

## Mehdi Khamassi

Permanent Research Scientist (CRCN CNRS)

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### Research interests

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Computational, behavioral & brain mechanisms for the online adaptive coordination of parallel learning processes in animals and robots.

### Approaches

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Combining computational modelling, experimentation in cognitive robotics, model-based analyses of neurobiological data, design of new experimental protocols to test model predictions, animal training and conditioning, and (formerly) extracellular multi-unit recordings in behaving animals.

### Affiliations

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Since 2018 **Permanent research scientist (CRCN CNRS)**, ISIR, Sorbonne Université, Paris, France  
Since 2017 **Visiting academic**, Department of Experimental Psychology, University of Oxford, UK  
Since 2016 **Visiting researcher**, National Polytechnical University of Athens, Greece  
2014-2017 **Permanent research scientist (CR1 CNRS)**, ISIR, UPMC, Paris, France  
2013-2015 **Visiting researcher**, Center for Mind/Brain Sciences, University of Trento, Italy  
2010-2014 **Permanent research scientist (CR2 CNRS)**, ISIR, UPMC, Paris, France.  
2008-2010 **Post-doctoral fellow**, INSERM - Stem-cells and Brain Research Institute, Lyon, France  
2008 (3m.) **Visiting researcher**, Neural Computation Unit, Okinawa Inst. of Science & Tech, Japan

### Other current academic responsibilities

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Since 2015 **Director of studies and pedagogical council member for the CogMaster**, École Normale Supérieure / École des Hautes Études en Sciences Sociales / Univ. Paris 5.  
Since 2012 **Co-animator of the “GT8 Robotics & Neuroscience” working group**, CNRS National Robotics Network called “Groupement De Recherche” (GDR).  
Since 2012 **Member of the executive committee of the SMART Labex**, gathering eight institutes/laboratories related to UPMC: ISIR, LIP6, LIF, LJLL, LTCI, LUTIN, L2E & STMS.

### Education

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2014 **HDR (Habilitation to Direct Researches)**, UPMC, Paris, France  
2003-2007 **Ph.D. in Cognitive Neuroscience** (summa cum laude), UPMC, Paris, France  
2002-2003 **M.Sc. in Cognitive Sciences – CogMaster** (summa cum laude, top rank), UPMC / École Normale Supérieure Ulm / École Polytechnique / EHESS, Paris, France  
2000-2003 **M.Eng. in Computer Science**, École Nationale Supérieure d’Informatique pour l’Industrie et l’Entreprise, Conservatoire National des Arts et Métiers / Université d’Évry, France. *Specialties: Artificial Intelligence & Statistical Modelling.*  
1998-2000 **Maths Sup. / Maths Spé. (MP)**, Lycée Charlemagne, Paris, France. *2 years of intensive Maths/Physics preparing the competitive entrance to French “Grandes Écoles”.*  
July 2005 **Okinawa Computational Neuroscience Course**, Okinawa, Japan  
Nov. 2004 **Okinawa Computational Neuroscience Course**, Okinawa, Japan  
Aug. 2003 **Integrative and Computational Neuroscience Summer School**, Concarneau, France

### Awards, honors and fellowships

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2017 **Visiting Fellowship**, University of Oxford, Department of Experimental Psychology  
2016 **Visiting Fellowship**, National Polytechnical University of Athens, ICCS Robotics Lab  
2014 **Visiting Fellowship**, University of Trento, Center for Mind/Brain Sciences

- 2012 **Best paper award at the International Conference on Simulation of Adaptive Behavior**, with Jean Bellot & Olivier Sigaud.
- 2011 **Best 2010 Paper in Neuroscience, "La Recherche" Price**, with Karim Benchenane, Sidney Wiener, Francesco Battaglia, Adrien Peyrache, Patrick Tierney & Yves Gioanni.
- 2010 **Top rank at the national competition for a tenured research position** at the Centre National de la Recherche Scientifique (CNRS). Interdisciplinary commission (CID) 44.
- 2010 **Top rank at the competition for a tenured assistant professor position** in Computer Science and Neurorobotics at Université Pierre et Marie Curie (UPMC), Paris, France.
- 2007 **National Qualification for university-level teaching** both in Computer Science and in Neuroscience by the Conseil National des Universités (CNU).
- 2005 **Initial Research Project Award** from Okinawa Institute of Science and Technology (OIST) to attend the Okinawa Computational Neuroscience Course (OCNC), Japan.
- 2004 **Initial Research Project Award** from Okinawa Institute of Science and Technology (OIST) to attend the Okinawa Computational Neuroscience Course (OCNC), Japan.
- 2003 **French Research Ministry Award** to attend the Integrative and Computational Neuroscience Summer School in Concarneau, France.
- 2003 **French Research Ministry PhD fellowship (MENRT)**, Université Pierre et Marie Curie, "Brain, Cognition & Behavior" Doctoral School (top rank).

#### **Funding (since tenure)**

- 2018-2010 **CNRS PICS Program** – "Auto-evaluation of performance for online adaptation of robots' learning parameters during social interactions" (role: PI with Costas Tzafestas) – Total: 20 K€ (for the team).
- 2017-2019 **CNRS "Osez l'Interdisciplinarité"** – "ROBAUTISTE: Learning and joint attention in autism" (role: PI with Mohamed Chetouani, Ouriel Grynszpan, Matthew Rushworth, Jérôme Sallet, Olivier Sigaud) – Total: 150 K€ (for the team).
- 2016-2019 **NSF-NIH-ANR Collaborative Research in Computational Neuroscience** – "Neurobehavioral assessment of a computational model of reward learning" (role: co-PI with Matt R. Roesch (PI), Alain Marchand) – Total: 670 K\$ (123 K\$ for the team)
- 2016-2018 **Royal Society International Exchanges Scheme** – "Highly stochastic analytic meta-learning: the Braitenberg vehicles case study" (role: co-PI with Iñaki Rañó (PI), KongFatt Wong-Lin) – Total: 10 K€ (half for the team).
- 2015-2018 **European Union H2020-ICT-2014** – "DREAM: Deferred Restructuring of Experience in Autonomous Machines" (role: participant with Stéphane Doncieux (PI) et al.) – Total: 2784 K€ (758 K€ for the team).
- 2015-2016 **Sorbonne Universités ANR-11-IDEX-0004-02 IDEX SUPER SU-15-R-PERSU-14 PERSU** – "ROBOT PARALLEARNING, Neuro-inspired coordination of parallel learning processes in robots" (role: PI) – Total direct costs: 70 K€ (for the team).
- 2013-2017 **Agence Nationale de la Recherche ANR-11-LABX-65 Labex SMART** – "Online Budgeted Learning" (role: co-PI with Ludovic Denoyer (PI), Patrick Gallinari, Benoît Girard) – Total direct costs: 285 K€ (half for the team).
- 2013-2016 **Agence Nationale de la Recherche ANR-12-CORD-0030 (CONTINT)** – "ROBOERGOSUM, Robot Self-Awareness" (role: co-PI with Rachid Alami, Benoît Girard, Raja Chatila (PI)) – Total direct costs: 422 K€ (258 K€ for the team).
- 2012-2013 **CNRS PEPS Program** – "GoHaL, Computational and neurophysiological bases of goal-directed and habit learning" (role: co-PI with Andrea Brovelli (PI), Francesca Sargolini) – Total direct costs: 44 K€ (10 K€ for the team).
- 2011-2015 **Agence Nationale de la Recherche ANR-11-BSV4-006** – "Learning Under Uncertainty" (role: co-PI with Paul Apicella, Etienne Coutureau, Benoît Girard, Alain Marchand, Emmanuel Procyk (PI)) – Total direct costs: 616 K€ (73 K€ for the team).
- 2011-2014 **Ville de Paris Emergence(s) Program** – "HABOT, From flexible to habitual behaviors:

neuroinspired learning for humanoid robots” (role: co-PI with Raja Chatila, Benoît Girard (PI)) – Total direct costs: 285 K€ (for the team).

2011-2012 **CNRS PEPII Program** – “IMAVO, Interactions between learning modules in a volatile environment” (role: co-PI with Etienne Coutureau, Alain Dutech, Benoît Girard, Alain Marchand (PI), Nicolas Rougier) – Total direct costs: 27 K€ (6 K€ for the team).

## Publications

### Full research papers in international peer-reviewed journals

30. Velentzas, G., Tsitsimis, T., Rano, I., Tzafestas, C. and Khamassi, M. (2018). Adaptive reinforcement learning with active state-specific exploration for engagement maximization during simulated child-robot interaction. **Paladyn Journal of Behavioral Robotics**. To appear.
29. Chatila, R., Renaudo, E., Andries, M., Chavez-Garcia, R.O., Luce-Vayrac, P., Alami, R., Clodic, A., Devin, S., Girard, B. and Khamassi, M. (2018). Towards self-aware robots. **Frontiers in Robotics and AI**. To appear.
28. Khamassi, M., Velentzas, G., Tsitsimis, T. and Tzafestas, C. (2018). Robot fast adaptation to changes in human engagement during simulated dynamic social interaction with active exploration in parameterized reinforcement learning. **IEEE Transactions on Cognitive and Developmental Systems**. To appear.
27. Dollé, L., Chavarriaga, R., Guillot, A.\* and Khamassi, M.\* (2018). Interactions between spatial strategies producing generalization gradient and blocking: a computational approach. **PLoS Computational Biology**, 14(4):e1006092. (\* equally contributing authors)
26. Aklil, N., Girard, B., Denoyer, L. and Khamassi, M. (2018). Sequential action selection and active sensing for budgeted localization in robot navigation. **International Journal of Semantic Computing**, 12(1):109-127.
25. Rougier, N.P.\* and Hinsén, K.\* and Alexandre, F. and Arildsen, T. and Barba, L. and Benureau, F.C.Y. and Brown, C.T. and de Buyl, P. and Caglayan, O. and Davison, A.P. and Delsuc, M.A. and Detorakis, G. and Diem, A.K. and Drix, D. and Enel, P. and Girard, B. and Guest, O. and Hall, M.G. and Henriques, R.N. and Hinaut, X. and Jaron, K.S. and Khamassi, M. and Klein, A. and Manninen, T. and Marchesi, P. and McGlenn, D. and Metzner, C. and Petchey, O.L. and Plesser, H.E. and Poisot, T. and Ram, K. and Ram, Y. and Roesch, E. and Rossant, C. and Rostami, V. and Shifman, A. and Stachelek, J. and Stimberg, M. and Stollmeier, F. and Vaggi, F. and Viejo, G. and Vitay, J. and Vostinar, A. and Yurchak, R. and Zito, T. (2017). Sustainable computational science: the ReScience initiative. **PeerJ Computer Science**, 3, e142. (\* equally contributing authors)
24. Viejo, G., Girard, B., Procyk, E. and Khamassi, M. (2017). Adaptive coordination of working-memory and reinforcement learning in non-human primates performing a trial-and-error problem solving task. **Behavioral Brain Research**, to appear.
23. Viejo, G., Girard, B. and Khamassi, M. (2016). [Re] Speed/accuracy trade-off between the habitual and the goal-directed process. **ReScience**, 2(1).
22. Viejo, G., Khamassi, M., Brovelli, A. and Girard, B. (2015). Modelling choice and reaction time during instrumental learning through the coordination of adaptive working memory and reinforcement learning. **Frontiers in Behavioral Neuroscience**, 9:225.
21. Palminteri, S., Khamassi, M., Joffily, M. and Coricelli, G. (2015). Contextual modulation of value signals in reward and punishment learning. **Nature Communications**, 6:8096.
20. Khamassi, M., Quilodran, R., Enel, P., Dominey, P.F. and Procyk, E. (2015). Behavioral regulation and the modulation of information coding in the lateral prefrontal and cingulate cortex. **Cerebral Cortex**, 25(9):3197-3218.
19. Renaudo, E., Girard, B., Chatila, C. and Khamassi, M. (2015). Respective advantages and disadvantages of model-based and model-free reinforcement learning in a robotics neuro-inspired cognitive architecture. **Procedia Computer Science**, 71:178-184.
18. Lesaint, F., Sigaud, O., Clark, J.J., Flagel, S.B. and Khamassi, M. (2015). Experimental predictions drawn from a computational model of sign-trackers and goal-trackers. **Journal of Physiology – Paris**, 109(1-3):78-86.

