

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
 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
 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, Ecole Polytechnique Fédérale de Lausanne, EPFL, CH
 1991–1996 MSc in Artificial Intelligence, 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 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 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, 3.55 M€
 2021–2023 AVIESAN-UNADEV ITMO INSERM, role: Coordinator, 174 K€
 2020–2022 IHU FOrReSight ANR, role: Coordinator, 100 K€
 2019–2022 Fondation pour la Recherche sur Alzheimer's, role: PI, 100 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 6th FP, 12 partners, role: PI, 300 K€
 2007–2010 EU IST-027819-IP 6th 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: ~9.3 M€

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

- Overall: 53 articles in international journals (+16 under review / in preparation)
 56 invited talks to international conferences & (inter)national institutions
 34 articles in peer-reviewed proceedings
 112 conference abstracts (both poster and oral presentations)
 2 edition of a special issue of an international journal
 4 book chapters
 2 books/dissertations
 7 patents & copyrights
 2 software licenses
 1 technical report

Total #citations: 1988; highest #citations/paper: 331; h-index: 23 (Google scholar)

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

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

- 2019– Gramann K, Technical University of Berlin, Germany
 2018– Mamassian P, ENS, Paris, France
 2016– Wexler M, CNRS Univ Paris Descartes, France
 2015– Chavarriaga R, Swiss Federal Institute of Technology Lausanne EPFL, Switzerland
 2014– Seiple WH, New York University, Lighthouse Inc., NY, 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)
 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

2007– >20 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
 2012–2017 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

Scientific & steering boards

- 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
 2016–2029 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 (~30), organizer & chairman
 2015 Kick-off 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 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

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*)

2020–2022	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*)

2021–2023	Talebi A (EU ENTRAIN VISION)
2020–2023	John-Vyani-Rajalingam J (Optic 2000)
2019–2022	De Saint Aubert J-B (ANR SilverSight II)
2019–2022	Morin P-O (self-funded)
2019–2022	Cherifi Y (ANR SilverSight II)
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 Logiacco L
 2010–2014 University Aix en Provence, France; Save E, co-supervision of Duvelle E

Supervision of graduate & undergraduate students ($n>60$)

- 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=53 + 16 under review and/or in preparation)

1. 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, Tiel M, Roska B. Partial recovery of visual function in a blind patient after optogenetic therapy. *Nature Medecine (in press)*
2. Delaux A, de Saint Aubert J-B, Ramanoel S, Bécu M, Gehrke L, Klug M, Chavarriga 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*, doi:10.1111/ejn.15190.
3. 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.
4. 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.
5. 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.
6. 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.
7. 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.
8. 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.
9. 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.
10. 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.
11. Silvestre D, **Arleo A**, Allard R (2019) Healthy aging impairs photon absorption efficiency of cones. *Investigative Ophthalmology & Vision Science*, 60(2):544-51.
12. 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.
13. 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.
14. 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.
15. 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.
16. 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.
17. Raphanel M, Shaughness 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.
18. 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.
19. Sheynikhovich D, Bécu M, Wu C, **Arleo A** (2018) Unsupervised detection of microsaccades in high-noise regime. *Journal of Vision*, 18(6):19.
20. Silvestre D, **Arleo A**, Allard R (2018) Internal noise sources limiting contrast sensitivity. *Scientific Reports*, 8(1):2596.

