouche A, **Arleo A**, Allard R. Attention-based motion processing is largely preserved with healthy aging. (*In preparation*)

9. Bécu M, Tatur G, **Arleo A**. Age-related consequences on fixational eye movements during optic flow. (*In preparation*)
10. Tartaglia E, Pollina L, Szabo A, Chavarriaga R, **Arleo A**. EEG signatures of age-related consequences on divided visual attention. (*In preparation*)

#### Peer-reviewed Proceedings (n=34)

1. Naveros F, Garrido JA, **Arleo A**, Ros E, Luque NR (2018) Exploring vestibulo-ocular adaptation in a closed-loop neuro-robotic experiment using STDP. In *IEEE International Conference on Intelligent Robots and Systems (IROS)*, 1-9.
2. 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*, 482-5.
3. 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.
4. Sheynikhovich D, Grèzes F, King JR, **Arleo A** (2012) Exploratory behaviour depends on multisensory integration during spatial learning. *LNCS–Artificial Neural Networks*, 7552:296-303.
5. 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.
6. Brasselet R, Johansson RS, **Arleo A** (2011) Isometric coding of spiking haptic signals by peripheral somatosensory neurons. *LNCS–Advances on Computational Intelligence*, 6691:528-36.
7. Martinet L-E, **Arleo A** (2010) A cortical column model for multiscale spatial planning. *LNAI–Simulation of Adaptive Behavior*, 6226:347-58.
8. 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.
9. Sheynikhovich D, Dolle L, Chavarriaga R, **Arleo A** (2010) Minimal model of strategy switching in the plus-maze navigation task. *LNAI–Simulation of Adaptive Behavior*, 6226:390-401.
10. Brasselet, R, **Arleo, A** (2010) Local metrical information: application to the perceptual magnet effect. In *Proceedings of the 5th French Conference on Computational Neuroscience*, 132-6.
11. Sheynikhovich D, Otani S, **Arleo A** (2010) A modeling study of the role of tonic vs. phasic dopamine input to the prefrontal cortex. In *Proceedings of the 5th French Conference on Computational Neuroscience*, 77-81.
12. Bologna LL, Brasselet R, Maggiali M, **Arleo A** (2010) Effective encoding/decoding of spiking signals from an artificial touch sensor. In *Proceedings of the 5th French Conference on Computational Neuroscience*, 120-5.
13. Martinet L-E, **Arleo A** (2010) A model of prefrontal columnar organisation for multiscale spatial planning. In *Proceedings of the 5th French Conference on Computational Neuroscience*, 167-72.
14. Passot JB, **Arleo A** (2010) A new coupling scheme of cerebellar internal models: online and offline adaptation in procedural tasks. In *Proceedings of the 5th French Conference on Computational Neuroscience*, 95-9.
15. Bologna LL, Brasselet R, Maggiali M, **Arleo A** (2010) Neuromimetic encoding/decoding of spatiotemporal spiking from an artificial touch sensor. In *Proceedings of the International Joint Conference on Neural Networks (IJCNN)*.
16. Brasselet 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.
17. Passot JB, Rondi-Reig L, **Arleo A** (2009) Cerebellum and spatial cognition: a connectionist approach. In *Proceedings of the European Symposium on Artificial Neural Network*, 17:287-92.
18. 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.
19. 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.
20. Bezzi M, **Arleo A**, Nieuws T, D'Angelo E, Coenen OJMD (2006) Quantitative characterization of information transmission in a single neuron. In *Proceedings of the Conference NeuroComp*, 134-136.
21. D'Angelo E, Nieuws 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.
22. Rondi-Reig L, Petit G, **Arleo A**, Burguière E (2005) The starmaze: a new paradigm to characterize multiple spatial navigation strategies. In *Measuring Behavior, Int Conf on Methods and Techniques in Behavioral Research*: 386-90.
23. Bezzi M, **Arleo A**, Coenen OJMD (2005) Exploring the neural code by information theory. In *Proceedings of the NeuroMat Workshop*, 183-9.
24. Bezzi M, Nieuws T, **Arleo A**, D'Angelo E, Coenen OJMD (2005) Reti neuronali impulsive per il controllo di robot: il progetto SpikeForce. In *Atti del Convegno Nazionale ANIPLA-BIOSYS*, 226-35.
25. D'Erfurth A, Peyrache A, Guillot A, **Arleo A** (2005) Un modèle computationnel biomimétique de navigation pour le robot-rat Psikharpax. In *Proceedings of the National Conference RJCIA*, pp. 327-30.
26. Degris T, Lachèze L, Boucheny C, **Arleo A** (2004) A spiking neuron model of head-direction cells for robot orientation.

In *Proceedings of Int. Conf. on Simulation of Adaptive Behavior, from Animals to Animats*, 8: 255-63.

27. Strösslin T, Krebsler C, Arleo A, W. Gerstner (2002) Combining Multimodal Sensory Input for Spatial Learning. *LNCS - Artificial Neural Networks*, 2415: 87-92.
28. Arleo A and Gerstner W (2001) Hippocampal Spatial Model for State Space Representation in Robotic Reinforcement Learning. In *Proceedings of 5th European Workshop on Reinforcement Learning*.
29. Arleo A, Smeraldi F, Hug S, and 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.
30. Arleo A and Gerstner W (2000) Modeling rodent head-direction cells and place cells for spatial learning in biomimetic robotics. In *Proceedings of the 6th Int. Conf. on Simulation of Adaptive Behavior, from Animals to Animats*, pp. 236-245.
31. Arleo A and Gerstner W (1999) A vision-driven model of hippocampal place cells and temporally asymmetric LTP induction for action learning. In *Proceedings of the 9th International Conference on Artificial Neural Networks*, 1:132-7.
32. Arleo A and Gerstner W (1999). Neuromimetic navigation systems: A computational model of the hippocampus. In *Proceedings of the Conference on Situated Artificial Intelligence*, 193-211.
33. Arleo A, Floreano D, and Gerstner W (1998). Modélisation de l'Hippocampe: Représentation Spatiale et Navigation des Systèmes Autonomes. In *Proceedings of JJCR'10*, pp. 25-30.
34. Millán J del R and Arleo A (1997) Neural network learning of variable grid-based maps for the autonomous navigation of robots. In *Proceedings of the IEEE Int. Symposium on Computational Intelligence in Robotics and Automation*, pp. 40-45.

