

CURRICULUM VITAE

GUY CHÉRON

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Date and place of birth: July 1, 1955, Hal (Belgium)

Nationality: Belgian

Marital status: Married, one child

SUMMARY

He is a neurophysiologist and as a full Professor at the ULB, he runs the Laboratory of Neurophysiology and Movement Biomechanics (LNMB). He is author or co-author of more than 190 papers in international journals, 23 chapters and one book. Its Research Gate Score is of 42.11, its *h* index is of 38 and its citation impact is of 6.049. He was initially trained in neuroscience under the supervision of Professor J.E. Desmedt at the Brain Unit Research of the ULB where he described new components of the somatosensory evoked potentials. In 1986, he have discovered, together with E. Godaux, the localization of the oculomotor neural integrator (NI) in the nucleus prepositus of the cat, demonstrating for the first time the biological recognition that a brainstem neural network is able to perform mathematical integration crucial for the control of eye movements. From 1986 to 1997, they revealed the physiological mechanisms of the NI, which are now confirmed in different species. Cheron and collaborators were also the first to demonstrate the emergence of 160-200 Hz oscillation in the cerebellum of different mouse models presenting ataxia. In the field of BCI he was one of the PIs involved in the *Mindwalker* project resulting in the first European walking exoskeleton piloted by brain signals. In the field of neurocognitive science, G. Cheron was co-PI of *Neurocog* and *Neurospat* ESA missions performed in the International Space Station during which the LNMB team developed new sensori-motor paradigms (virtual reality) coupled with EEG dynamics. In the field of human brain oscillations this group recently demonstrated with EEG dynamics the alteration of top-down signals in visual perception in weightlessness environment.

PROFESSIONAL DEGREES

- Master in Motor Sciences, 1978, Université Libre de Bruxelles (ULB)
- PhD in Neurophysiology, 1980, Université Libre de Bruxelles (ULB)
- Aggregation Thesis in Neuroscience, 2003, Université Libre de Bruxelles (ULB)

POSITIONS

- 1993-present Full Professor (PO) at the Université Libre de Bruxelles (ULB/Belgium) and Professor at the University of Mons (UMons/Belgium)
Director of the Laboratory of Neurophysiology and Movement Biomechanics of the Faculty of Motor Sciences, Université Libre de Bruxelles (ULB/Belgium)
Director of the Laboratory of Electrophysiology of the University of Mons (UMons)
Professor in the Master in Neuroscience, Universidad Pablo De Olavide, Sevilla, Spain
- 1983-1993 Assistant-Professor at the Laboratory of Neuroscience (Prof. E. Godaux) Faculty of Medicine University of Mons-Hainaut (Belgium)
- 1983-1985 Visiting professor at the Department of Engineering (Prof. L. Stark) of the California University, Berkeley and at the Laboratory of Neurophysiology of the Medical Research Institut (Prof. E. Keller), San Francisco University.
- 1979-1983 Research assistant at the Faculty of Medicine and scientist at the Brain Research Unit of the ULB (Prof. J.E Desmedt)

ACADEMIC RESPONSIBILITIES

- President of the Institute of Physical Education and Kinesiology of the ULB (2001-2005)
- Counsellor of the Rector of the ULB for Lifelong Learning and Sports (2006-2010)
- Counsellor of the President and of the Rector of the ULB for Health Pole and Sports Activity and for High School-University relationships (2011-2016)
- President of the Motor Sciences Doctoral School (FNRS) (2016-today)

SCIENTIFIC RESPONSIBILITIES

Principal investigator of NEUROCOG (ESA) space experiment (2002-2006) and of NEUROSPAT (ESA-NASA) space experiment (2009-2013). TRAMA project (2007-2010) (Alpha program of EC), international cooperation for motion analysis in cerebral palsies. Scientific responsibility in BIOFACT project (FEDER 2009-2013), MINDWALKER project (FP7 2010-2013), BIOWIN (NeuroATT) (2013-2017), EasyMOVE (2014-2016) and ADRIADNA (ESA Project on local sleep episodes during wakefulness and space travel, 2018-). Projet Pilote en Neurosciences du Sport (2019-2021-Initiative Ministérielle Communauté Française)

DOCTORAL THESIS SUPERVISOR

- Dan Bernard (2002) (PhD thesis in medical sciences): Contribution to the study of organisation and control of movement in cerebral palsy.
- Bengoetxea Ana (2004)(PhD thesis in motor sciences, Kinesiology & Rehabilitation) : Contribution à l'étude de la coordination motrice dans les mouvements complexes.
- Leroy Axel (2006) (PhD thesis in motor sciences) : Contribution à l'étude des oscillations cérébrales liées aux processus de navigation en apesanteur.