21. Brasselet R and Arleo A (2018) Category structure and categorical perception jointly explained by similarity-based information theory. *Entropy*, 20(7):527.
22. 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.
23. Allard R, Arleo A (2017) Factorizing the motion sensitivity function into equivalent input noise and calculation efficiency. *Journal of Vision*, 17(1):17.
24. 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.
25. Allard R, Arleo A (2017) Reducing luminance intensity can improve motion sensitivity in noise. *Scientific Reports*, 7:43140.
26. Jules Etienne C, Arleo A, Allard R (2016) Maximizing noise energy for noise-masking studies. *Behavioral Research Methods*, 49(4):1278-90.
27. 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.
28. 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]
29. Sheynikhovich D, Otani S, Arleo A (2013) Dopaminergic control of LTD/LTP threshold in prefrontal cortex. *Journal of Neuroscience*, 33(34):13914-26.
30. 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]
31. 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).
32. 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.
33. 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.
34. Passot J-B, Sheynikhovich D, Duvelle E, Arleo A (2012) Contribution of cerebellar sensorimotor adaptation to hippocampal spatial memory. *PLoS ONE*, 7(4):e32560.
35. Brasselet R, Johansson RS, Arleo A (2011) Quantifying neurotransmission reliability through metrics based information analysis. *Neural Computation*, 23(4):852-81.
36. 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.
37. 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.
38. 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.
39. 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.
40. 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.
41. 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.
42. 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.
43. Arleo A, Chavarriaga R (2007) Multisensory integration and parallel memory systems for spatial cognition (editorial). *Journal of Integrative Neuroscience*, 6(3):1-4.
44. Burguière E, Arleo A, Hojjati MR, Elgersma Y, DeZeeuw CI, Berthoz A, and Rondi-Reig L (2005) Spatial navigation impairment in mice lacking cerebellar LTD: a motor adaptation deficit? *Nature Neuroscience*, 8(10):1292-4.
45. 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.

46. Zugaro MB*, Arleo A*, Burguière E, Déjean C, Khamassi M, and 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.
47. 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.
48. 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.
49. Zugaro MB, Arleo A, Berthoz A, and Wiener SI (2003) Rapid spatial reorientation and head direction cells. *Journal of Neuroscience*, 23(8):3478-82.
50. 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.
51. Arleo A and Gerstner W (2001) Spatial orientation in navigating agents: modeling head-direction cells. *Neurocomputing*, 38-40(1-4):1059-65.
52. Arleo A and Gerstner W (2000) Spatial cognition and neuromimetic navigation: A model of hippocampal place cell activity. *Biological Cybernetics*, 83:287-99.
53. 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.

Under review and/or under submission (n=16)

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. A new method for visualizing drusen and their progression in flood-illumination adaptive optics ophthalmoscopy. (1st round review)

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 (2nd round review)

Bécu M, Sheynikhovich D, Ramanoël S, Tatur G, Ozier-Lafontaine A, Sahel J-A, Arleo A. Modulation of spatial cue processing across the lifespan: a geometric polarization of space restores allocentric navigation strategies in children and older adults. *bioRxiv*, 945808. (1st round review)

Luque NR, Naveros F, Carrillo RR, Ros E, Arleo A. A computational model of homeostatic cerebellar compensation of ageing in vestibulo-ocular reflex adaptation. *bioRxiv*, 233833. (1st round review)

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. (1st round review)

Allard, R, Arleo A. The false aperture problem: Global motion perception without integration of local motion signals. (1st round review)

Sheynikhovich D, Otani S, Bai J, Arleo A. Long-term memory, synaptic plasticity, and dopamine in rodent prefrontal cortex: role in executive function. (1st round review)

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)

Ramanoël S, Durteste M, Bizeul A, Ozier-Lafontaine A, Bécu M, Rossignol N, Habas C, Arleo A. Selective neural coding of object, feature, and geometry spatial cues in humans. (1st round review)

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)

Ramanoel S, Durteste M, Delaux A, de Saint Aubert J-B, Seiple WH, Arleo A. Impact of visual aging on spatial orientation and navigation. *Invited review paper for Aging Brain*. (In preparation)

Tatur G, Tartaglia E, Arleo A. Spatial map learning and detour planning in children, young and older adults, a virtual reality approach. (In preparation)

Trognon A, Silvestre D, Braham-Chaouche A, Arleo A, Allard R. Attention-based motion processing is largely preserved with healthy aging. (In preparation)

Niceto L, Naveros F, Ros E, Arleo A. Electrical coupling regulated by GABAergic olivary afferents facilitates cerebellar sensorimotor adaptation. (In preparation)

Bécu M, Tatur G, Arleo A. Age-related consequences on fixational eye movements during optic flow. (In preparation)