17. Lesaint, F., Sigaud, O. and Khamassi, M. (2014). Accounting for negative automaintenance in pigeons: A dual learning systems approach and factored representations. **PLoS ONE**, 9(10):e111050.
16. Lesaint, F., Sigaud, O., Flagel, S.B., Robinson, T.E. and Khamassi, M. (2014). Modelling individual differences observed in Pavlovian autoshaping in rats using a dual learning systems approach and factored representations. **PLoS Computational Biology**, 10(2):e1003466.
15. Arleo, A., Déjean, C., Allegraud, P., Khamassi, M., Zugaro, M.B. and Wiener, S.I. (2013). Optic flow stimuli update anterodorsal head direction neuronal activity in rats. **Journal of Neuroscience**, 33(42):16790-16795.
14. Cos, I., Khamassi, M.\*, Girard, B. (2013). Modelling the learning of biomechanics and visual planning for decision-making of motor actions. **Journal of Physiology – Paris**, 107(5):399-408. (\* corresponding author)
13. Khamassi, M., Enel, P., Dominey, P.F. and Procyk, E. (2013). Medial prefrontal cortex and the adaptive regulation of reinforcement learning parameters. **Progress in Brain Research**, 202:441-464.
12. Humphries, M.D., Khamassi, M. and Gurney, K. (2012). Dopaminergic control of the exploration-exploitation trade-off via the basal ganglia. **Frontiers in Neuroscience**, 6:9.
11. Caluwaerts, K., Staffa, M., N'Guyen, S., Grand, C., Dollé, L., Favre-Félix, A., Girard, B. and Khamassi, M. (2012). A biologically inspired meta-control navigation system for the Psikharpax rat robot. **Bioinspiration & Biomimetics**, 7(2):025009.
10. Khamassi, M. and Humphries, M.D. (2012), Integrating cortico-limbic-basal ganglia architectures for learning model-based and model-free navigation strategies. **Frontiers in Behavioral Neuroscience**, 6-79.
9. Khamassi, M., Lallée, S., Enel, P., Procyk, E. and Dominey P.F. (2011). Robot cognitive control with a neurophysiologically inspired reinforcement learning model. **Frontiers in Neurorobotics**, 5:1.
8. Benchenane, K., Peyrache, A., Khamassi, M., Wiener, S.I. and Battaglia, F.P. (2010). Coherent theta oscillations and reorganization of spike timing in the hippocampal-prefrontal network upon learning. **Neuron**, 66(6):921-936.
7. Peyrache, A., Benchenane, K., Khamassi, M., Wiener, S.I. and Battaglia, F.P. (2010). Sequential reinstatement of neocortical activity during slow oscillations depends on cells' intrinsic excitability. **Frontiers in Systems Neuroscience**, 3:18.
6. Peyrache, A., Benchenane, K., Khamassi, M., Wiener, S.I. and Battaglia, F.P. (2010). Principal component analysis of ensemble recordings reveals cell assemblies at high temporal resolution. **Journal of Computational Neuroscience**, 29(1-2):309-325.
5. Peyrache, A., Khamassi, M., Benchenane, K., Wiener, S.I. and Battaglia, F.P. (2009). Replay of rule-learning related neural patterns in the prefrontal cortex during sleep. **Nature Neuroscience**, 12(7):919-926.
4. Khamassi, M.\*, Mulder, A.B. \*, Tabuchi, E., Douchamps, V. and Wiener S.I. (2008). Anticipatory reward signals in ventral striatal neurons of behaving rats. **European Journal of Neuroscience**, 28(9):1849-1866. (\* equally contributing authors)
3. Khamassi, M., Lachèze, L., Girard, B., Berthoz, A. and Guillot, A. (2005). Actor-critic models of reinforcement learning in the basal ganglia: From natural to artificial rats. **Adaptive Behavior**, 13(2):131-148.
2. Meyer, J.-A., Guillot, A., Girard, B., Khamassi, M., Pirim, P., and Berthoz, A. (2005). The Psikharpax project: Towards building an artificial rat. **Robotics and Autonomous Systems**, 50(4):211-223.
1. Zugaro, M. B.\*, Arleo, A.\*, Déjean, C., Burguière, E., Khamassi, M. and Wiener, S. I. (2004). Rat anterodorsal thalamic head direction neurons depend upon dynamic visual signals to select anchoring landmark cues. **European Journal of Neuroscience**, 20(2):530-536. (\* equally contributing authors)

**Submitted papers to international peer-reviewed journals**

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8. Balard, S.\*, Lebreton, M.\*, Khamassi, M., Coricelli, G. and Palminteri, S. (in revision). Reference point and range-adaptation produce both rational and irrational choices in human reinforcement learning. (\* equally contributing authors)
7. Cazé, R.\*, Khamassi, M.\*, Aubin, L. and Girard, B. (in revision). Hippocampal replays under the scrutiny of reinforcement learning models. (\* equally contributing authors)
6. Khamassi, M., Peyrache, A., Benchenane, K., Hopkins, A., Lebas, N., Douchamps, V., Droulez, J., Battaglia, F.P. and Wiener, S.I. (submitted). Differential modulation by hippocampal theta and sharp-wave ripples of task rule cells and behavioral strategy cells in the rat medial prefrontal cortex.
5. Griessinger, T., Coricelli, G.\* and Khamassi, M.\* (submitted). The interplay of learning sophistication and strategic asymmetry in social competitive interactions. (\* equally contributing authors)
4. Cinotti, F., Fresno, V., Aklil, N., Coutureau, E., Girard, B., Marchand, A.\* and Khamassi, M.\* (submitted). Dopamine controls exploratory choices. (\* equally contributing authors)
3. Lee, B., Gentry, R., Bissonette, G.B., Herman, R.J., Mallon, J.J., Bryden, D.W., Calu, D.J., Schoenbaum, G., Coutureau, E., Marchand, A., Khamassi, M. and Roesch, M.R. (in revision). Manipulating the revision of reward value during the intertrial interval increases sign tracking and dopamine releases.
2. Renaudo, E., Dromnelle, R., Girard, B., Devin, S., Alami, R., Clodic, A., Chatila, C. and Khamassi, M. (submitted). Coordination of model-based and model-free reinforcement learning in a robot neuro-inspired cognitive architecture.
1. Bellot, J., Sigaud, O., Roesch, M.R., Schoenbaum, G., Girard, B. and Khamassi, M. (submitted). Dopamine neurons phasic activity does not encode the reward prediction error that behavioral adaptation would predict.

#### **Edited journal special issues**

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2. Khamassi, M., Chatila, R. and Mille, A. (2018). Ethics and Cognitive Sciences / Ethique et Sciences Cognitives. **Intellectica**, vol. 2018/2, num 70. In preparation.
1. Khamassi, M. and Doncieux, S. (2016). New Approaches in Cognitive Robotics / Nouvelles Approches en Robotique Cognitive. **Intellectica**, vol. 2016/1, num. 65.

#### **Short commentaries and abstracts in international journals**

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5. Viejo, V., Khamassi, M., Brovelli, A. and Girard, B. (2014). Coordination of adaptive working-memory and reinforcement learning systems explaining choice and reaction time during a human experiment. Publication of the abstract presented at the 23<sup>rd</sup> Computational Neuroscience Society meeting (CNS 2014) in **BMC Neuroscience**, 15(1), P156.
4. Bellot, J., Khamassi, M., Sigaud, O. and Girard, B. (2013). Which Temporal Difference Learning algorithm best reproduces dopamine activity in a multi-choice task? Publication of the abstract presented at the 22<sup>nd</sup> Computational Neuroscience Society meeting (CNS 2013) in **BMC Neuroscience**, 15(1), P144.
3. Benchenane, K., Peyrache, A., Khamassi, M., Wiener, S.I. and Battaglia, F.P. (2009). Coherence of Theta Rhythm between Hippocampus and Medial Prefrontal Cortex Modulates Prefrontal Network Activity During Learning in Rats. Publication of the short article presented at the 12th Meeting of the Hungarian Neuroscience Society in **Frontiers in Systems Neuroscience**, Vol. 1, No. 04.132, doi:10.3389/conf.neuro.01.2009.04.132.
2. Benchenane, K., Peyrache, A., Khamassi, M., Wiener, S.I. and Battaglia, F.P. (2008). Theta Band LFP Coherence Between Hippocampus And Prefrontal Cortex and Reorganization of Ensemble Cell Activity During Learning. Conference Abstract in **Neuropsychobiology**, 58(3-4):233-233.
1. Arleo, A., Déjean, C., Boucheny, C., Khamassi, M., Zugaro, M.B. and Wiener, S.I. (2004). Optic field flow signals update the activity of head direction cells in the rat anterodorsal thalamus. Abstract in **Journal of Vestibular Research**, 14(2/3):P095.