- Servais Laurent (2007)(PhD thesis in medical sciences) : Contribution à l'étude des oscillations cérébelleuses rapides.
- Cebolla Ana-Maria (2010)(PhD thesis in motor sciences, Kinesiology & Rehabilitation): The N30 component of the somatosensory evoked potentials : a new tool for EEG dynamic exploration of human brain in space.
- Salgado Cajales, Farid (2010) (PhD thesis in motor sciences, Physical Education) : Violence, corps armé et pratique sportive : défis dans l'utilisation de la pratique sportive dans des contextes affectés par un conflit armé.
- Sauvage Chloé (2016) (PhD thesis in motor sciences, Kinesiology & Rehabilitation):Etudes par resonance magnétique fonctionnelle de l'influence de facteurs intrinsèques au mouvement sur les activations cortico-sous-corticales lors de l'imagerie mentale.
- Cevallos Barragan, C. (2016). (PhD thesis in motor sciences): The resonance of biological motion through visual perception in the human brain.
- Félicien M'lembakani T'hengua (2018) (PhD Thesis in Motor Sciences) : Evaluation et amélioration des capacités motrices d'enfants infirmes moteurs cérébraux congolais âgés de 6 à 15 ans.
- Neu Daniel (2018) (PhD Thesis in Motor Sciences): Clinical contribution to the study of slow wave sleep in chronic fatigue.

CONSULTANT FOR THE FOLLOWING INTERNATIONAL ORGANISMS

Fonds National Suisse de la Recherche Scientifique; Research Council for Earth and Life Sciences (The Netherlands). Research Council of Bourgogne (France.); National Science Foundation (USA) ; Institut National de la Santé et de la Recherche Médicale (France); Fonds Nature et Technologie (Québec) ; Medical Research Council (UK); European Science Foundation, Space science (EC); Wellcome Trust, Neuroscience and Mental Health, (UK); Agence de l'Évaluation de la Recherche Scientifique (AERS); Fonds National de la Recherche Scientifique (FNRS)(Belgium). Royal Society Newton International Fellowships (UK). Institut Universitaire de France. HRI IEEE International Conference on Human-Robot interaction. Danish Agency for Science Technology and Innovation.

EXPERT FOR THE FOLLOWING INTERNATIONAL JOURNALS:

Electroencephalography and Clinical Neurophysiology.- IEEE Transactions on Biomedical Engineering. -Brain Research Bulletin. -Progress in Brain Research. -Journal of Neurophysiology.- Journal of Neuroscience. -Clinical Neurophysiology /Neurophysiologie Clinique. -Brain. -Brain Research. -Biological Cybernetics. -Neuroscience Letters. -IEEE Neural Network. -Journal of Physiology (Lond). -Medical & Biological Engineering & Computing. -Brain and Behavioural Research. -Neuroscience. -Journal of Biomechanics. -International Journal Artificial Intelligence in Medicine. -Experimental Brain Research. -Biological Psychology. -BioEssay. -European Journal of Neuroscience. -Journal of Neuroscience Methods. -Medical Science Monitor. -IEEE Transactions on Neural Systems & Rehabilitation Engineering. -NeuroImage. -BMC Neuroscience. -Journal of Cellular Physiology. -Developmental Science. -PlosOne. -Cerebellum. -European Journal of Neurology. -Developmental Medicine & Child Neurology. -Human Brain Mapping.-Frontiers in Neuroanatomy. -Cerebral Cortex. -Currents Cells. -The Journal of Injury, Function and Rehabilitation (PM&R). -Anatomical Record. -Motor Control. -Journal of Neural Engineering. -Journal of the Royal Society Interface. -Nature Communication. -Journal of Sleep Research. -

European Journal of Sport Sciences. -International Journal of Psychophysiology. -Scientific Reports.
-Scientific Data.