#### Invited talks (n=67)

##### At international conferences & institutions (n=40)

1. Cognitive Aging Conference, Geneva, Switzerland, 2023 (keynote speaker)
2. Institute for Neurobiology, Tübingen, Germany, 2023
3. International Conference iNAV, Online, 2022
4. Meet in Galilee, The Medicine of the Future, Israel, 2022
5. International Conference ISCAN, Germany, 2021
6. Teratec Forum, France, 2021
7. Innovation Manager in EIT Health, Essilor, France, 2021
8. International Conference on Visual Diseases, Paris, 2020
9. University of Geneva, Switzerland, 2019
10. University of Michigan - Kellogg Eye Center, USA, 2019
11. Shanghai East China Normal University, China, 2019
12. European Vision Institute, Basel, Switzerland, 2018
13. Iberian Conference on Perception, Portugal, 2017
14. Laboratory of Psychophysics - EPFL, Switzerland, 2017
15. Société Française d'Ophtalmologie SFO'17, France, 2017
16. University of Lausanne, Switzerland, 2017
17. International Conference on Mathematical & Computational Neuroscience, Italy, 2016
18. International Workshop on Neuromorphic & Brain-Based Computing Systems, Grenoble, France, 2013
19. International BCCN Sparks Workshop on NeuroEngineering the Brain, Munich, Germany, 2013
20. International Workshop on Cerebellum Models, CNS, Paris, France, 2013
21. International Workshop on Early Touch, CNS, Paris, France, 2013
22. Okinawa OIST Computational Neuroscience, Okinawa, Japan, 2013
23. Italian Institute of Technology, Genova, Italy, 2012
24. International Work Conference on Artificial Neural Networks, Torremolinos, Spain, 2011
25. BioRobotics Institute, Scuola Superiore Sant'Anna, Pisa, Italy, 2011
26. International Conference on Mathematical Biology, Cagliari, Italy, 2010
27. Workshop on Tactile sensing, Humanoids'09 International Conference, Paris, France, 2009
28. Institute of Physiology, University of Lausanne, Switzerland, 2007
29. Brain & Mind Institute, EPFL, Lausanne, Switzerland, 2006
30. International Symposium on Spatial Perception and Cognition, APA Annual Meeting, USA, 2004

31. International Workshop on Neurobotic Models in Neuroscience & Neuroinformatics, USA, 2004
32. International Workshop on Towards Artificial Rodents, Paris, France, 2004
33. International Conference on Embodied Artificial Intelligence, Max Planck Institute, Germany, 2003
34. International Symposium on Cognitive Robotics, Max Planck Institute, Germany, 2003
35. Brain & Mind Institute, EPFL, Lausanne, Switzerland, 2003
36. Brain & Mind Institute, EPFL, Lausanne, Switzerland, 2002
37. International Workshop on Theoretical Robotics, UK, 2002
38. Workshop on Brain bases of Spatial Orientation, France, 2002
39. XXVII International Ethological Conference, Germany, 2001
40. Institute for Systems, Informatics and Safety, Joint Research Centre (EU), Italy, 1999

At national conferences & institutions (n=27)

1. Société Française d'Ophtalmologie SFO, France, 2023
2. Silmo Academy, France, 2022
3. ANR EuroBioMed, France, 2022
4. CIFEPK Gériatrie, France, 2022
5. Innovation Days 4 Health, Sorbonne University, France, 2021
6. Congrès d'Optométrie et de Contactologie, Montrouge, France, 2020
7. Colloque Le Regard du Cerveau, Rétina France, 2020
8. Centre d'Investigation Clinique, Hôpital des Quinze-Vingts, Paris, France, 2019
9. CNRS Centre de Recherche Cerveau & Cognition, Cerco, Toulouse, France, 2019
10. Société Française d'Ophtalmologie SFO Symposium ARIBA, France, 2018
11. Société Française d'Ophtalmologie SFO'17, France, 2017
12. Société Française d'Ophtalmologie SFO Symposium Optic-2000, France, 2016
13. Société Française de Réflexion Sensori-Cognitive, Paris, France, 2016
14. Ecole Mines Nimes, Nimes, France, 2016
15. ESSILOR R&D Rencontre de la veille, Créteil, France, 2016
16. Laboratory for Analysis and Architecture of Systems, CNRS, Toulouse, France, 2015
17. Institut du Fer à Moulin, Paris, France, 2013
18. Vision Institute, Paris, France, 2013
19. CEA - Nano-INNOV Center, Saclay, France, 2013
20. CNRS Defisens workshop TACT, Lyon, France, 2012
21. GDT Mathematics & Neuroscience, Institut Henri Poincaré, Paris, France, 2011
22. Unit of Neurophysics & Physiology, University Descartes P5, Paris, France, 2011
23. Unit of Neurobiology of Executive Processes, Inserm Lyon, 2011
24. Symposium Maths & Brain, Institute of Mathematics Jussieu UPMC, Paris, 2006
25. AnimatLab, Unit of Computer Science, UPMC, Paris, 2003
26. Symposium Maths & Brain, Institute of Mathematics Jussieu UPMC, Paris, 2003
27. Unit of Physiology of Perception and Action, Collège de France, Paris, 2001

**Edition of special issues, books, dissertations (n=4)**

1. Mapelli J, Indiveri G, Arleo A (2021), editors, Brain-Inspired Computing: From Neuroscience to Neuromorphic Electronics driving new forms of Artificial Intelligence. *Frontiers in Cellular Neuroscience*.
2. Arleo A and Chavarriaga R (2007), editors, Special Issue on Multisensory integration and parallel memory systems for spatial cognition. *Journal of Integrative Neuroscience*, 6(3).
3. Arleo A (2005) The Neural Bases of Spatial Cognition and Information Processing in the Brain. *Thesis of Habilitation to Direct Research*, Life Sciences Discipline, University Pierre & Marie Curie, Paris.
4. Arleo A (2000) *Spatial learning and navigation in neuromimetic systems: Modeling the rat hippocampus*. ISBN 3-89825-247-7, Verlag-dissertation Press.

**Book chapters (n=4)**

1. Lagrené K & Arleo A (2017) Natural aging of visual functions. In Robert P-Y ed, 'French Society of Ophthalmology Report on Visual deficits', chpt. 3.2:41-6, Elsevier.