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 neuro-robotic 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 neuro-robotic 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, Chavarriga 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 Psikharpx. 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. Strösslín 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=56)

At international conferences & institutions (n=35)

1. International Conference ISCAN, Germany, 2021
2. International Conference iNAV, Italy, 2020
3. International Conference on Visual Diseases, Paris, 2020
4. University of Geneva, Switzerland, 2019
5. University of Michigan - Kellogg Eye Center, USA, 2019
6. Shanghai East China Normal University, China, 2019
7. European Vision Institute, Basel, Switzerland, 2018
8. Iberian Conference on Perception, Portugal, 2017
9. Laboratory of Psychophysics - EPFL, Switzerland, 2017
10. Société Française d'Ophtalmologie SFO'17, France, 2017
11. University of Lausanne, Switzerland, 2017
12. International Conference on Mathematical & Computational Neuroscience, Italy, 2016
13. International Workshop on Neuromorphic & Brain-Based Computing Systems, Grenoble, France, 2013
14. International BCCN Sparks Workshop on NeuroEngineering the Brain, Munich, Germany, 2013
15. International Workshop on Cerebellum Models, CNS, Paris, France, 2013
16. International Workshop on Early Touch, CNS, Paris, France, 2013
17. Okinawa OIST Computational Neuroscience, Okinawa, Japan, 2013
18. Italian Institute of Technology, Genova, Italy, 2012
19. International Work Conference on Artificial Neural Networks, Torremolinos, Spain, 2011
20. BioRobotics Institute, Scuola Superiore Sant'Anna, Pisa, Italy, 2011
21. International Conference on Mathematical Biology, Cagliari, Italy, 2010
22. Workshop on Tactile sensing, Humanoids'09 International Conference, Paris, France, 2009
23. Institute of Physiology, University of Lausanne, Switzerland, 2007
24. Brain & Mind Institute, EPFL, Lausanne, Switzerland, 2006
25. International Symposium on Spatial Perception and Cognition, APA Annual Meeting, USA, 2004
26. International Workshop on Neurobotic Models in Neuroscience & Neuroinformatics, USA, 2004
27. International Workshop on Towards Artificial Rodents, Paris, France, 2004
28. International Conference on Embodied Artificial Intelligence, Max Planck Institute, Germany, 2003
29. International Symposium on Cognitive Robotics, Max Planck Institute, Germany, 2003
30. Brain & Mind Institute, EPFL, Lausanne, Switzerland, 2003
31. Brain & Mind Institute, EPFL, Lausanne, Switzerland, 2002
32. International Workshop on Theoretical Robotics, UK, 2002
33. Workshop on Brain bases of Spatial Orientation, France, 2002
34. XXVII International Ethological Conference, Germany, 2001

35. Institute for Systems, Informatics and Safety, Joint Research Centre (EU), Italy, 1999

At national conferences & institutions (n=21)

36. Congrès d'Optométrie et de Contactologie, Montrouge, France, 2020
37. Centre d'Investigation Clinique, Hôpital des Quinze-Vingts, Paris, France, 2019
38. CNRS Centre de Recherche Cerveau & Cognition, Cerco, Toulouse, France, 2019
39. Société Française d'Ophthalmologie SFO Symposium ARIBA, France, 2018
40. Société Française d'Ophthalmologie SFO'17, France, 2017
41. Société Française d'Ophthalmologie SFO Symposium Optic-2000, France, 2016
42. Société Française de Réflexion Sensori-Cognitive, Paris, France, 2016
43. Ecole Mines Nimes, Nimes, France, 2016
44. ESSILOR R&D Rencontre de la veille, Créteil, France, 2016
45. Laboratory for Analysis and Architecture of Systems, CNRS, Toulouse, France, 2015
46. Institut du Fer à Moulin, Paris, France, 2013
47. Vision Institute, Paris, France, 2013
48. CEA - Nano-INNOV Center, Saclay, France, 2013
49. CNRS Defisens workshop TACT, Lyon, France, 2012
50. GDT Mathematics & Neuroscience, Institut Henri Poincaré, Paris, France, 2011
51. Unit of Neurophysics & Physiology, University Descartes P5, Paris, France, 2011
52. Unit of Neurobiology of Executive Processes, Inserm Lyon, 2011
53. Symposium Maths & Brain, Institute of Mathematics Jussieu UPMC, Paris, 2006
54. AnimatLab, Unit of Computer Science, UPMC, Paris, 2003
55. Symposium Maths & Brain, Institute of Mathematics Jussieu UPMC, Paris, 2003
56. 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, **Application N. 19305363.4 - 122, Date of filing: 22.03.2019**. In the name of: ESSILOR International & Sorbonne University.
2. METHOD FOR DETERMINING AN OPTICAL SYSTEM, AND OPHTHALMIC LENS AND OPHTHALMIC FILTER DETERMINED BY SAID METHOD, **Publication N. WO/2019/025264** (filed to EPO in Aug 2017). In the name of: ESSILOR International.