EDITORIAL BOARD

- Specialty Chief Editor at Frontiers in Psychology. Movement Sciences and Sport Psychology
- Member of the Editorial Board of the Scientific World JOURNAL.
- Member of the Editorial Board of the Open Journal of Neuroscience
- Member of the Editorial Board of the World Journal of Clinical Cases (WJCC)
- Member of the Editorial Board of the Physiology Journal.
- Guest editor of Frontiers in Neuroscience (Topics Neurology).
- Guest editor of Diseases, Section Neuro-Psychiatric Disorders.

MEMBER OF THE FOLLOWING SCIENTIFIC SOCIETIES

Société Belge de Physiologie et de Pharmacologie Fondamentales et Cliniques. Société Belge d'Electromyographie et de Neurophysiologie Clinique. Société Médicale Belge d'Education Physique et des Sports. Société de Biomécanique de Langue Française. European Neuroscience Association. International Society for Myochemistry. Society for Neuroscience. American Association for the Advancement of Science. New York Academy of Sciences. Belgian Society for Neuroscience.

AWARDS

- Prix Paul Chevalier, Mons, 1974;
- Prix de Biomécanique, Paris, 1987
- Prix MAAF Santé, Montréal, 2000.
- Prix Science & Innovation, 2015 Comité Olympique Interfédéral Belge

PATENS

- PCT/EP2011/050260 filled on January 2011 entitled "Method to determine an artificial limb movement from an electroencephalographic signal.
- PCT/EP2016/061134 filed on May 18th, 2016 entitled "Methods and pharmaceutical compositions for the treatment of the neuropathology of patients suffering from myotonic dystrophy type 1 (DM1)".

PUBLICATIONS IN INTERNATIONAL JOURNALS

1. HAINAUT, K., DUCHATEAU, J. et CHERON, G. (1983). Contribution à l'étude physiologique de l'adaptation du muscle à l'effort. *Journal de Médecine du Sport* 57: 159-162.
2. CHERON, G. et HAINAUT, K. (1980). Les effets du vieillissement sur le système sensori-moteur chez l'homme normal. *Journal Français de Biophysique et de Médecine Nucléaire* 4(3): 149-154.
3. CHERON, G. et DESMEDT, J.E. (1981). L'évaluation électrophysiologique du vieillissement nerveux. *La Revue de Gériatrie*, Tome 6, n° 5: 221-225.