### National peer-reviewed journals

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4. Girard, B. and Khamassi, M. (2016). Coopération de systèmes d'apprentissage par renforcement multiples. **Techniques de l'Ingénieur**, S7793. (In French)
3. Khamassi, M. and Doncieux, S. (2016). Nouvelles Approches en Robotique Cognitive. **Intellectica**, vol. 2016/1, num. 65, pp. 7-25. (In French)
2. Khamassi, M., Girard, B., Clodic, A., Devin, S., Renaudo, E., Pacherie, E., Alami, R. and Chatila, R. (2016). Integration of action, joint action and learning in robot cognitive architectures. **Intellectica**, vol. 2016/1, num. 65, pp. 169-203. (In English)
1. de Loor, P., Mille, A. and Khamassi, M. (2015). Intelligence artificielle : l'apport des paradigmes incarnés. **Intellectica**, vol. 2015/2, num. 64, pp. 27-52. (In French)

### Peer-reviewed international conferences

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19. Aubin, L., Khamassi, M. and Girard, B. (2018). Prioritized sweeping neural DynaQ with multiple predecessors, and hippocampal replays. Proceedings of the **7<sup>th</sup> Living Machines Conference, Lecture Notes in Artificial Intelligence**. Springer, publisher.
18. Pasala, S.K., Khamassi, M. and Pammi, V.S.C. (2018). Geometric features that describe reference frames in forming intuitive landmarks during spatial navigation. Proceedings of the **Seventh International Conference on Spatial Cognition (ICSC 2018)**. Rome, Italy.
17. Gillepsie, J., Rano, I., Siddique, N., Santos, J.A. and Khamassi, M. (2017). Reinforcement Learning for Bio-Inspired Target Seeking. Proceedings of the **TAROS 2017 Conference**. Guildford, Surrey, UK.
16. Rano, I., Khamassi, M. and Wong-Lin, K. (2017). A Drift Diffusion Model of Biological Source Seeking for Mobile Robots. Proceedings of **IEEE International Conference on Robotics and Automation (ICRA 2017)**. Singapore.
15. Velentzas, G., Tzafestas, C. and Khamassi, M., (2017). Bio-inspired meta-learning for active exploration during non-stationary multi-armed bandit tasks. Proceedings of **IEEE Intelligent Systems Conference 2017**. London, UK.
14. Khamassi, M., Velentzas, G., Tsitsimis, T. and Tzafestas, C. (2017). Active exploration and parameterized reinforcement learning applied to a simulated human-robot interaction task. Proceedings of **IEEE Robotic Computing 2017**, pp. 28-35, Taipei, Taiwan.
13. Aklil, N., Girard, B., Khamassi, M. and Denoyer, L. (2017). Sequential Action Selection for Budgeted Localization in Robots. Proceedings of **IEEE Robotic Computing 2017**. Taipei, Taiwan.
12. Pasala, S.K., Khamassi, M. and Pammi, V.S.C. (2016). Variation in Intuitive Geometric Construct of Spatial Perception during Navigation. Proceedings of the **International Conference of the Academy of Neuroscience for Architecture (ANFA 2016)**. Salk Institute, La Jolla, CA, USA.
11. Renaudo, E., Girard, B., Chatila, C. and Khamassi, M. (2015). Respective advantages and disadvantages of model-based and model-free reinforcement learning in a robotics neuro-inspired cognitive architecture. **6th International Conference on Biologically Inspired Cognitive Architectures**, Lyon, France.
10. Renaudo, E., Girard, B., Chatila, C. and Khamassi, M. (2015). Which criteria for autonomously shifting between goal-directed and habitual behaviors in robots? **5th International Conference on Development and Learning and on Epigenetic Robotics**, Providence, RI, USA.
9. Renaudo, E., Girard, B., Chatila, C. and Khamassi, M. (2014). Design of a control architecture for habit learning in robots. **3<sup>rd</sup> Living Machines Conference, Lecture Notes in Artificial Intelligence**, Springer, Publisher.
8. Bellot, J., Sigaud, O. and Khamassi, M. (2012). Which Temporal Difference Learning algorithm best reproduces dopamine activity in a multi-choice task? **From Animals to Animats 12: SAB Conference, Lecture Note in Computer Science 7426**, Springer Verlag, Publisher, pp. 289-298. BEST PAPER AWARD.

7. Caluwaerts, K., Favre-Félix, A., Staffa, M., N'Guyen, S., Grand, C., Girard, B. and Khamassi, M. (2012). Neuro-inspired navigation strategies shifting for robots: Integration of a multiple landmark taxon strategy. **1<sup>st</sup> Living Machines Conference, Lecture Notes in Artificial Intelligence 7375**, Prescott, T.J. et al. (Eds.), Springer, Publisher, pp. 62-73.
6. Khamassi, M., Quilodran, R., Enel, P., Procyk, E. and Dominey P.F. (2010). A computational model of integration between reinforcement learning and task monitoring in the prefrontal cortex. **From Animals to Animats 11: SAB Conference, Lecture Note in Computer Science 6226**, Springer Verlag, Publisher, pp. 424-434.
5. Dollé, L., Khamassi, M., Girard, B., Guillot, A. and Chavarriaga, R. (2008) Analyzing interactions between navigation strategies using a computational model of action selection. **Spatial Cognition Conference, Lecture Notes in Computer Science 5248**, Springer, Publisher, pp. 71-86.
4. Battaglia, F.P., Benchenane, K., Khamassi, M., Peyrache, A. and Wiener, S.I. (2007) Neural ensembles and local field potentials in the hippocampo-prefrontal cortex system during spatial learning and strategy. **1st Int Conference on Cognitive Neurodynamics (ICCN)**, Springer, Publisher, pp. 1-4.
3. Khamassi, M., Martinet, L.-E. and Guillot, A. (2006). Combining self-organizing maps with mixture of experts: Application to an actor-critic model of reinforcement learning in the basal ganglia. **From Animals to Animats 9, SAB Conference, Lecture Notes in Computer Science 4095**, Springer Verlag, Publisher, pp. 394-405.
2. Filliat, D., Girard, B., Guillot, A., Khamassi, M., Lachèze, L. and Meyer, J.-A. (2004) State of the artificial rat Psikharpax. **From Animals to Animats 8, SAB Conference**, MIT Press, Publisher, pp. 3-12.
1. Khamassi, M., Girard, B., Guillot, A. and Berthoz, A. (2004) Comparing three Critic models of reinforcement learning on the basal ganglia connected to a detailed actor in a S-R task. **8th Int Conference on Intelligent autonomous systems**, IOS Press, Publisher, pp. 430-437.

#### **Book chapters**

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4. Alexandre, F., Dominey, P.F., Gaussier, P., Girard, B., Khamassi, M. and Rougier, N. (2018). When Artificial Intelligence and Computational Neuroscience meet. In A guided tour of artificial intelligence research, Vol. 3 Interfaces and applications of artificial intelligence, **Heidelberg, Germany: Springer-Verlag**.
3. Khamassi, M. and Pacherie, E. (2018). Action. In Collins, T., Andler, D. and Tallon-Baudry, C. (Eds.), *La cognition : du neurone à la société*, **Paris, France: Gallimard**.
2. Khamassi, M., Wilson, C., Rothé, R., Quilodran, R., Dominey, P.F. and Procyk, E. (2011). Meta-learning, cognitive control, and physiological interactions between medial and lateral prefrontal cortex. In Mars, R., Sallet, J., Rushworth, M. and Yeung, N. (Eds.), *Neural Bases of Motivational and Cognitive Control*, **Cambridge, MA: MIT Press**.
1. Battaglia, F.P., Peyrache, A., Khamassi, M. and Wiener, S.I. (2008). Spatial decisions and neuronal activity in hippocampal projection zones in prefrontal cortex and striatum. In Mizumori S. (Ed.) *Hippocampal place fields: Relevance to learning and memory*, **Oxford, UK: Oxford University Press**.

#### **Theses**

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3. Khamassi, M. (2014). Coordination of parallel learning processes in animals and robots. **HDR (Habilitation to Direct Researches) Thesis**, Université Pierre et Marie Curie – Paris 6, France.
2. Khamassi, M. (2007). Complementary roles of the rat prefrontal cortex and striatum in reward-based learning and shifting navigation strategies. **PhD Thesis**, UPMC – Paris 6, France.
1. Khamassi, M. (2003). Une architecture de contrôle de la sélection de l'action dans les ganglions de la base pour le rat artificiel Psikharpax. **Master Thesis**, UPMC – Paris 6, France.

#### **Wide-audience scientific communication articles**

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5. Khamassi, M. & Chatila, R. (2016). La conscience d'une machine. **Interstices**, INRIA. (In French)
4. Khamassi, M. & Decremps, F. (2016). De l'art de conjuguer esprit critique et démarche scientifique. **The Conversation**. Contributions from Marie Pinhas & Fabrice Rousselot. (In French)
3. Khamassi, M. & Chatila, R. (2015). La conscience d'une machine. **Pour la Science**. (In French)
2. Dumas, G., Khamassi, M., N'Diaye, K., Foubert, L., Jouffe, Y. and Roth, C. (2012). La publicité peut avoir des effets nocifs sur la société. "Tribune" (Opinion) in **LeMonde.fr** (In French)
1. Khamassi, M. (2011). Psikharpax, le robot-rat intelligent. **Futura-sciences**. (In both French&English)

#### **Papers, abstracts and posters in conferences or workshops with minimal review**

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59. Tsitsimis, T., Velentzas, G., Khamassi, M. and Tzafestas, C. (2017). Online adaptation to human engagement perturbations in simulated human-robot interaction using hybrid reinforcement learning. **MultiLearn workshop at the 25<sup>th</sup> European Signal Processing Conference (EUSIPCO 2017)**, Kos Island, Greece.
58. Lee, B., Gentry, R., Bissonette, G.B., Herman, R.J., Mallon, J.J., Bryden, D.W., Calu, D.J., Schoenbaum, G., Coutureau, E., Marchand, A., Khamassi, M. and Roesch, M.R. (2017). Lengthening the intertrial interval increases sign tracking and dopamine release to conditioned and unconditioned stimuli. **Society for Neurosci Abstracts**, Washington, USA.
57. Cazé, R., Khamassi, M., Doncieux, S. and Girard, B. (2017). The exclusive-or: a key for the reliable propagation of synchronous activity in the hippocampus? Poster at the **Integrated Systems Neuroscience 2017 meeting**, Manchester, UK.
56. Marchand, A., Gentry, R., Khamassi, M., Calu, D., Roesch, M.R. and Coutureau, E. (2017). Dopaminergic control of individual differences in appetitive learning. Poster at the **47<sup>th</sup> Meeting of the European Brain & Behaviour Society**, Bilbao, Spain.
55. Velentzas, G., Tzafestas, C. and Khamassi, M. (2017). Bridging Computational Neuroscience and Machine Learning on Non-Stationary Multi-Armed Bandits. Poster at the **3<sup>rd</sup> International Conference on Reinforcement Learning and Decision Making (RLDM)**, Ann Arbor, USA.
54. Cinotti, F., Fresno, V., Aklil, N., Coutureau, E., Girard, B., Marchand, A.\* and Khamassi, M.\* (2017). Dopamine enables dynamic regulation of exploration. Poster at the **3<sup>rd</sup> International Conference on Reinforcement Learning and Decision Making (RLDM)**, Ann Arbor, USA.
53. Marchand, A., Gentry, R., Khamassi, M., Calu, D., Roesch, M.R. and Coutureau, E. (2017). Neurobehavioral determinants of individual differences in appetitive learning. Poster at **NeuroFrance 2017, Colloquium of the French Neuroscience Society**, Bordeaux, France.
52. Renaudo, E., Girard, B., Chatila, R. and Khamassi, M. (2016). Bio-inspired habit learning in a robotic architecture. **NIPS Workshop on Neurorobotics at NIPS 2016 Conference**.
51. Marchand, A., Coutureau, E., Khamassi, M. and Roesch, M.R. (2016). Neurobehavioral assessment of a computational model of reward learning. Poster at the **Collaborative Research in Computational Neuroscience Conference**, Paris, France.
50. Cinotti, F., Fresno, V., Aklil, N., Coutureau, E., Girard, B., Marchand, A.\* and Khamassi, M.\* (2016). Dopamine blockade affects exploration and learning rate in a non-stationary 3-armed bandit task. Poster at the **Collaborative Research in Computational Neuroscience Conf.**, Paris, France.
49. Bault, N., Larsen, T., Khamassi, M., Polonio, L., Vostroknutov, A. and Coricelli, G. (2016). Influence of others' choice behavior on observational learning. Poster at the **14<sup>th</sup> Annual Meeting of the Society for NeuroEconomics**, Berlin, Germany.
48. Cinotti, F., Fresno, V., Aklil, N., Coutureau, E., Girard, B., Marchand, A.\* and Khamassi, M.\* (2016). Dopamine blockade affects exploration and learning rate in a non-stationary 3-armed bandit task. Poster at the **6<sup>th</sup> International Symposium on Biology of Decision-Making**, Paris, France.
47. Larsen, T., Palminteri, S., Vidal, J.R., Khamassi, M., Joffily, M. and Coricelli, G. (2015). Context can induce seeking behaviour in punishment conditions. Poster at the **13<sup>th</sup> Annual Meeting of the Society for NeuroEconomics**, Miami, U.S.A.