2. **Arleo A** (2016) Natural aging: vision and cognition. In ‘CNRS Thematic Interdisciplinary Meeting CNRS: light, colors and societal issues, pages 141-149.
3. **Arleo A & Rondi-Reig L** (2010) Multimodal sensory integration and concurrent navigation strategies for spatial cognition in real and artificial organisms. In Dolins F and Mitchell R editors, *Spatial Perception, Spatial Cognition*, chpt 11:281-320, Cambridge University Press.
4. **Arleo A & Gerstner W** (2005) Head direction cells and place cells in models for navigation and robotic applications. In Wiener SI and Taube JS editors, *Head direction cells and the neural mechanisms of spatial orientation*, chapter 19:433-457, MIT Press.

#### Patents & Copyrights (n=7)

1. Device for simulating a physiological behaviour of a mammal using a virtual mammal, process and computer program. WO2020193439A1, US20220198959A1. Filed by Essilor International & Sorbonne University.
2. Method for determining an optical system, and ophthalmic lens and ophthalmic filter determined by said method. WO2019025264A1, US11366338B2. Filed by Essilor International.
3. Method of analyzing a visual field of an individual and a corresponding ophthalmic lens. WO2019122945A1, US20210085172A1. Filed by Sorbonne University & Essilor International.
4. Method and system for characterizing the visual system of a subject. WO2019185854A1, US20210093182A1. Filed by Essilor International & Sorbonne University.
5. Method and system for selecting a color filter, optical article comprising such a color filter. WO2019110758A1, US20200383563A1. Filed by Essilor International.
6. An ophthalmic lens comprising a filter and a method for determining a filter improving motion sensitivity of a wearer. WO2023007000A1. Filed by Essilor International.
7. Software NEural network Learning of VArable grid-based Maps, European Copyright ref. 2545, 1997.

#### Software licenses (n=2)

1. Huth J, Masquelier T, **Arleo A** (2017) Convis: a toolbox to fit and simulate filter-based models of early visual processing. GPL-3.0 license.
2. **Arleo A & Jarlier F, Rondi-Reig L** (2013) Software application NAT (“Navigation Analysis Tool”). GPL Licence.

#### Conference abstracts (oral & poster presentations) (n=147)

##### 2023

1. **Murari J**, Gautier J, Daout J, Krafft L, Senée P, Mecê P, Meimon S, Paques M, **Arleo A** (2023) Characterizing fixational eye movements in patients with central drusen to find biomarkers for presymptomatic AMD. ARVO’23. Abs & Poster presentation.
2. Talebi A, Poujade M, Audo I, Sahel J-A, **Arleo A**, Authié A (2023) Altered gaze dynamics in visually impaired patients: a mobility task study. Japanese Neuroscience Society, Sendai, Japan. Abs & Poster Presentation.
3. Delaux A\*, Durteste M\*, Ariztégui A, Cottureau BR, Ramanoël S, **Arleo A** (2023) Keep looking up! How aging of the higher visual cortex impacts EEG correlates of spatial orientation. Organization for Human Brain Mapping, Montreal, Canada. Abs & Poster Presentation.
4. Durteste M, Liebi LR, Sapoval E, Ramanoël S, **Arleo A** (2023) The occipital place area encodes the vertical position of navigationally-relevant information. Organization for Human Brain Mapping, Montreal, Canada. Abs & Poster Presentation.
5. Naveilhan C, Delaux A, Durteste M, Lebrun J, Zory R, **Arleo A**, Ramanoël S (2023) Electrophysiological markers of visuo-spatial processing decline during spatial orientation in aging. Organization for Human Brain Mapping, Montreal, Canada. Abs & Poster Presentation.

##### 2022

6. Durteste M, Combariza S, Benziane B, Ramanoël S, **Arleo A** (2022) The vertical position of visual information conditions spatial memory performance in healthy ageing. International Conference for Young Researchers in Psychology (JSJC), Lille, France. Oral presentation.
7. Durteste M, VanPoucke L, Benziane B, Ramanoel S, **Arleo A** (2022) The vertical position of visual information influences memory in healthy aging. In Colloque des Jeunes Chercheurs en Sciences Cognitives (CJC-SCo), Paris, France. Oral presentation.

8. Naveilhan C, Delaux A, Durteste M, Lebrun J, Zory R, **Arleo A**, Ramanoël S (2022) Top-down modulation of brain visual coding of navigational affordances during spatial decision task. International Conference for Young Researchers in Psychology (JSJC), Lille, France. Abs & Oral presentation.
9. Murari J et al. (2022) High-speed high-resolution AOFIO for retinal imaging and tracking: Oculomotor Assessment. Adaptive Optics Psychophysics Workshop. Oral presentation.
10. Gautier J et al. (2022) High-speed high-resolution AOFIO for retinal imaging and tracking: Imaging and tracking. Adaptive Optics Psychophysics Workshop. Oral presentation.
11. Sheynikhovich D, Roger J, Cherifi Y, Chenguiti Y, Benziane B, Bani H, Lemaitre G, Armougum A, **Arleo A** (2022) Age effects on visual cue processing, orientation behavior, and navigation performance in urban environments. Conference on Movement: Brain, Body and Cognition, Paris, France. Abs & Oral presentation.
12. Sahel J-A, Audo I, Boulanger-Scemama E, Pagot C, **Arleo A**, Galluppi F, Martel JN, Degli Esposti S, Delaux A, de Saint Aubert J-B, de Montleau C, Gutman E, Duebel J, Picaud S, Dalkara D, Blouin L, Taiel, Roska B (2022) Optogenetics in the Clinic: Safety and Efficacy Updates on the Phase ½ Clinical Trial PIONEER. Annual Macula Society meeting, Berlin, Germany. Abs & Oral presentation.
13. Sheynikhovich D, Li T, **Arleo A** (2022) A panoramic visual representation in the parietal-medial temporal pathway and its role in spatial and non-spatial behaviors. From Animals to Animats 16: The 16th International Conference on Simulation of Adaptive Behavior (SAB 2022), September 20-23, Cergy, France. Abs & Oral presentation.
14. Ramanoel S, Durteste M, Delaux A, Habas C, **Arleo A** (2022) The neural underpinnings of visual information processing for spatial navigation in healthy aging. In 22<sup>nd</sup> Conference of the European Society for Cognitive Psychology (ESCP), Lille, France. Abs & Oral presentation.
15. Chopin A et al. (2022) Adaptive methods to quickly estimate psychometric functions: the case of Psi-marg-grid and the effect of non-monotony. VSS'22. Abs & Oral presentation.
16. Durteste M, Van Poucke L, Combariza S, Benziane B, Ramanoël S, **Arleo A** (2022) Spatial memory in healthy ageing is modulated by upper-lower visual field asymmetries. FENS'22. Abs & Poster presentation.
17. Morin P-O, Agathos C, Assaiante C, **Arleo A** (2022) Imagerie mentale prospective et rétrospective dans l'évaluation de la mobilité au cours du vieillissement sain. Sofpel'22. Abs & Poster presentation.
18. Hinrichs S, Placidet LDM, Thorn JT, Authie C, **Arleo A**, Ghezzi D (2022) Using augmented reality to determine the efficacy of retinal implants in a naturalistic environment. SFN'22. Abs & Poster presentation.
19. de Saint Aubert JB, Aprea E, Maury ML, **Arleo A** (2022) Age-related effects on exploration strategies during probabilistic reward learning. FENS'22. Abs & Poster presentation.
20. Rocco G, Ramanoel S, Habas C, **Arleo A**, Meste O, Magnié-Mauro MN, Lebrun J (2022) When fNIRS meets fMRI to complement cerebellar exploration. In IEEE International Symposium on Biomedical Imaging (ISBI), Kolkata, India. Abs & Poster presentation.
21. Delaux A\*, Durteste M\*, Ariztégui A, Abderrahmane Benziane B, Cottureau BR, Ramanoël S, **Arleo A** (2022) Functional implications of vertical coding biases in scene-selective regions on spatial orientation: Evidence from source localized EEG recordings. FENS'22. Abs & Poster presentation.
22. Schumann F, Cherifi YI, de Saint Aubert JB, Sheynikhovich D, Poirier-Quinot D, Katz B, **Arleo A** (2022) Biomimetic magnetic sensory augmentation, Abs & Poster presentation at International Multisensory Research Forum (IMRF'22) Ulm, Germany. Abs & Poster presentation.
23. Talebi A, **Arleo A**, Ghezzi D, Authié C (2022) Effect of simulated peripheral vision loss on mobility performance. SFN'22. Abs & Poster presentation.