3. METHOD OF ANALYZING A VISUAL FIELD OF AN INDIVIDUAL AND A CORRESPONDING OPHTHALMIC LENS, **Publication N. WO/2019/122945** (filed to EPO in Dec 2017). In the name of: Sorbonne University & ESSILOR International.
4. METHOD FOR PRESCRIBING DENSITY FILTERS BASED ON A NOISE APPROACH, **Publication N. WO/2019/185854**. In the name of: ESSILOR International & Sorbonne University.
5. METHOD AND SYSTEM FOR SELECTING A COLOR FILTER, OPTICAL ARTICLE COMPRISING SUCH A COLOR FILTER, **Publication N. WO/2019/110758**. In the name of: ESSILOR International.
6. METHOD FOR ENHANCING MOTION PERCEPTION. Internal Patent File N. CAS2384. In the name of: ESSILOR International. Under filing procedure.
7. Software NEural network Learning of VAriable 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=112)

1. Garobbio S, Bécu M, Cherifi Y, Sheynikovich D, **Arleo A** (2021). Impact of development on spatial cue processing. VSS 2021.
2. 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, Tael M, Roska B (2021) Updates on PIONEER, a First-in-Man Optogenetics Therapy for Non-Syndromic Retinitis Pigmentosa. ASGCT 2021.
3. 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.
4. Ramanoël S, Durteste M, **Arleo A** (2020) The impact of visuo-cognitive aging on spatial navigation. GDR Mémoire, FR.
5. 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.
6. 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.
7. 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.
8. 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.
9. 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).
10. 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.
11. 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.
12. 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.
13. 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.
14. 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.
15. 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.
16. 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.
17. Lagrené K, Bécu M, Seiple W, Raphanel Bataille M, Combariza S, Paques M, Audois 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.
 18. **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.
 19. Sheynikhovich D, Li T, **Arleo A** (2019) Aging in the visual system: neurocomputational hypotheses. *NeuroFrance 2019*, Marseille, France.
 20. 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.
 21. 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.
 22. 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, pages 345.
 23. 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.
 24. Huth J, Masquelier T, **Arleo A** (2018) What has Deep Learning ever done for us? Simulating the Visual System with convis. In 11th FENS Forum 2018.
 25. 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.
 26. 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 11th FENS Forum of Neuroscience, Berlin, Germany.
 27. 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.
 28. 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.
 29. 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, Baltimore, USA.
 30. 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.
 31. 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.
 32. Silvestre D, **Arleo A**, Allard R (2018) Absorption efficiency of cones is considerably affected with healthy aging. In ECVF.
 33. 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. (Poster)
 34. 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. (Poster)
 35. **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. (Poster)
 36. 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. (Poster)
 37. 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. (Poster)
 38. 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. (Poster)
 39. Huth J, Masquelier T, **Arleo A** (2017) The "convis" framework: population simulation of the visual system with automatic differentiation using theano. CNS, Antwerp, Belgium. (Poster)
 40. 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. (Poster)

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42. Li T, **Arleo A**, Sheynikhovich D (2017) Coordinate-transformation spiking neural network for vision-based spatial orientation. Hippocampus meeting, Paris, France. (Poster)
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