46. Renaudo, E., Devin, S., Girard, B., Chatila, R., Alami, R., Khamassi, M. and Clodic, A. (2015). Learning to interact with humans using goal-directed and habitual behaviors. **Workshop on Learning for Human-Robot Collaboration at RO-MAN 2015 Conference.**
45. Wydoodt, P., Sescousse, G., Domenech, P., Barbalat, G., Khamassi, M. and Dreher, J.-C. (2015). Gambler's fallacy and hot hand fallacy in pathological gamblers. Poster at the **5<sup>th</sup> International Symposium on Biology of Decision-Making**, Paris, France.
44. Marchand, A., Fresno, V., Aklil, N., Cinotti, F., Girard, B., Khamassi, M. and Coutureau, E. (2015). Striatal dopamine controls exploration in a probabilistic task. Poster at the **5<sup>th</sup> International Symposium on Biology of Decision-Making**, Paris, France.
43. Griessinger, T., Khamassi, M. and Coricelli, G. (2015). A behavioral investigation of inter-individual differences in learning during repeated strategic interactions. Poster at the **5<sup>th</sup> International Symposium on Biology of Decision-Making**, Paris, France.
42. Girard, B., Aklil, N., Cinotti, F., Fresno, V., Denoyer, L., Coutureau, E., Khamassi, M. and Marchand, A. (2015). Modelling rat learning behavior under uncertainty in a non-stationary multi-armed bandit task. Poster at the **Colloque de la Société des Neurosciences Françaises**, Montpellier, France.
41. Viejo, G., Khamassi, M., Brovelli, A. and Girard, B. (2015). Modelling choice and reaction time during instrumental learning through the coordination of adaptive working-memory and reinforcement learning. Poster at the **Colloque de la Société des Neurosciences Françaises**, Montpellier, France.
40. Liénard, J., Bellot, J., Cos, I., Khamassi, M. and Girard, B. (2015). Transmission delays in the basal ganglia proper are sufficient to explain beta-band oscillations in Parkinson's disease: mean-field and reduced models. **iCODE-SynchNeuro Workshop on neural population dynamics**, France.
39. Lesaint, F., Sigaud, O. and Khamassi, M. (2014). A model of negative automaintenance in pigeons: Dual learning and factored representations. **Society for Neurosci Abstracts**, Washington, USA.
38. Bellot, J., Liénard, J., Khamassi, M. and Girard, B. (2014). A biological plausible D1/D2 basal ganglia model. **Society for Neurosci Abstracts**, Washington, USA.
37. Lesaint, F., Sigaud, O. and Khamassi, M. (2014). Accounting for negative automaintenance in pigeons: A dual learning systems approach and factored representations. Poster at the **4<sup>th</sup> International Symposium on Biology of Decision-Making**, Paris, France.
36. Aklil, N., Marchand, A., Fresno, V., Coutureau, E., Denoyer, L., Girard, B. and Khamassi, M. (2014). Modelling rat learning behavior under uncertainty in a non-stationary multi-armed bandit task. Poster at the **4<sup>th</sup> International Symposium on Biology of Decision-Making**, Paris, France.
35. Viejo, V., Khamassi, M., Brovelli, A. and Girard, B. (2014). Modelling choice and reaction time during instrumental learning through the coordination of adaptive working-memory and reinforcement learning. Poster at the **4<sup>th</sup> International Symposium on Biology of Decision-Making**, Paris, France.
34. Viejo, V., Khamassi, M., Brovelli, A. and Girard, B. (2014). Coordination of adaptive working-memory and reinforcement learning systems explaining choice and reaction time during a human experiment. Poster at the **23<sup>rd</sup> Computational Neuroscience Society meeting (CNS 2014)**.
33. Marchand, A., Fresno, V., Khamassi, M. and Coutureau, E. (2014). Dopaminergic modulation of the exploration level in a non-stationary probabilistic task. **FENS Abstract**, Milan, Italy.
32. Palminteri, S., Khamassi, M., Joffily, M. and Coricelli, G. (2013). Reinforcement learning and counterfactual outcomes: evidence for context-value dependent adjustment of action values. Poster at the **Society for Neuroeconomics Annual Meeting**, Lausanne, Switzerland.
31. Lesaint, F., Sigaud, O., Flagel, S.B., Robinson, T.E. and Khamassi, M. (2013). Modelling individual differences in rats using a dual learning systems approach and factored representations. Poster at the **5<sup>th</sup> International Symposium on Motivational and Cognitive Control**, ICM, Paris, France.
30. Humphries, M.D., Khamassi, M. and Gurney, K. (2013). Dopaminergic control of the exploration-exploitation trade-off via the basal ganglia. Poster at the **3<sup>rd</sup> International Symposium on Biology of Decision-Making**, Paris, France.

29. Lesaint, F., Sigaud, O. and Khamassi, M. (2013). Modelling individual differences in rats using a dual learning systems approach and factored representations. Poster at the **3<sup>rd</sup> International Symposium on Biology of Decision-Making**, Paris, France.
28. Bellot, J., Sigaud, O., Girard, B. and Khamassi, M. (2013). Which Temporal Difference Learning algorithm best reproduces dopamine activity in a multi-choice task? Poster at the **3<sup>rd</sup> International Symposium on Biology of Decision-Making**, Paris, France.
27. Lesaint, F., Sigaud, O., Flagel, S.B., Robinson, T.E. and Khamassi, M. (2013). Modelling individual differences observed in Pavlovian autoshaping in rats using a dual learning systems approach and factored representations. Poster at the **1<sup>st</sup> International Conference on Reinforcement Learning and Decision Making (RLDM)**, Princeton Univ., USA.
26. Bellot, J., Khamassi, M., Sigaud, O. and Girard, B. (2013). Which Temporal Difference Learning algorithm best reproduces dopamine activity in a multi-choice task? Poster at the **22<sup>nd</sup> Computational Neuroscience Society meeting (CNS 2013)**, Paris, France.
25. Khamassi, M., Bellot, J., Sigaud, O. and Girard, B. (2013). Which Temporal Difference Learning algorithm best reproduces dopamine activity in a multi-choice task? Poster at the **Colloquium of the French Neuroscience Society**, Lyon, France.
24. Bellot, J., Sigaud, O. and Khamassi, M. (2012). Which Temporal Difference Learning algorithm best reproduces dopamine activity in a multi-choice task? Poster at the **4<sup>th</sup> Robotics and Neuroscience Days**, Paris, France.
23. Caluwaerts, K., Staffa, M., N'Guyen, S., Grand, C., Dollé, L., Favre-Félix, A., Girard, B. and Khamassi, M. (2012). A biologically inspired meta-control navigation system for the Psikharpax rat robot. Poster at the **2<sup>nd</sup> International Symposium on Biology of Decision-Making**, Paris, France.
22. Bellot, J., Sigaud, O. and Khamassi, M. (2012). Which Temporal Difference Learning algorithm best reproduces dopamine activity in a multi-choice task? Poster at the **2<sup>nd</sup> International Symposium on Biology of Decision-Making**, Paris, France.
21. Khamassi, M., Lallée, S., Enel, P., Procyk, E. and Dominey P.F. (2012). Robot cognitive control with a neurophysiologically inspired reinforcement learning model. Poster at the **2<sup>nd</sup> International Symposium on Biology of Decision-Making**, Paris, France.
20. Bellot, J., Sigaud, O., Roesch, M.R., Schoenbaum, G., Girard, B. and Khamassi, M. (2012). Dopamine neurons activity in a multi-choice task: reward prediction error or value function? Full paper at the **French Computational Neuroscience NeuroComp / KEOpS 12 workshop**, pp. 1-7, Bordeaux, France.
19. Humphries, M.D., Khamassi, M. and Gurney, K. (2012). Dopaminergic control of the exploration-exploitation trade-off via the basal ganglia. Poster at **FENS Forum**, Barcelona, Spain.
18. Khamassi, M., Lallée, S., Enel, P., Procyk, E. and Dominey, P.F. (2011). Human-Robot Interaction with the iCub Humanoid Robot using a Neuro-Inspired Model of Reinforcement Learning. Full paper + poster at **International workshop on bio-inspired robots**, Nantes, France.
17. Caluwaerts, K., Grand, C., N'Guyen, S., Dollé, L., Guillot, A. and Khamassi, M. (2011). Design of a biologically inspired navigation system for the Psikharpax rodent robot. Full paper + poster at **International workshop on bio-inspired robots**, Nantes, France.
16. Khamassi, M., Quilodran, R., Enel, P., Dominey P.F. and Procyk, E. (2010). Role of the frontal cortex in solving the exploration-exploitation trade-off. Poster at the **4<sup>th</sup> International Symposium on Motivational and Cognitive Control**, Oxford, UK.
15. Khamassi, M., Quilodran, R., Enel, P., Dominey P.F. and Procyk, E. (2010). Role of the frontal cortex in solving the exploration-exploitation trade-off. Full paper at the **5<sup>th</sup> French Neurocomp Conference**, Lyon, France.
14. Enel, P., Khamassi, M., Procyk, E. and Dominey P.F. (2010). Reinforcement learning model in probabilistically rewarded task. Poster at the **5<sup>th</sup> Neurocomp Conference**, Lyon, France.
13. Benchenane, K., Peyrache, A., Khamassi, M., Wiener, S.I. and Battaglia, F.P. (2010). Coherent oscillations and learning-related reorganization of spike timing. Poster at the **4<sup>th</sup> International Conference on Cognitive Systems, CogSys10**. January 27 & 28, 2010, ETH Zurich, Switzerland.