### 2021

24. Gautier J, Daout J, Krafft L, Mecê P, Grieve K, Meimon S, **Arleo A**, Paques M (2021) Retinal imaging and stimulation for functional, oculomotor, and structural assessment using a high-speed DMD based AOFIO. In I2Eye'21. Abs & Oral presentation.
25. Agathos CP, Ramanoël S, Bécu M, Bernardin D, Habas C, **Arleo A** (2021) Postural control interacts with spatial learning in older adults navigating in an ecological environment. In ACAPS 2021. Abs & Oral presentation.
26. Schumann F, Cherifi YI, de Saint Aubert J-B, Benziane BA, Sheynikhovich D, Poirier-Quinot D, Katz B, **Arleo A** (2021) Spatial orientation via geomagnetic sensory augmentation. In ASSC'21, Tel Aviv, Israel. Abs & Oral presentation.

27. Durteste M, Ramanoël S, Bécu M, Habas C, **Arleo A** (2021). Differential brain activity in regions linked to visuo-spatial processing during landmark-based navigation in young and healthy older adults. Journées d'Etudes du Vieillissement (JEV), 20 et 21 mai, Lyon, France. Oral presentation.
28. Garobbio S, Bécu M, Cherifi Y, Sheynikovich D, **Arleo A** (2021). Impact of development on spatial cue processing. In VSS 2021. Abs & Poster presentation.
29. Sahel JA, Boulanger-Scemama E, Martel JN, Degli Esposti SD, Pagot C, **Arleo A**, Galluppi F, de Saint Aubert JB, de Montleau C, Gutman E, Benosman R, Duebel J, Picaud S, Dalkara D, Blouin L, Tiel M, Roska B (2021) Updates on PIONEER, a First-in-Man Optogenetics Therapy for Non-Syndromic Retinitis Pigmentosa. In ASGCT 2021. Abs & Poster presentation.
30. Agathos CP, Tremolada A, Benziane BA, Lagrené K, Seiple WH, **Arleo A** (2021) Visual search performance across adulthood and in AMD patients. In ARVO Annual Meeting 2021. Abs & Poster presentation.
31. Delaux A, de Saint Aubert J-B, Ramanoël S, Bécu M, Gehrke L, Klug M, Chavarriaga R, Sahel J-A, Gramann K, **Arleo A** (2021) Mobile brain imaging of active landmark-based navigation using immersive virtual reality and high-density EEG. In EBBS'21, Switzerland. Abs & Poster presentation.
32. Sahel J-A, Audo I, Boulanger-Scemama E, Pagot C, **Arleo A**, Galluppi F, Martel JN, degli Esposti S, Delaux A, de Saint Aubert J-B, de Montleau C, Gutman E, Duebel J, Picaud S, Dalkara D, Blouin L, Tiel M, Roska B (2021) Partial recovery of visual function in a blind patient after optogenetic therapy for non-syndromic Retinitis Pigmentosa. In ASGCT'21. Abs & Poster presentation.
33. de Saint Aubert J-B, Delaux A, Ramanoël S, Bécu M, Gehrke L, Klug M, Chavarriaga R, Sahel J-A, Gramann K, **Arleo A** (2021) Cortical and behavioral correlates of active landmark-based navigation with high-density EEG. In NeuroFrance'21, France. Abs & Poster presentation.
34. Martel JN, Sahel JA, Boulanger-Scemama E, Degli Esposti SD, Pagot C, **Arleo A**, Galluppi F, Delaux A, de Saint Aubert JB, de Montleau C, Gutman E, Audo I, Duebel J, Picaud S, Dalkara D, Blouin L, Tiel M, Roska B (2021) Optogenetics in the Clinic: Safety and Efficacy Updates on the Phase I/II Clinical Trial PIONEER. In ASRS'21. Abs & Poster presentation.