12. Khamassi, M., Quilodran, R., Procyk, E. and Dominey P.F. (2009). Anterior Cingulate Cortex integrates reinforcement learning and task-monitoring: evidence from computational modelling, neural network simulation and primate neurophysiology. **Society for Neuroscience Abstracts**, Chicago, USA.
11. Khamassi, M., Mulder, A.B., Tabuchi, E., Douchamps, V. and Wiener S.I. (2007). Actor-Critic models of reward prediction signals in the rat ventral striatum require multiple input modules. **Society for Neuroscience Abstracts**, San Diego, USA.
10. Peyrache, A., Benchenane, K., Khamassi, M., Douchamps, V., Tierney, P.L., Battaglia, F.P. and Wiener, S.I. (2007). Rat medial prefrontal cortex neurons are modulated by both hippocampal theta rhythm and sharp waveripple events. **Society for Neuroscience Abstracts**, San Diego, USA.
9. Benchenane, K., Peyrache, A., Khamassi, M., Tierney, P.L., Douchamps, V., Battaglia, F.P. and Wiener, S.I. (2007). Increased firing rate and theta modulation in medial prefrontal neurons during episodes of high coherence in the theta band of hippocampal/prefrontal local field potentials (LFP) in behaving rats. **Society for Neuroscience Abstracts**, San Diego, USA.
8. Battaglia, F.P., Peyrache, A., Benchenane, K., Khamassi, M., Douchamps, V., Tierney, P.L. and Wiener, S.I. (2007). Rat medial prefrontal cortex neurons are modulated by both hippocampal theta rhythm and sharp waveripple events. **Society for Neuroscience Abstracts**, San Diego, USA.
7. Khamassi, M., Battaglia, F.P., Peyrache, A., Douchamps, V., Tierney, P. and Wiener S.I. (2007). Transitions in behaviorally correlated activity in medial prefrontal neurons of rats acquiring and switching strategies in a y-maze. Poster presented at the **Okinawa Computational Neuroscience Workshop**, Okinawa, Japan.
6. Battaglia, F.P., Khamassi, M., Peyrache, A., Douchamps, V., Tierney, P. and Wiener, S.I. (2006). Spatial and reward correlates in medial prefrontal neurons of rats acquiring and switching strategies in a y-maze. **Society for Neuroscience Abstracts**, Atlanta, USA.
5. Wiener, S.I., Khamassi, M., Peyrache, A., Douchamps, V., Tierney, P. and Battaglia, F.P. (2006). Transitions in behaviorally correlated activity in medial prefrontal neurons of rats acquiring and switching strategies in a y-maze. **Society for Neuroscience Abstracts**, Atlanta, USA.
4. Battaglia, F.P., Khamassi, M., Douchamps, V., Tierney, P.L. and Wiener, S.I. (2005). EEG correlations between hippocampus and prefrontal cortex in rats performing a decision-making spatial task. **Society for Neuroscience Abstracts**, Washington DC, USA.
3. Mulder, A.B., Tabuchi, E., Khamassi, M. and Wiener S.I. (2005). Reward site associated activity in the ventral striatum of behaving rats. **Society for Neuroscience Abstracts**, Washington DC, USA.
2. Wiener, S.I., Arleo, A., Déjean, C., Boucheny, C., Khamassi, M. and Zugaro, M.B. (2004). Optic field flow signals update the activity of head direction cells in the rat anterodorsal thalamus. **Society for Neuroscience Abstracts**, San Diego, USA.
1. Khamassi, M., Girard, B., Guillot, A. and Berthoz, A. (2003). Mécanismes neuromimétiques d'apprentissage par renforcement dans l'architecture de contrôle du rat artificiel Psikharpa. Poster presented at the **French Conference on Artificial learning (CAp) within the frame of the AFIA platform**, Laval, France.

#### Invited talks and seminars

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2018	EBPS Computational Psychiatry Workshop, University of <b>Cambridge, UK</b>
2018	6 <sup>th</sup> Intern. Meeting on Comp. Properties of Prefrontal Cortex, <b>Vanderbilt Univ., USA</b>
2018	Spatial Navigation in Comput. Neurosci. & Neurorobot. workshop, <b>Lyon, France</b>
2018	Medial Prefrontal Cortex workshop, CNRS INCIA, <b>Bordeaux, France</b>
2018	Ethics Workshop on Autism/Child-Robot Interaction, De Monfort Univ., <b>Leicester, UK</b>
2017	Intelligent Systems Research Centre, Ulster University, <b>Derry, UK</b>
2017	Panel at the 50 <sup>th</sup> Winter Conference on Brain Research, <b>Big Sky, USA</b>
2017	Symposium at the French Neuroscience Society Colloquium, <b>Bordeaux, France</b>
2017	SMART Summer School in Comput. Social & Behav. Sciences, UPMC, <b>Paris, France</b>
2016	Dept. Electrical & Computer Engineering, Tarbiat Modares University, <b>Teheran, Iran</b>
2016	Department of Experimental Psychology, University of <b>Oxford, UK</b>

2016 “Addiction, in theory” meeting, Gatsby Unit, University College **London, UK**

2016 6<sup>th</sup> International Symposium on Motivational and Cognitive Control, **St Andrews, UK**

2016 Inst. Com. & Computer Systems, National Polytechnical University of **Athens, Greece**

2016 6<sup>th</sup> International Symposium on Biology of Decision-Making, **Paris, France**

2016 5<sup>th</sup> International Meeting on Comput. Properties of Prefrontal Cortex, **Lyon, France**

2016 15<sup>th</sup> National Forum of Cognitive Sciences, Univ. Paris Descartes 5, **Paris, France**

2016 Symposium at the National GDR Neurosciences de la Mémoire, **Bordeaux, France**

2015 3<sup>rd</sup> International Conf. on Cognition, Brain & Comput. (Plenary), **Ahmedabad, India**

2015 International Conf. on Computational Intelligence (Keynote), **Visakhapatnam, India**

2015 International Conf. on Cognition in Smart Cities (Keynote), **Vizag, India**

2015 International NeuroBridges Workshop, Univ. Paris Descartes, **Paris, France**

2015 1<sup>st</sup> Computational Neuroscience Symposium at UPMC, **Paris, France**

2015 Computational Neuroscience Seminars, Ecole Normale Supérieure Ulm, **Paris, France**

2014 Symposium at International Cognitive Neuroscience Conference, **Brisbane, Australia**

2013 Brain & Language Research Institute, CNRS, **Avignon, France**

2013 5<sup>th</sup> International Symposium on Motivational and Cognitive Control, **Paris, France**

2013 Center for Mind/Brain Sciences, University of **Trento, Italy**

2013 Centre de Neurosciences Cognitives, CNRS, **Lyon, France**

2012 GDR Colloquium, Institut des Neurosciences de la Timone, CNRS, **Marseille, France**

2012 Basal Ganglia Days, Institut du Cerveau et de la Moëlle Epinière, **Paris, France**

2012 Neuromorphic Engineering Workshop/Summerschool, **Telluride, USA**

2011 International Conference on Decision Making, **Allahabad, India**

2010 Institut des Neurosciences Cognitives de la Méditerranée CNRS, **Marseille, France**

2010 Laboratoire de Recherche en Informatique, Univ. Paris-Sud 11, **Orsay, France**

2010 Computational Neuroscience Day, Ecole Normale Supérieure Ulm, **Paris, France**

2010 Centre de Recherche en Neurosciences de Lyon, INSERM, **Lyon, France**

2009 Laboratoire de Neurosciences Cognitives, Ecole Normale Supérieure, **Paris, France**

2009 Laboratoire de Robotique GREYC, Université de **Caen, France**

2008 Symposium at the National GDR Neurosciences de la Mémoire, **Aussois, France**

2008 Institut Cellules Souches et Cerveau, INSERM, **Lyon, France**

2008 Okinawa Institute of Science and Technology, **Okinawa, Japan**

2007 Third day in Computational Neuroscience, Collège de France, **Paris, France**

2006 “ICEA” FP6 European project workshop, **Derby, UK**

2004 Graduate School of Medecine, University of Toyama, **Toyama, Japan**

2004 Ecole Supérieure de Physique et Chimie Industrielles, **Paris, France**

#### Scientific events organized

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2012-2018 **2<sup>nd</sup> - 8<sup>th</sup> International Symposia on Biology of Decision-Making**, Paris, France. Co-organizers: K. Doya, E. Koehlin, M. Pessiglione. Former co-organizers: T. Boraud, S. Bourgeois-Gironde, N. Rougier. Former chairs: A. Christakou, L. Fellows, C. Summerfield, M. Teschl. 200 participants, 30 speakers, 80 posters. *Top-level meeting in the field.*

2012-2018 **8 “Robotics and Neuroscience” days**, Paris area, France, for the French Neuroscience and Robotics communities, in the framework of the CNRS Groupements de Recherches (GDRs) Robotics and Neuroscience of Memory. Co-organizers: Benoît Girard, Ghilès Mostafaoui, Alex Pitti, Olivier Sigaud, Philippe Souères. 40 participants on average. (11/12, 11/12, 03/14, 10/15, 04/16, 06/16, 11/17, 05/18)

2018 **3<sup>rd</sup> Behavior Adaptation, Interaction and Learning for Assistive Robotics Workshop (BAILAR)** at the RO-MAN Conference, Nanjing, China. Co-organizers: M. Staffa, D. Conti.

2017 **Symposium at the Colloquium of the French Neuroscience Society**, Bordeaux,

- France. Theme: Contextual modulation of value signals: Basal Ganglia across species. Co-organizer: Mathias Pessiglione. 100 participants, 5 speakers.
- 2016 **From Artificial Intelligence to Neuroscience, and back** workshop at the Collaborative Research in Computational Neuroscience Conference, Paris, France. Co-organizers: S. Gershman and B. Gutkin. 50 participants, 4 speakers.
- 2015 **3<sup>rd</sup> Orbitofrontal Cortex and Cognition Meeting**, Paris, France. Co-organizers: Jay Gottfried, Elisabeth Murray, Mathias Pessiglione, Geoffrey Schoenbaum. 150 participants, 30 speakers, 50 posters. *Top-level meeting in the field.*
- 2015 **Scientific Day around Intellectica journal Issue #61**, co-organized with Alexandre Monnin and Gunnar Declerck, CNRS-ISCC, Paris, France. 20 participants.
- 2013 **Symposium at the Colloquium of the French Neuroscience Society**, Lyon, France. Theme: Neural dynamics of spatial navigation: electrophysiological data and computational models. Co-organizers: Francesca Sargolini, Bruno Poucet. 50 particip.
- 2013 **Interdisciplinary day** (Philosophy, Robotics, Biology) on Cognition, Adaptation and Complexity: From Living Beings to Robots, Paris-Sorbonne University, France, April 11. Principal organizer: Thomas Pradeu. 50 participants.
- 2005 **National Cognitive Science Forum** gathering laboratories, companies and students, concerned with cognitive science. Co-organizers: board members of Cognivence association.
- 2004 **Paris-area Regional Cognitive Science Forum** gathering laboratories, companies and students, concerned with cognitive science. Co-organizers: Vincent Jacob, board members of Cognivence association.
- 2004 **Regional workshop for the French “États Généraux de la Recherche”** (CloEG Paris-Centre; June 21, 27 and 28, 2004). Co-organizers: Marie-Pierre Junier, Catherine Dargemont.

### Student supervision

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#### Current Post-doctoral fellow

- 2016-2018 **Dr. Romain Cazé**, co-supervised with Benoît Girard (ISIR Université Pierre et Marie Curie - Paris 6).

#### Current PhD students

- 2017- **Rémi Dromnelle**, co-supervised with Raja Chatila (ISIR Université Pierre et Marie Curie - Paris 6). Robotics Program.
- 2016- **François Cinotti**, co-supervised with Benoît Girard (ISIR Université Pierre et Marie Curie - Paris 6). Neuroscience Program.

#### Past PhD students

- 2013-2017 **Dr. Thibaud Griessinger**, co-supervised with Giorgio Coricelli (Ecole Normale Supérieure, UPMC, U Trento, U Southern California). Now in the private sector.
- 2013-2017 **Dr. Nassim Aklil**, co-supervised with Ludovic Denoyer (LIP6 UPMC) and Benoît Girard (ISIR UPMC). Robotics Program. Now in the private sector.
- 2013-2016 **Dr. Guillaume Viejo**, co-supervised with Benoît Girard (ISIR Université Pierre et Marie Curie - Paris 6). Neuroscience Program. Now post-doc at McGill University.
- 2012-2016 **Dr. Erwan Renaudo**, co-supervised with Raja Chatila (ISIR Université Pierre et Marie Curie - Paris 6). Robotics Program. Now post-doc at Innsbruck University.
- 2011-2015 **Dr. Jean Bellot**, co-supervised with Benoît Girard (ISIR Université Pierre et Marie Curie - Paris 6). Neuroscience Program. Now working at HEURITECH.
- 2011-2014 **Dr. Florian Lesaint**, co-supervised with Olivier Sigaud (ISIR Université Pierre et Marie Curie - Univ. Paris 6). Neuroscience Program. Now working at DEEZER.

#### Past Post-doctoral fellow

2012-2013 **Dr. Ignasi Cos**, co-supervised with Benoît Girard (ISIR Université Pierre et Marie Curie - Paris 6). Now Marie-Curie research fellow at Pompeu Fabra University, Barcelona.

Current & Past undergraduate students

- 2018 **Paul Berton** (M1 Cogmaster EHESS).
- 2018 **Esther Mouquet** (M2 Cogmaster EHESS) co-supervised with Ouriel Grynszpan (ISIR).
- 2017 **Eleonore Schiltz** (L3 student Bio/Maths UPMC). Now Cogmaster student.
- 2017 **George Velentzas** (engineering student, National Technical University of Athens (NTUA), Greece) co-supervised with Costas Tzafestas (NTUA).
- 2017 **Theodore Tsitsimis** (engineering student, NTUA, Greece) co-supervised with Costas Tzafestas (NTUA).
- 2016 **Avel Guénin--Carlut** (M1 master student ENS). Now Cogmaster student.
- 2016 **Anne Chadoeuf** (M2 Cogmaster ENS) co-supervised with Benoît Girard (ISIR Université Pierre et Marie Curie - Paris 6). Now in the private sector.
- 2015 **Pierre Luce-Vayrac** (M2 Androide UPMC) co-supervised with Raja Chatila (ISIR Université Pierre et Marie Curie - Paris 6). Now PhD student in the team.
- 2015 **François Cinotti** (M2 Cogmaster ENS) co-supervised with Benoît Girard (ISIR Université Pierre et Marie Curie - Paris 6). Now PhD student in the team.
- 2015 **Rémi Dromnelle** (M1 student in Bio-informatics at University Denis Diderot – Paris 7). Now PhD student in the team.
- 2013 **Timothée Dubuc** (M2 student), co-supervised with Arthur Leblois and Olivier Sigaud (ISIR Univ Paris 6). Now PhD student at the University of Reading, UK.
- 2013 **Omar Islas-Ramirez** (M2 master student), co-supervised with Benoît Girard (ISIR UMR7222, Université Paris 6). Now PhD student at UPMC.
- 2013 **Sana Bahri** (engineering student), co-supervised with Benoît Girard (ISIR Univ. Paris 6). Now still studying at her engineering school.
- 2013 **Nassim Aklil** (M2 student in Bioinformatics at UPMC), co-supervised with Benoît Girard (ISIR UPMC). Did a Phd in the team. Now in the private sector.
- 2013 **Guillaume Viejo** (M2 student in Computer Science at UPMC), co-supervised with Benoît Girard (ISIR UPMC). Did a Phd in the team. Now post-doc at McGill Univ.
- 2012 **Erwan Renaudo** (M2 master student), co-supervised with Benoît Girard (6 months internship, ISIR UPMC). Did a Phd in the team. Now Post-doc at Innsbruck University.
- 2011 **Sélim Khamassi** (engineering student), co-supervised with Benoît Girard (2 months internship, ISIR, Univ. Paris 6). Now engineer working for AIRBUS.
- 2011 **Valère Pique** (licence student), co-supervised with Benoît Girard (2 months internship, ISIR, Univ. Paris 6). Now still studying at his university (IUT).
- 2011 **Antoine Favre-Félix** (engineering student), co-supervised with Benoît Girard (2 months internship, ISIR Univ. Paris 6). Now studying at Ecole Centrale Nantes.
- 2011 **Mariacarla Staffa** (graduate student), PhD 4m. internship co-supervised with Agnès Guillot (ISIR Univ. Paris 6). Now post-doc fellow at Univ. Naples Federico II.
- 2010 **Ken Caluwaerts** (M2 master student), co-supervised with Agnès Guillot and Christophe Grand (ISIR Univ. Paris 6). Now Post-doc fellow at NASA, USA.
- 2009 **Pierre Enel** (M2 master student), co-supervised with Emmanuel Procyk and Peter F. Dominey (INSERM - Univ. Lyon 1). Now Post-doc at Mount-Sinai, NYC.
- 2007 **Manuel Rolland** (engineering student), co-supervised with Agnès Guillot (, ISIR, Univ. Paris 6). Now works at Aldebaran Robotics.
- 2006 **Laurent Dollé** (M2 master student), co-supervised with Agnès Guillot (LIP6, Univ. Paris 6). Did a Phd in the team. Now R&D engineer at CEA.
- 2006 **Anthony Truchet** (M2 master student), co-supervised with Agnès Guillot (LIP6, Univ. Paris 6). Then PhD student at ENSTA. Now working at CRITEO.
- 2005 **Louis-Emmanuel Martinet** (engineering student) co-supervised with Agnès Guillot (LIP6, Univ. Paris 6). Now post-doc fellow at Boston University.

- 2005 **Laurent Dollé** (M1 master student), co-supervised with Agnès Guillot (LIP6, Univ. Paris 6). Did a Phd in the team. Now R&D engineer at CEA.
- 2005 **Vincent Douchamps** (M2 master student), co-supervised with Sidney Wiener (LPPA, Collège de France). Now post-doc fellow at Durham University.
- 2004 **Paul Simard** (M2 master student), co-supervised with Agnès Guillot (LIP6, Univ. Paris 6). Now R&D engineer at Dassault Systems.

#### **PhD & HDR theses evaluation committees** (HDR = Habilitation to Direct Researches)

- 2018 Member of the jury of **Irene Cogliati-Dezza's PhD thesis** (supervisors: Axel Cleeremans and William Alexander), Université Libre de Bruxelles, Belgium.
- 2018 Reviewer for the jury of **Florent Meyniel's Habilitation to Direct Researches (HDR)**, Ecole Normale Supérieure, Paris, France.
- 2018 Examiner for the jury of **Germain Lefebvre's PhD thesis** (supervisors: Stefano Palminteri & Sacha Bourgeois-Gironde), Ecole Normale Supérieure, Paris, France.
- 2018 Reviewer for the jury of **Bala Raju Battu's PhD thesis** (supervisor: Pammi V.S. Chandrasekhar), Allahabad University, India.
- 2018 Reviewer for the jury of **Manisha Chawla's PhD thesis** (supervisor: Krishna P. Miyapuram), IIT Gandhinagar, India.
- 2018 Examiner for **Lisa Jacquey's PhD 2<sup>nd</sup> mid-term evaluation committee** (supervisors: Rana Essely and Kevin O'Regan), Université Paris Descartes, France.
- 2018 Examiner for **Chen Hu's 2<sup>nd</sup> PhD mid-term evaluation committee** (supervisor: Mathias Pessiglione), Sorbonne Université, Paris, France.
- 2017 Examiner for the jury of **Virginie Oberto's PhD thesis** (supervisor: Sidney I. Wiener), Collège de France / UPMC, Paris, France.
- 2017 Reviewer for the jury of **Pierre Delarboulas's PhD thesis** (supervisor: Mathias Quoy), Univ. Cergy-Pontoise, Cergy, France.
- 2017 Reviewer for the jury of **Arthur Prat-Carrabin's PhD thesis** (supervisor: Rava da Silveira), Ecole Normale Supérieure, Paris, France.
- 2017 Examiner for the jury of **Gabriel Sulem's PhD thesis** (supervisor: Etienne Koechlin), Ecole Normale Supérieure / UPMC, Paris, France.
- 2017 Examiner for **Lisa Jacquey's PhD mid-term evaluation committee** (supervisor: Rana Essely and Kevin O'Regan), Université Paris Descartes, France.
- 2017 Examiner for **Chen Hu's PhD mid-term evaluation committee** (supervisor: Mathias Pessiglione), Université Pierre et Marie Curie, Paris, France.
- 2017 Examiner for **Hakim Guedjou's PhD mid-term evaluation committee** (supervisor: Mohamed Chetouani), Université Pierre et Marie Curie, Paris, France.
- 2016 Reviewer for the jury of **Emilio Cartoni's PhD thesis** (supervisor: Gianluca Baldassarre), Università degli Studi di Roma "La Sapienza", Rome, Italy.
- 2016 Examiner for the jury of **Steve Didienne's PhD thesis** (supervisor: Philippe Faure), Université Pierre et Marie Curie, Paris, France.
- 2016 Reviewer for the jury of **Maxime Carrere's PhD thesis** (supervisor: Frédéric Alexandre), Université de Bordeaux, France.
- 2016 President of the jury of **Ralph Bourdoukan's PhD thesis** (supervisor: Sophie Denève), Ecole Normale Supérieure / UPMC, Paris, France.
- 2015 Examiner for **Virginie Oberto's 2<sup>nd</sup> PhD mid-term evaluation committee** (supervisor: Sidney I. Wiener), Université Pierre et Marie Curie, Paris, France.
- 2015 Examiner for the jury of **Vassilisa Skvortsova's PhD thesis** (supervisors: Mathias Pessiglione and Hilke Plassmann), Université Pierre et Marie Curie, Paris, France.
- 2015 Reviewer for the jury of **Céline Amiez's Habilitation to Direct Researches (HDR)**, Université Claude Bernard – Lyon 1, France.
- 2015 Reviewer for the jury of **Emmanuel Breyse's PhD thesis** (supervisor: Christelle Baunez), Université Aix-Marseille, France.

- 2015 Examiner for the **Virginie Oberto's PhD mid-term evaluation committee** (supervisor: Sidney I. Wiener), Collège de France / UPMC, Paris, France.
- 2014 Reviewer for the jury of **Simon Gay's PhD thesis** (supervisors: Olivier Georgeon & Alain Mille), Université Claude Bernard – Lyon 1, France.
- 2014 Examiner for the jury of **Raphaël Le Bouc's PhD thesis** (supervisor: Mathias Pessiglione), Université Pierre et Marie Curie, Paris, France.
- 2014 Examiner for **Flora Bouchacourt's PhD mid-term evaluation committee** (supervisors: Srdjan Ostojic & Boris Gutkin), Paris, France.
- 2013 Examiner for **Alexandre Salvador's PhD mid-term evaluation committee** (supervisors: Raphaël Gaillard & Stefano Palminteri), ENS / UPMC, Paris, France.
- 2012 Examiner for the jury of **Stefano Palminteri's PhD thesis** (supervisor: Mathias Pessiglione), Université Pierre et Marie Curie, Paris, France.
- 2012 Examiner for **Vasilisa Skvortsova's PhD mid-term evaluation committee** (supervisor: Mathias Pessiglione), Université Pierre et Marie Curie, Paris, France.
- 2012 Examiner for **Éléonore Duvelle's PhD mid-term evaluation committee** (supervisors: Angelo Arleo & Etienne Save), Université Pierre et Marie Curie, Paris, France.
- 2008 Examiner for the jury of **Mathieu Bertin's PhD thesis** (supervisors: Kenji Doya & Agnès Guillot), Université Pierre et Marie Curie, Paris, France.