## 2020

35. Durteste M, Ramanoel S, Bécu M, Habas C, **Arleo A** (2020) Age-related differences in brain regions linked to visuo-spatial processing during landmark-based navigation. In 15ème Journée Scientifique des Jeunes Chercheurs en Psychologie. Abs & Oral presentation.
36. Sheynikhovich D, Carrillo R, Cherifi YI, Luque N, Bologna L-L, **Arleo A** (2020) Aging Human Avatar: a computational modeling platform to study neural correlates of aging. In Computational approaches for ageing and age-related diseases (CompAge), 1-2 September 2020, Paris, France. Abs & Oral presentation.
37. Bécu M, Sheynikhovich D, Ramanoel S, Tatur G, Ozier-Lafontaine A, Sahel JA, **Arleo A** (2020) Modulation of spatial cue processing across the lifespan: a geometric polarization of space restores allocentric navigation strategies in children and older adults. In Interdisciplinary Navigation Symposium (iNAV). Abs & Oral presentation.
38. Durteste M, Ramanoel S, Bécu M, Habas C, **Arleo A** (2020) Age-related differences in brain regions linked to visuo-spatial processing during landmark-based navigation. In Neuromatch 3.0. Abs & Oral presentation.
39. Durteste M, Ramanoel S, Bécu M, Habas C, **Arleo A** (2020) Differential brain activity in regions linked to visuo-spatial processing during landmark-based navigation in young and healthy older adults. In Journées d'Etude du Vieillissement, Lyon, France. Abs & Oral presentation.
40. Rossi EA, Norberg N, Eandi C, Kapoor S, Le L, Snyder V, Martel JN, Gautier J, Gocho K, Dansingani KK, Chhablani J, **Arleo A**, Mrejen S, Sahel J-A, Grieve K, Paques M (2020) A new method for visualizing drusen and their progression in flood-illumination adaptive optics ophthalmoscopy. In ARVO Annual Meeting 2020. Abs & Poster presentation.
41. Combariza S, Lagrené K, Bécu M, Seiple W, Raphanel Bataille M, Pâques M, Audois A, Duclos B, Girmens J-F, Eandi C, Mohand-Saïd S, Sahel J-A, **Arleo A** (2020) Healthy and pathological visual aging in a French follow-up cohort study. COC 2020, Paris, FR. Abs & Poster presentation.
42. Tremolada A, Agathos K, Lagrené K, Raphanel Bataille M, Reyes M, Chenguiti Y, **Arleo A** (2020) The impact of healthy and pathological visual ageing on visual exploration strategies. COC 2020, Paris, FR. Abs & Poster presentation.
43. **Arleo A**, Lagrené K, Tremolada A, Combariza S, Tzvetkov-Ricard F, Bécu M, Sahel J-A, Mohand-Saïd S, Audois A, Paques M, Seiple WH, Sheynikhovich D (2020) Lack of support for a common cause hypothesis of visuo-cognitive aging: multivariate statistical analysis on the SilverSight follow-up cohort study. In Computational approaches for ageing and age-related diseases (CompAge), 1-2 September 2020, Paris, France. Abs & Poster presentation.

## 2019

44. Agathos CP, Ramanoël S, Bécu M, Baranton K, Bernardin D, **Arleo A** (2019) An alternative view of dual-tasking in older adults: cognitive-motor interference while navigating in an ecological environment. Société Francophone Posture Équilibre et Locomotion (SOFPEL), Montreal, Quebec, Canada. Abs & Oral presentation.

45. Ramanoël S, Durteste M, Bizeul A, Bécu M, Habas C, **Arleo A** (2019) Age-related differences in the neural bases of landmark versus geometric spatial cue processing. In Colloque Vieillessement, tours, contours et perspectives, Tours, France. Abs & Oral presentation.
46. Sheynikhovich D, Li T, **Arleo A** (2019) Aging in the visual system: neurocomputational hypotheses. *NeuroFrance 2019*, Marseille, France. Abs & Oral presentation.
47. Sheynikhovich D, Li T, **Arleo A** (2019) Loop-like bidirectional interactions between place-cells and grid-cells in a vision- and self-motion driven spatial representation model. HBP NeuroSLAM Workshop, 13-14 March, EITN, Paris. Abs & Oral presentation.
48. Sheynikhovich D, Li T, **Arleo A** (2019) Modeling place cells and grid cells in multi-compartment environments. French Computational Neuroscience Symposium (NeuroComp), 17 June, 2019, Paris. Abs & Oral presentation.
49. Ramanoël S, Durteste M, Bizeul A, Ozier-Lafontaine A, Bécu M, Rossignol N, Habas C, **Arleo A** (2019) Distinct cerebral structures involved in the brain coding of landmark- and geometry-based spatial navigation. In Society for Neuroscience, SfN, Chicago, USA. Abs & Poster presentation.
50. Agathos C, Ramanoël S, Bécu M, Konogan B, Bernardin D, **Arleo A** (2019) Cognitive-motor interference in older adults while navigating in an ecological environment. In International Society of Posture & Gait Research (ISPGR), Edinburgh, Scotland. Abs & Poster presentation.
51. Agathos CP, Bécu M, Baranton K, Bernardin D, **Arleo A** (2019) Cognitive-motor interference in older adults while navigating in an ecological environment. In International Society for Posture and Gait Research World Congress (ISPGR), Seville. Abs & Poster presentation.
52. Silvestre D, **Arleo A**, Allard R (2019) Considerable age-related contrast sensitivity loss due to less efficient cones. In ARVO Annual Meeting 2019, Vancouver, Canada. Abs & Poster presentation.
53. Lagrené K, Bécu M, Seiple W, Raphanel Bataille M, Combariza S, Paques M, Aubois A, Duclos B, Girmens J-F, Eandi C, Mohand-Said S, **Arleo A** (2019) Healthy and pathological visual aging in a French follow-up cohort study. In ARVO Annual Meeting 2019, Vancouver, Canada. Abs & Poster presentation.
54. **Arleo A**, Becu M, Tatur G, Sheynikhovich D (2019) Impact of healthy aging on ocular fixation stability and microsaccades during optic flow. In ARVO Annual Meeting 2019, Vancouver, Canada. Abs & Poster presentation.

## 2018

55. Li T, **Arleo A**, Sheynikhovich D (2018) Bidirectional interactions between place-cells and grid-cells in the vision- and self-motion driven spatial representation model. In Spatial Cognition 2018, Tübingen, Germany, Berlin, Germany. Abs & Oral presentation.
56. Nael V, Scherlen AC, **Arleo A**, Helmer C (2018) Impact of sensory impairment on cognition and autonomy in older adults. In French Society of Ophthalmology, Paris, France. Abs & Oral presentation.
57. Sheynikhovich D, Li T, **Arleo A** (2018) Vision-based model of human spatial cognition: coordinate transformations, limited visual field and reorientation. In the 3rd Workshop on Models and Representations in Spatial Cognition, Tübingen, Germany, 2018. Abs & Oral presentation.
58. Bécu M, Tatur G, Sheynikhovich D, Ramanoel S, Agathos C, Ozier-Lafontaine A, **Arleo A** (2018) Age-related preference for geometric cues: when aging does not impair allocentric strategies. In iSCAN 2018, Magdeburg, Germany. Abs & Poster presentation.
59. Bécu M, Tatur G, Sheynikhovich D, Ramanoel S, Agathos C, **Arleo A** (2018) Age-related preference for geometric cues during real-world navigation: behavioral and neuroimaging correlates. In Interdisciplinary Navigation Symposium (iNav), Mont-Tremblant, Canada. Abs & Poster presentation.
60. Bécu M, Tatur G, Sheynikhovich D, Agathos C, Bologna LL, **Arleo A** (2018) Age-related preference for geometric cues during real-world navigation. In Forum of Neuroscience (FENS), Berlin, Germany. Abs & Poster presentation.
61. Bécu M, Tatur G, Sheynikhovich D, Ramanoel S, Agathos C, **Arleo A** (2018) Age-related preference for geometric cues during real-world navigation: behavioral and neuroimaging correlates. In Spatial Cognition 2018, Tübingen, Germany. Abs & Poster presentation.
62. Huth J, Masquelier T, **Arleo A** (2018) What has Deep Learning ever done for us? Simulating the Visual System with convs. In 11<sup>th</sup> FENS Forum 2018. Abs & Poster presentation.
63. Li T, **Arleo A**, Sheynikhovich D (2018) Bidirectional interactions between place-cells and grid-cells in the vision- and self-motion driven spatial representation model. In 11<sup>th</sup> FENS Forum of Neuroscience, Berlin, Germany. Abs & Poster presentation.
64. Li T, **Arleo A**, Sheynikhovich D (2018) Vision-based model of primate spatial cognition: coordinate transformations, limited visual field and reorientation. In 2nd Interdisciplinary Navigation Symposium, iNAV 2018, Quartier Tremblant, Canada. Abs & Poster presentation.
65. Nael V, Monfermé S, Moreau G, Cougnard-Grégoire A, Scherlen A-C, **Arleo A**, Korobelnik JF, Delcourt C, Helmer C (2018) Uncorrected refractive errors in older adults: prevalence according to the presence of age-related eye disease. In ARVO 2017, Baltimora, USA. Abs & Poster presentation.
66. Nael V, Moreau G, Pérès K, **Arleo A**, Scherlen A-C, Dartigues J-F, Tzourio C, Berr C, Delcourt C, Helmer



C (2018) Visual loss and cognitive decline in older adults: results from a French population-based cohort study. In Alzheimer Association International Conference, Chicago, USA. Abs & Poster presentation.

67. Boucly C, Tatur G, **Arleo A**, Tartaglia EM (2018) Eye-movements as a signature of age-related differences in global planning strategies for spatial navigation. In GDR ISIS 2018, Paris. Abs & Poster presentation.
68. Silvestre D, **Arleo A**, Allard R (2018) Absorption efficiency of cones is considerably affected with healthy aging. In ECVP. Abs & Poster presentation.

#### 2017

69. Huth J, Masquelier T, **Arleo A** (2017) Inspecting and optimizing vision models with ConVis. UPMC Symposium of Computational Neuroscience, Paris, France. Abs & Oral presentation.
70. Bécu M, Tatur G, Bourefis AR, Bologna LL, Sheynikhovich D, **Arleo A** (2017) Age-related changes in gaze dynamics during real-world navigation. *Journal of Vision - VSS'17*, 17:540. Abs & Poster presentation.
71. Bécu M, Tatur G, Bourefis AR, Bologna LL, Sheynikhovich D, **Arleo A** (2017) Age-related changes in gaze dynamics during real-world navigation. ECEM, Wuppertal, Germany. Abs & Poster presentation.
72. **Arleo A**, Bécu M, Tatur G, de Dieuleveult A, Wu C, Marchesotti S, Sheynikhovich D (2017) Effect of aging on ocular fixation and microsaccades during optic flow. *Journal of Vision - VSS'17*, 17:890. Abs & Poster presentation.
73. Bécu M, Tatur G, Wu C, Sheynikhovich D, **Arleo A** (2017) Effect of aging on ocular fixation and microsaccades during optic flow. ECEM, Wuppertal, Germany. Abs & Poster presentation.
74. Ramanoël S, York E, Lagrené K, Habas C, **Arleo A** (2017) Age-related changes in functional connectivity and gray matter integrity on scene-processing and spatial navigation networks. Neuroscience Workshop Saclay: Neural Circuits and Behavior, France. Abs & Poster presentation.
75. Bécu M, Ramanoël S, Tatur G, Lagrené K, Habas C, **Arleo A** (2017) Age-related changes in spatial learning of a real environment and gray matter integrity: a voxel-based morphometric study. Neuroscience Workshop Saclay: Neural Circuits and Behavior, France. Abs & Poster presentation.
76. Huth J, Masquelier T, **Arleo A** (2017) The "convis" framework: population simulation of the visual system with automatic differentiation using theano. CNS, Antwerp, Belgium. Abs & Poster presentation.
77. Huth J, Masquelier T, Allard R, **Arleo A** (2016) Using equivalent internal noise as a constraint on vision models. Bernstein Conf. for Computational Neuroscience, Berlin, Germany. Abs & Poster presentation.
78. Luque N, Naveros F, Carrillo R, Ros E, **Arleo A** (2017) Silent and bursting states of Purkinje cell activity modulate VOR adaptation. CNS, Antwerp, Belgium. Abs & Poster presentation.
79. Li T, **Arleo A**, Sheynikhovich D (2017) Coordinate-transformation spiking neural network for vision-based spatial orientation. Hippocampus meeting, Paris, France. Abs & Poster presentation.
80. Li T, **Arleo A**, Sheynikhovich D (2017) Coordinate-transformation spiking neural network for spatial navigation. CNS, Antwerp, Belgium. Abs & Poster presentation.
81. Scherlen A-C, Nael V, Helmer C, **Arleo A**, Korobelnik J-F, Delcourt C (2017) Uncorrected refractive errors in older adults: prevalence according to the presence of age-related eye disease. ARVO, USA. Abs & Poster presentation.
82. Nael V, Delcourt C, Dartigues J-F, **Arleo A**, Scherlen A-C, Pérès K, Helmer C (2017) Visual impairment and 12 years risk of dementia in older adults: a French population-based cohort study. Intern. Conf. on Alzheimer's and Parkinson's Diseases, Austria. Abs & Poster presentation.
83. Silvestre D, **Arleo A**, Allard R (2017) Spatiotemporal maps of quantal noise, dark light and late neural noise limiting contrast sensitivity. *Journal of Vision - VSS'17*, 17(10):785. Abs & Poster presentation.
84. Silvestre D, **Arleo A**, Allard R (2017) Contrast sensitivity: measuring late internal noise across spatial frequencies. *Journal of Vision - VSS'17*, 16(12):957. Abs & Poster presentation.
85. Allard R & **Arleo A** (2017) Photopic motion sensitivity at high temporal frequencies is limited by the dark light of the eye, not photon noise. *Journal of Vision - VSS'17*, 17:600. Abs & Poster presentation.
86. Huth J, Mayer E, Masquelier T, **Arleo A** (2017) Effects of Noise on Contrast Gain Control. In European Retina Meeting. Abs & Poster presentation.
87. Li T, **Arleo A**, Sheynikhovich D (2017) Coordinate-transformation spiking neural network for spatial navigation. In 3e Symposium des Neurosciences Computationnelles de l'UPMC, Paris, France. Abs & Poster presentation.