### **Teaching** (CS: Computer Science; NE: Neuroscience; RO: Robotics; CO: Cognitive Science)

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Creation of two new courses currently taught

- 2015- **École Normale Supérieure Ulm - Paris**, CogMaster (Co-coordinator with B. Girard)  
CO: Robotic modelling approaches to Cognitive Sciences (Lectures: 12h).
- 2014- **SU (ex UPMC)**, License 1 (all disciplines; Co-coordinator with Frédéric Decremps)  
CO: Role of science in society and critical thinking (Lectures: 20h + Lab: 20h).

Other current lectures

- 2017- **SU (ex UPMC)**, Master 2 of Integrative Neuroscience (BIP)  
NE: Decision-making: Elements of modelling (Lecture: 3h).
- 2015- **Univ. Paris-Saclay (Orsay)**, Master 2 of Computer Science (Machine Learning)  
CS: Neuro-inspired reinforcement learning (Lecture: 2h).
- 2014- **SU (ex UPMC)**, Master 2 of Computer Science (ANDROIDE)  
CS: Neuro-inspired reinforcement learning (Lecture: 2h).
- 2013- **Ecole X Polytechnique, Palaiseau**, Engineering school  
NE: Reinforcement Learning and Brain related mechanisms (Lecture: 2h).
- 2012- **École Normale Supérieure Ulm - Paris**, Master 1 of Neuroscience  
NE: Decision-making: Elements of modelling (Lecture: 3h).
- 2011- **SU (ex UPMC)**, Master 2 of Mechatronics Sys. for Rehabilitation  
RO: Bio-inspired action selection and learning (Lecture: 2h).

Past lectures

- 2017 **SMART Summer School in Computational Social & Behav. Sciences, UPMC**  
CS : Model-free & model-based reinforcement Learning (Lecture: 1h + Tutorial: 3h).
- 2014 **École Normale Supérieure Ulm / PSL - Paris**, Master 1 of Cognitive Engineering  
RO: Reinforcement Learning, Neuroscience & Robotics applications (Lecture: 2h).
- 2013 **Harvard Summer Program in Trento, Italy**  
NE: Reinforcement Learning models (Lecture: 1h30 + Tutorial: 2h).
- 2013 **Univ. Pierre & Marie Curie (UPMC)**, Master 2 Integrative Neuroscience (BIP)  
NE: Comput. approach to parallel memory systems for navigation (Lecture: 3h).
- 2013-2014 **Université Claude Bernard - Lyon 1**, License 1 and 2 (all disciplines)  
CO: Analyzing the influence of advertising on brain and behavior (Lecture: 1h).
- 2012 **Telluride Neuromorphic Engineering Summerschool, USA**



- 2012-2015 CS: Model-free & model-based reinforcement learning (Lecture: 1h + Tutorial: 4h).  
**Polytech UPMC – Paris 6**, 5<sup>th</sup> year of Engineering School  
 RO: Reinforcement Learning and Decision-Making (Lecture: 2h + Lab: 4h).
- 2010-2014 **Université Claude Bernard - Lyon 1**, Master 2 of Integrative Neuroscience  
 NE: Decision-making: elements of modelling (Lecture: 1h30 + Debate: 2h).
- 2008-2014 **UPMC**, Master 2 of Artificial Intelligence and Decision  
 CS: Neuro-inspired reinforcement learning (Lecture: 2h + Project supervision: 4h).

#### Past practical/laboratory courses

- 2006 **ESIEA, Laval**, CS: Artificial and cognitive life in M1 (18h).  
 2006 **La Sorbonne, Paris**, CS: Computer Science in L2 (18h).  
 2006 **Université Paris 6**, CS: Computed Science in L2 (38h).  
 2006 **ESIEA, Laval**, CS: Artificial and cognitive life in M1 (12h).  
 2005 **La Sorbonne, Paris**, CS: Computer Science in L2 (36h).  
 2004 **ENSIIE-CNAM, Evry** CS: Computer Science in L3 (20h).  
 2003 **La Sorbonne, Paris**, CS: Computer Science in L2 (36h).  
 2003 **Université d'Évry, France** CS: Bio-Informatics in M2 (12h).

#### Editorial activity

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- 2018- **Editorial Board Member for Neurons, Behavior, Data analysis and Theory (NBDT)**.  
 Editors-in-Chief: Konrad Körding, Anne Churchland, Jonathan Pillow.
- 2018 **Co-Editor of a special issue** with Raja Chatila and Alain Mille on Ethics and Cognitive Sciences to be published in 2018 in the *Intellectica* journal.
- 2016 **Co-Editor of a special issue** with Stéphane Doncieux on New Approaches to Cognitive Robotics published in 2016 in the *Intellectica* journal.
- 2015- **Associate Editor for Frontiers in Neurorobotics**. Specialty Chief Editor: Alois C Knoll. Assistant Specialty Chief Editor: Florian Röhrbein.
- 2014- **Review Editor for Frontiers in Behavioral Neuroscience**. Editors-in-Chief: Carmen Sandi and Nuno Sousa and **Frontiers in Decision Neuroscience (since 2016)**.
- 2013- **Editorial Board Member for Intellectica**. Editor-in-Chief: Olivier Gapenne.
- 2008-2014 **Review Editor for Frontiers in Neurorobotics**. Specialty Chief Editor: Frederic Kaplan.

#### Ad-hoc reviewer

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- Journals Behavioral Neuroscience, Biological Cybernetics, Brain Research, Cerebral Cortex, Connection Science, Frontiers in Cognitive Science, Frontiers in Evolutionary Psychology and Neuroscience, Frontiers in Neurorobotics, Frontiers in Systems Neuroscience, IEEE Transactions on Autonomous Mental Development, IEEE Transactions on Cognitive and Developmental Systems, IEEE Transactions on Industrial Electronics, IEEE Transactions on Neural Networks and Learning Systems, IEEE Transactions on Robotics, *Intellectica*, International Journal of Social Robotics, Journal of Neuroscience, Nature Communications, Neural Computation, Neurosignals, Pattern Recognition Letters, PLoS Computational Biology, PLoS One, Progress in Brain Research, Progress in Neurobiology, Progress in Neuropsychopharmacology & Biological Psychiatry, ReScience, Review of Philosophy and Psychology, Scientific Reports.
- Grants Human Frontiers Science Program, EU CHIST-ERA, IFREMER, NSF-ANR Collaborative Research in Computational Neuroscience Program, UK's Economic and Social Research Council.
- Conferences / workshops Behavior Adaptation, Interaction and Learning for Assistive Robotics Workshop (BAILAR), Biologically Inspired Cognitive Architectures Conference (BICA), International Conference on Development and Learning – Epigenetic Robotics (ICDL-

EPIROB), Living Machines Conference (LM), Multimodal processing, modeling and learning for human-computer/robot interaction Workshop (MULTI-LEARN), Orbitofrontal Cortex Meeting (OFC), Simulation of Adaptive Behavior Conference (SAB), Symposium on Biology of Decision-Making (SBDM), IFAC Symposium on System, Structure and Control (SSSC).

### **Program Committee member for international conferences / workshops**

(chronological order) **Conferences:** SAB 2010, SBDM 2012, SBDM 2013, Living Machines 2013, SBDM 2014, SBDM 2015, BICA 2015, OFC 2015, SBDM 2016, SBDM 2017, SBDM 2018. **Workshops:** Navigation workshop (Arleo, Chavarriaga) at SAB 2006, “Behavior Adaptation, Interaction and Learning for Assistive Robotics” BAILAR 2016 workshop (Rossi, Siciliano, Staffa) at RO-MAN 2016, “From Artificial Intelligence to Neuroscience, and back” workshop (Gershman, Gutkin, Khamassi) at CRCNS 2016, Multi-Learn workshop (Papageorgiou, Pitsikalis, Roussos, Zlatintsi, Khamassi) at EUSIPCO 2017, BAILAR 2017 (Chellali, Rossi, Staffa) at RO-MAN 2017, BAILAR 2018 (Staffa, Khamassi, Conti) at RO-MAN 2018.

### **Other academic professional activities**

2013-2018 Yearly participation to evaluation committees for 45-50 Master 2 students’ research project’s intermediate and final defenses + 5-10 Master 1 students’ short-duration research project final defense, CogMaster, ENS / EHESS / UPD Paris.

2016 Evaluation committee member for an assistant professor position recruitment in Robot cognitive architectures at Université Pierre et Marie Curie (UPMC).

2015 Member of the SMART Labex Doctoral Committee for evaluating 20 applications for PhD funding at UPMC.

2014 Evaluation committee member for an assistant professor position recruitment in Neurorobotics at Université de Cergy-Pontoise / ENSEA.

2013 Evaluation committee member for an assistant professor position recruitment in Computational Neuroscience at Université de Lorraine / INRIA LORIA.

2013 Co-organized with Vincent Hayward ISIR’s tutorial on preparation for the writing of individual research grant applications (20 participants).

2010-2012 Member of the “platform committee” of ISIR, managing inventory, presentation, costs and grant applications of the institute’s robotic platforms.

2006-2007 PhD students representative, with Zoë Cimatti and Matthieu Lafon, at the ED3C (Brain, Cognition, Behavior) doctoral school of UPMC Univ. Paris 6.

2005-2006 Board Member of Doc’Up, the association of PhD students of UPMC Univ. Paris 6.

2002-2005 Board Member (2002-2005) and President (2003-2004) of Cognivence, association of students and young researchers in cognitive science in Paris' area.

2003-2005 Board Member and minor co-founder of FRESCO (2003-2005), national federation of students and young researchers in cognitive science.

2004 Vice-president of Paris-area regional committee (CloEG) for the organization of the French “États Généraux de la Recherche et de l’Enseignement Supérieur 2004”.

2004 Member of the national committee (CIP-CloEG) for the national synthesis of texts elaborated regionally during the French “États Généraux de la Recherche et de l’Enseignement Supérieur 2004”. The synthesized document was then submitted to the French Ministry of Research in November 2004.

### **Scientific mediation and wide-audience presentations**

2019 Wide-audience conference on scientific, historical and ethical issues of Neuromarketing at Université du Temps Libre de l’Essonne (91), Limours.