#### 2016 and before

88. Allard R, **Arleo A** (2016) Perception of global object motion without integration of local motion signals. European Conference on Visual Perception, Barcelona, Spain. Abs & Oral presentation.
89. Allard R, **Arleo A** (2015) The temporal efficiency function of the energy-based and feature tracking motion systems. Vision Science Society (VSS), Florida, USA. Abs & Oral presentation.
90. Logiaco L, Deger M, Schwalger T, **Arleo A**, Gerstner W (2015) A dynamic non-linear mean field method for networks of adapting neurons in the asynchronous state. In Beyond Mean Field Workshop, Gottingen, Germany. (Poster)
91. Brasselet R, Pinoteau J, Johansson RS, **Arleo A** (2014) Isometric mapping between environment and temporal

neural activity. AREADNE, Greece. (Poster)

92. Logiaco L, Deger M, Schwalger T, **Arleo A**, Gerstner W (2014) Towards the control of bistable attractors by temporally modulated inputs. Bernstein Conference, Göttingen, Germany. (Poster)
93. Duvelle E, Hok V, Poucet B, **Arleo A** & Save E (2014) Goal coding and the hippocampus. Colloque NeuroMem - GDR Neurosciences de la Mémoire, Grasse, France. (Oral presentation)
94. Duvelle E, Hok V, Poucet B, **Arleo A**, Save E (2013) Goal-related firing and the representation of goal value in hippocampal place cells. French Society for Neuroscience Meeting, Lyon, France. (Poster)
95. Logiaco L, Quilodran R, Gerstner W, Procyk E, **Arleo A** (2013) Modulation of a decision-making process by spatiotemporal spike patterns decoding. CNS, Paris, France. (Poster)
96. Logiaco L, Quilodran R, Rothé M, Procyk E, **Arleo A** (2012) The spatiotemporal structure of anterior cingulate cortex activity contributes to behavioural adaptation coding. FENS, Barcelona, Spain.
97. Sheynikhovich D, Otani S, **Arleo A** (2012) The role of dopamine in LTP/LTD threshold modulation in the prefrontal cortex. FENS, Barcelona, Spain.
98. Martinet LE, Sheynikhovich D, Benchenane K, **Arleo A** (2011) Spatial learning and action planning in a prefrontal cortical network model. In Proceedings of the 10th French Society for Neuroscience Meeting, Marseille, France.
99. Passot JB, Sheynikhovich D, Rondi-Reig L, **Arleo A** (2011) A neurocomputational study of the role of the cerebellum in spatial cognition. In Proceedings of the 10th French Society for Neuroscience Meeting, Marseille, France.
100. Sheynikhovich D, Otani S, **Arleo A** (2011) The role of phasic and tonic dopamine for long-term plasticity in the rat prefrontal cortex: a computational model. In Proceedings of the 10th French Society for Neuroscience Meeting, Marseille, France.
101. **Arleo A**, Brasselet R, Bologna LL, Pinoteau J, Jörntell H, Johansson RS (2011) Neural coding in the early stages of the somatosensory pathway: a metrical information theory analysis of human microneurography data. In Proceedings of the 10th French Society for Neuroscience Meeting, Marseille, France.
102. Sheynikhovich D, Otani S, **Arleo A** (2010) The role of dopamine in long-term plasticity in the rat prefrontal cortex: a computational model. In FENS Abstracts, vol. 5, 103.60, Amsterdam, Netherlands.
103. Brasselet R, Johansson RS, **Arleo A** (2010) Quantifying neurotransmission by taking into account the metrical properties of spike trains. In SIMAI—International Symposium on new trends in scientific computing: computational biology, Abs. N. 628, Cagliari, Italy.
104. Martinet LE, Sheynikhovich D, Benchenane K, **Arleo A** (2010) Integrating a hippocampal and a cortical model for spatial navigation planning, In: Proceedings of 14th International Conference on Cognitive and Neural Systems (ICCN'S'10), Boston, USA.
105. Brasselet R, Johansson RS, **Arleo A** (2010) Quantifying neurotransmission through an entropy measure embedding spike train metrics. In International Workshop on the Shapes of Brain Dynamics, Paris, France.
106. Sheynikhovich D, Otani S, and **Arleo A** (2010) The role of dopamine in long-term plasticity in the rat prefrontal cortex: a computational model, In: Computational and Systems Neuroscience Conference (Cosyne2010).
107. Brasselet R, Johansson RS, **Arleo A** (2010) Quantifying neurotransmission through an entropy measure embedding spike train metrics. In International Workshop on Dendrites, Neurones and Networks, Warwick, UK.
108. Brasselet R, Johansson RS, **Arleo A** (2010) Quantifying neurotransmission through an entropy measure embedding spike train metrics. In International Workshop on Spike Train Measures and Neural Coding, Plymouth, UK.
109. Bologna LL, Maggiali M, Sandini G, **Arleo A** (2009) Encoding/Decoding of spatiotemporal signals from an artificial touch sensor, In Humanoids Conference 2009, Paris, France.
110. Brasselet R, Johansson RS, **Arleo A** (2009) Fast encoding/decoding of haptic microneurography data based on first-spike latency, In Humanoids Conference 2009, Paris, France.
111. Martinet LE, Sheynikhovich D, Meyer JA, **Arleo A** (2009) Multimodal encoding in a cortical model for spatial navigation planning. BMC Neuroscience 10 (Suppl1): P338.
112. Brasselet R, Johansson RS, Coenen OJMD, **Arleo A** (2009) Fast encoding/decoding of haptic microneurography data based on first spike latencies. BMC Neuroscience 10 (Suppl1): P349.
113. Passot J-P, Rondi-Reig L, A. **Arleo A** (2009) Modeling cerebellar learning for spatial cognition. BMC Neuroscience 10 (Suppl1): P141.
114. 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. In: Proceedings of the 4th Computational Cognitive Neuroscience Conf, Boston, USA.
115. Sheynikhovich D, Otani S, **Arleo A** (2009) Role of dopamine for long-term plasticity in the rat prefrontal cortex: a computational model. In Renaud S and Saighi S, editors, Proceedings of the Conference NeuroComp, 4:P-30.
116. Brasselet R, Johansson RS, **Arleo A** (2009) Fast encoding/decoding of haptic microneurography data based on first spike latencies. In Renaud S and Saighi S, editors, Proceedings of the Conference NeuroComp, 4:P-5.
117. Passot JB, Arabo A, Sheynikhovich D, Rondi-Reig L, **Arleo A** (2009) Studying the role of the cerebellum in spatial