2019 Wide-audience conference on scientific, historical and ethical issues of

- Neuromarketing at Université du Temps Libre de l'Essonne (91), T.B.D.
- 2018 2-hours presentation at Lycée Franco-Hellénique High School (Athens, Greece) about Visual perception, education to image and critical thinking towards advertising.
- 2018 Two 1-hour presentations at Lavoisier Junior High School (Pantin) about Visual perception, education to image and critical thinking towards advertising.
- 2018 Interview and scientific advisor for the project of a master student in visual didactics at Haute Ecole des Arts du Rhin: Pierre-Baptiste Harrivelle. Theme: Scientific mediation and how to deconstruct fake theories through art exhibitions where the audience becomes the experimenter: Case of the flat earth 'conspiracy theory'.
- 2018 Scientific advisor for the project by a license student in journalism at Université Libre de Bruxelles: Elise Jeannelle. Theme: Human-robot interaction.
- 2017 Interview and scientific advisor for the project of a student in architecture at Ecole Nationale Supérieure des Arts Décoratifs: Éléonore Geissler. Theme: Exobiological research through design-fiction.
- 2017 Scientific advisor for the project of introduction to science (TPE) of a high-school student: Hélène Montagner. Theme: Interpretation of its surroundings by a robot.
- 2017 Interview and scientific advisor for the project of introduction to science (TPE) of a high-school student: Ilan Volson. Theme: Impact of advertising on brain & behavior.
- 2016 Featured interview in the online educative scientific video game <http://www.memorya.org/> by ART'M and B2V.
- 2016 Wide-audience conference on embodied artificial intelligence at the 15<sup>th</sup> National Forum of Cognitive Sciences, Univ. Paris Descartes 5, Paris. [\[VIDEO LINK\]](#)
- 2016 Wide-audience conference on scientific, historical and ethical issues of Neuromarketing at Université du Temps Libre de l'Essonne (91), Epinay-sur-Orge.
- 2016 Wide-audience conference on scientific, historical and ethical issues of Neuromarketing at Université du Temps Libre de l'Essonne (91), Montgeron-Draveil.
- 2015 Invited expert by UNICEF (Genève, Switzerland) for a report on the impact of advertising and marketing practices on children.
- 2015 Wide-audience talk and round table on scientific, historical and ethical issues of Neuromarketing at the Alternatiba Festival, Les Ulis, Essonne (91).
- 2015 Interview and scientific advisor for the project of introduction to science (TFE) of a high-school student: Victoria Peek. Theme: Influence of advert. on brain and behav.
- 2014 "Bar des Sciences" about Robotics and Neuroscience, Montbéliard.
- 2014 Interview and scientific advisor for the project of introduction to science (TFE) of a high-school student: Bertrand Raysz. Theme: Today Robotics vs. Asimov's Robots.
- 2014 Invited speaker at the closing "Table ronde" of the Cognitive Science Forum, with Jean-Claude Ameisen and Georges Chapouthier. [\[VIDEO LINK\]](#)
- 2013 Interview and scientific advisor for the project of introduction to science (TFE) of two high-school students: Satnam Singh and Yanis Mendil. Theme: Influence of advertising on brain and behavior.
- 2013 Invited expert at the United Nations (New York, USA) by the High Commissioner for Human Rights to write a report on the impact of advertising and marketing practices on the enjoyment of cultural rights. [\[LINK TO THE REPORT\]](#)
- 2013 Scientific exhibition on Memory, organized by ART'M (Jacques Roux et al), Chambéry, France. Interview, scientific advisor, and robot demonstration.
- 2013 Two 1-hour presentations at Marcelin Berthelot High School (Pantin) about Visual perception, education to image and critical thinking towards advertising.
- 2013 Interview and scientific advisor for the project of introduction to science (TPE) of 2 high-school students: Florian Desrosiers et al. Theme: The Psikharpax rat robot.
- 2012 Wide-audience conference on Neuro-robotics. Fête de Luttes Ouvrières (93).
- 2011 "Café des Sciences" about Robotics, Mediathèque de Combs-la-Ville (93).
- 2011 Wide-audience conference on Neuro-robotics. Fête de Luttes Ouvrières (93).

- 2011 National science celebration (“Fête de la Science”). 1 day demonstration of the Psikharpax rat robot at Université Pierre et Marie Curie.
- 2010 Wide-audience day on Robots and Humans (“Des Robots et des Hommes”) at Cité des Sciences, Paris. Demonstration on the Psikharpax rat robot, with Agnès Guillot, Christophe Grand, Steve N’Guyen and Mathieu Bernard.
- 2010 National science celebration (“Fête de la Science”). 2 days demonstration of the Psikharpax rat robot at Université Pierre et Marie Curie.
- 2009 “Café des Sciences” about Artificial Intelligence, MJC de Combs-la-Ville (93).
- 2007 National science celebration (“Fête de la Science”). 1 day demonstration of the Psikharpax rat robot at Université Pierre et Marie Curie.

### Media coverage

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- 2018 Interview for Industrie et Technologies (online magazine) about reinforcement learning, artificial curiosity, forgetting and info restructuring during dreams.
- 2016 Interview in Science, 352(6290):1161, about science and diplomacy in relation to the Middle-East conflict, following the NeuroBridges workshop organized in Paris by Ahmed El Hady and Yonathan Loewenstein. [\[LINK\]](#)
- 2016 Article written with Raja Chatila about consciousness in robots published on Interstices, INRIA’s webzine for scientific culture (IT and Maths). [\[LINK\]](#)
- 2016 Our work with Indian architect Sudhir K. Pasala and psychologist V.S. Chandrasekhar Pammi has been mentioned (text and figure) in an article on “How neuroscience can influence architecture” in the journal of the American institute of architects.
- 2016 Article written with Frédéric Decremps for The Conversation on the Scientific approach & critical thinking, (contrib. from Marie Pinhas & Fabrice Rousselot). [\[LINK\]](#)
- 2016 UPMC website: interview entitled “Errare scientificum est!” on the Scientific approach and critical thinking course I co-animate with Pr. Frédéric Decremps.
- 2016 “L’âge de faire” journal (N°113). Interview about current scientific knowledge on the influence of advertising on brain activity and behavior (conditioning, reward system, and multiple types of memorizations).
- 2015 Politis information journal. Full-page interview about current scientific knowledge on the influence of advertising on brain activity and behavior (conditioning, reward system, and processing of urban adverts during habitual navigation).
- 2015 Article written with Raja Chatila on robot consciousness for Pour La Science. [\[LINK\]](#)
- 2015 Article in Navette Science written by Ombelliscience Picardie about our collaborative work with INSERM Lyon about neuro-inspired learning in the iCub humanoid robot.
- 2014 Est Républicain newspaper article about the Robotics and Neuroscience Bar des Sciences to which I participated in Montbéliard.
- 2013 Radio Campus Paris. Interview about Computational Neuroscience and Neurorobotics for the “La Puce à l’Oreille” show.
- 2013 Politis information journal. Video interview about current scientific knowledge on the influence of advertising on brain activity and behavior (conditioning, reward system, and processing of urban adverts during habitual navigation). [\[VIDEO LINK\]](#)
- 2012 Planète Robots magazine. Interview about the Psikharpax rat robot.
- 2012 LeMonde.fr. Article about Current estimations of nociceptive effects of advertising on the society. Co-writers: Guillaume Dumas, Karim N’Diaye, Luc Foubert, Yves Jouffe and Camille Roth. [\[LINK\]](#)
- 2012 Le Monde. Interview for the article “What robots can teach us about ourselves” by Viviane Thivent.
- 2011 Futura-sciences.com web scientific magazine. Wide-audience article about the Psikharpax rat robot (2 versions: [FR](#) and [UK](#)).
- 2011 INSERM Health & Science Magazine. Interview about a neuromimetic prefrontal cortex model controlling the iCub humanoid robot.

2011	Marion Montaigne's humouristic scientific blog and (later) published book. Interview about robotics research work at the Institute of Intelligent Systems and Robotics. With Benoît Girard, Stéphane Doncieux and Jean-Baptiste Mouret.
2010	Arte TV channel. Interview + robot demonstration for the "Global Mag" show.
2009	Tekiano.com, Tunisian scientific web magazine. Interview about neuro-inspired approaches to robotics.
2009	France 5 TV channel. Interview and demonstration of a robot controlled by a neuromimetic learning model for the "Magazine de la Santé" show.
2009	France 3 Rhône-Alpes TV channel. Interview and demonstration of a robot controlled by a neuromimetic learning model for the mid-day news program.
2009	Press conference with Peter F. Dominey on the iCub humanoid robot in front of 30 journalists including AFP and Reuters at INSERM Stem-cell and Brain Research Institute, Lyon.
2008	France Culture Radio. Interview for the "Science and Consciousness" show, with Agnès Guillot and Jean-Arcady Meyer.

### Scientific societies memberships

(alphabetical order)	EU Technical Committee on Cognitive Robotics, FENS, French Society for Neuroscience, French Neuroscience of Memory GDR, French Robotics GDR, Society for Neuroscience.
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### Current scientific collaborators

France	<p><b>Rachid Alami, Aurélie Clodic, Sandra Devine</b> CNRS LAAS, Toulouse, France</p> <p><b>Céline Amiez, Peter Dominey, Jean-Claude Dreher, Mateus Joffily, Manu Procyk</b> CNRS / INSERM / Univ. Lyon 1, Lyon, France</p> <p><b>Paul Apicella, Andrea Brovelli, Kevin Marche</b> CNRS / Université Aix-Marseille, Marseille, France</p> <p><b>Angelo Arleo, Romain Cazé, Raja Chatila, Ludovic Denoyer, Stéphane Doncieux, Jacques Droulez, Patrick Gallinari, Benoît Girard, Olivier Sigaud</b> CNRS / Sorbonne Université (ex UPMC), France</p> <p><b>Alain Berthoz, Sidney I. Wiener, Michael Zugaro</b> CNRS / Collège de France, Paris, France</p> <p><b>Etienne Coutureau, Alain Marchand</b> CNRS / Université Bordeaux 2, France</p> <p><b>Elisabeth Pacherie, Stefano Palminteri</b> CNRS / Ecole Normale Supérieure, Paris, France</p>
Abroad	<p><b>Nadège Bault, Giorgio Coricelli, Tobias Larsen</b> Univ. of Trento, Italy</p> <p><b>Ricardo Chavarriaga</b> Ecole Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland</p> <p><b>Kenji Doya</b> Okinawa Institute of Science and Technology, Okinawa, Japan</p> <p><b>Matthew Rushworth, Jérôme Sallet, Chris Summerfield, Marco Wittmann</b> Department of Experimental Psychology, University of Oxford, United Kingdom</p> <p><b>Mark D. Humphries</b> University of Manchester, United Kingdom</p> <p><b>Inaki Rano, Kongfatt Wong-Lin</b> University of Ulster, United Kingdom</p> <p><b>Kerstin, Dautenhahn, Ben Robins, Luke Wood, Abolfazl Zaraki</b></p>

University of Hertfordshire, United Kingdom  
**Francesco P. Battaglia, Guillaume Sescousse**  
Radboud Universiteit, Nijmegen, The Netherlands  
**Costas Tzafestas**  
National Technical University of Athens, Greece

**Riadh Ben Rejeb, Rym Ben Sghayer**  
Université de Tunis, Tunisia

**V.S. Chandrasekhar Pammi (RIP), Sudhir K. Pasala**  
University of Allahabad / Andhra University, India

**Adrien Peyrache, Guillaume Viejo**  
McGill University, Montreal, Canada

**Terry E. Robinson, Shelly B. Fligel**  
NIH-NIDA / Univ. Michigan, Ann Arbor, United States of America  
**Geoffrey Schoenbaum, Matthew R. Roesch, Donna J. Calu**  
NIH-NIDA / Univ. Maryland, Baltimore, United States of America

**Franziska Kirstein, Mamoun Gharbi, Martin Iversen, John Erland Østergaard, Rikke Risager, Thomas Rubaek**  
Blue Ocean Robotics, Odense, Denmark