- cognition through a neurocomputational approach. In: Proceedings of the Conference NeuroComp, 4:P-26.
118. Martinet LE, Sheynikhovich D, **Arleo A** (2009) A cortical column model for studying spatial navigation planning. In: Proceedings of the Conference NeuroComp, 4:P-24.
  119. Martinet LE, Sheynikhovich D, Meyer JA, **Arleo A** (2009) A cortical column model for spatial navigation planning, In: Proceedings of the “Journées Francophones de Planification, Décision et Apprentissage”, Paris.
  120. Martinet LE, Sheynikhovich D, Meyer JA, **Arleo A** (2009) Multimodal encoding in a cortical model for spatial navigation planning, In: Colloque des Jeunes Chercheurs en Sciences Cognitives (Toulouse, France).
  121. David FO, **Arleo A**, Leresche N, Lambert RC (2008) Dynamical effects of the T-current potentiation upon the oscillatory activity of thalamocortical neurons associated to sleep: a predictive model. FENS Abstracts, vol.4, 047.8.
  122. David FO, **Arleo A**, Leresche N, Lambert RC (2008) Dynamical effects of the T-current potentiation upon the oscillatory activity of thalamocortical neurons associated to sleep: a predictive model. In: Workshop on Mathematical Neuroscience, Edinburgh, UK.
  123. Bezzi M, **Arleo A**, Nieuws T, D’Errico A, D’Angelo E, Coenen OJMD (2007) Information theoretic quantification of neural transmission following changes in release probability. In Proceedings of the International Conference on Computational and Systems Neuroscience, p. 284.
  124. **Arleo A**, Battaglia FP, Déjean C, Zugaro MB, Wiener SI (2005) Rat anterodorsal thalamic head direction neurons are modulated by hippocampal theta rhythm. In Society for Neuroscience Abstracts, No. 198.18, Washington, DC, USA.
  125. Bezzi M, Nieuws T, **Arleo A**, D’Errico A, D’Angelo E, Coenen OJMD (2006) Quantitative characterization of information transmission in a single neuron. In Ijspeert AJ et al., editors, Dynamical principles for neuroscience and intelligent biomimetic devices, EPFL-Latsis Symposium 2006, Switzerland.
  126. Coenen OJMD, Bezzi M, **Arleo A**, Nieuws T, D’Errico A, D’Angelo E (2005) Quantitative characterization of information transmission in a single neuron. In Society for Neuroscience Abstracts, No. 823.3, Washington, DC, USA.
  127. Bezzi M, **Arleo A**, Coenen OJMD (2005) Exploring the neural code by information theory. In: Aquilano D et al, editors, Proceedings of the Workshop NeuroMat, pp. 183-189, MIRIAM Milan.
  128. Bezzi M, Nieuws T, **Arleo A**, D’Angelo E, Coenen OJMD (2005) Reti neuronali impulsive per il controllo di robot: il progetto SpikeForce. In: Atti del Convegno Nazionale ANIPLA-BIOSYS 2005, Sistemi di Ingegneria Biomedica Milano, pp. 226-235.
  129. **Arleo A**, Déjean C, Boucheny C, Khamassi M, Zugaro MB, Wiener SI (2004) Optic field flow signals update the activity of head direction cells in the rat anterodorsal thalamus. In Proceedings of the XXIII Intern. Congress of the Barany Society, Paris.
  130. **Arleo A**, Boucheny C, Degris T, N. Brunel, Wiener SI (2004) Head direction cells and spatial orientation in rats: Experimental findings and computational modeling. In Proceedings of the Workshop on Neurobotic models in Neuroscience and Neuroinformatics, Los Angeles, U.S.A.
  131. Wiener SI, **Arleo A**, Déjean C, Boucheny C, Khamassi M, Zugaro MB (2004) Optic field flow signals update the activity of head direction cells in the rat anterodorsal thalamus. In Society for Neuroscience Abstracts, No. 209.2, San Diego, USA.
  132. **Arleo A**, Degris T, Boucheny C, Wiener SI (2004) The neural basis of spatial orientation in rats: Electrophysiology, computational modeling, and robotics. In J.-A. Meyer, A. Guillot, editors, Proceedings of the Int. Workshop Towards Artificial Rodents, Paris.
  133. Bezzi M, Nieuws T, **Arleo A**, D’Angelo E, Coenen OJMD (2004) Information transfer at the mossy fiber-granule cell synapse of the cerebellum. In Society for Neuroscience Abstracts, No. 827.5, San Diego, USA.
  134. Coenen OJMD, Boucheny C, Bezzi M, Marchal D, Arnold MP, Ros E, Carillo E, Ortigosa EM, Agis R, Barbour B, **Arleo A**, Nieuws T, D’Angelo E (2004) Adaptive spiking cerebellar models and real-time simulations. In Society for Neuroscience Abstracts, No. 827.4, San Diego, USA.
  135. Burguière E, Rutteman M, **Arleo A**, Wiener SI, De Zeeuw CI, Berthoz A, Rondi-Reig L (2004) Deficit during spatial navigation in L7-PKCI mice lacking cerebellar Long-Term Depression: a motor learning problem? In: Forum of European Neuroscience Abstracts, vol.2, A042, Lisbon, Portugal.
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