4. DESMEDT, J.E. and CHERON, G. (1980). Somatosensory evoked potentials to finger stimulation in healthy octogenarians and in young adults: wave forms, scalp topography and transit times of parietal and frontal components. *Electroencephalography and Clinical Neurophysiology* 50: 404-425.
5. DESMEDT, J.E. and CHERON, G. (1980). Central somatosensory conduction in man: neural generators and interpeak latencies of the far-field components recorded from neck and right or left scalp and earlobes. *Electroencephalography and Clinical Neurophysiology* 50: 382-403.
6. CHERON, G. et DESMEDT, J.E. (1980). Voies somesthésiques périphérique et centrale et potentiels évoqués cérébraux au cours du vieillissement. *Revue d'Electroencéphalographie et de Neurophysiologie Clinique (Paris)* 10, 2: 146-152.
7. DESMEDT, J.E. and CHERON, G. (1981). Prevertebral (oesophageal) recording of subcortical somatosensory evoked potentials in man : the spinal P13 component and the dual nature of the spinal generators. *Electroencephalography and Clinical Neurophysiology* 52: 257-275.
8. DESMEDT, J.E. and CHERON, G. (1981). Non cephalic reference recording of early somatosensory potentials to finger stimulation in adult or aging normal man : differentiation of widespread N18 and contralateral N20 from the prerolandic P22 and N30 components. *Electroencephalography and Clinical Neurophysiology* 52: 553-570.
9. DESMEDT, J.E. and CHERON, G. (1982). Somatosensory evoked potentials in man : subcortical and cortical components and their neural basis. *Annals of the New York Academy of Sciences* 388: 388-411.
10. DESMEDT JE, CHERON, G. (1982) Recent progress in the understanding of subcortical somatosensory evoked potentials. *Adv Neurol.* 1982;32:295-302.
11. DESMEDT, J.E. and CHERON, G. (1983). Spinal and far-field components of human somatosensory evoked potentials to posterior tibial nerve stimulation analysed with oesophageal derivations and non-cephalic reference recording. *Electroencephalography and Clinical Neurophysiology* 56:635-651.
12. BORENSTEIN, S., CHERON, G., TOSCANO-AGUILAR, M. and LUDWIG, M. (1987). Comparative study of amplitude, surface and duration of pre- and post-imperative waves of CNV in a group of 40 schizophrenic and schizoaffective patients with respect to normal subjects. *Clinical Neurophysiology* 67: 78-88.
13. HANNAFORD, B., CHERON, G. and STARK, L. (1985). The effects of applied vibration on the tri-phasic EMG pattern in Neurologically ballistic head movements. *Experimental Neurology* 88: 447-460.
14. CHERON, G., GODAUX, E., LAUNE, J.-M. and VANDERKELEN, B. (1986). Lesions in the cat prepositus complex : effects on the vestibulo-ocular reflex and saccades. *Journal of Physiology (Lond)* 372: 75-94.
15. CHERON, G., GODAUX, E. and VANDERKELEN, G. (1986). Lesions in the cat prepositus complex : effects on the optokinetic system. *Journal of Physiology (Lond)* 372: 95-111.
16. CHERON, G. and GODAUX, E. (1986). Self-terminated fast movement of the forearm in man : amplitude dependence of the triple burst pattern. *Journal de Biophysique et de Biomécanique* 10, 3: 109-117.
17. CHERON, G. and GODAUX, E. (1986). Long latency reflex regulation in human ballistic movement. *Human Movement Science* 5: 217-233.

18. CHERON, G. and GODAUX, E. (1987). Disabling of the oculomotor neural integrator by microinjections of kainic acid in the prepositus vestibular nuclear complex of the cat. *Journal of Physiology (Lond)* 394: 267-290.
19. BALAND, J.F., GODAUX, E. and CHERON, G. (1987). Algorithms for the analysis of the nystagmus eye movements induced by sinusoidal head rotations. *IEEE Transactions on Biomedical Engineering* Vol BME-34, n° 10, 811-816.
20. CHERON, G. and BORENSTEIN, S. (1987). Specific gating of the early somatosensory evoked potentials during active movement. *Electroencephalography and Clinical Neurophysiology* 67: 537-548.
21. BORENSTEIN, S., CHERON, G., TOSCANO, M. et LUDWIG, M. (1988). Etude comparative de l'amplitude, de la surface et de la durée des ondes pré et post impératives de la V.C.N. chez un groupe de 40 schizophrènes par rapport à des sujets normaux. *Revue d'Electroencéphalographie et de Neurophysiologie clinique (Paris)* 18: 129-140.
22. GODAUX, E., CHERON, G. and GRAVIS, F. (1989). Eye movements evoked by microstimulations in the brainstem of the alert cat. *Experimental Brain Research*. 77: 94-102.
23. GODAUX, E., CHERON, G. and METTENS, P. (1990). Ketamine induces failure of the oculomotor neural integrator in the cat. *Neuroscience Letters* 116: 162-167.
24. CHERON, G. (1990). The effects of incisions in the brainstem network on the adaptive plasticity of the vestibulo-ocular reflex of the cat. *Journal of Vestibular Research : Equilibrium and orientation* 1:223-239.
25. METTENS, P., GODAUX, E. and CHERON, G. (1991). Effects of ketamine on ocular movements of the cat. *Journal of Vestibular Research : Equilibrium and orientation* 1: 325-338.
26. CHERON, G. and BORENSTEIN, S. (1991). Gating of the early components of the frontal and parietal somatosensory evoked potentials in different sensory-motor interference modalities. *Electroencephalography and Clinical Neurophysiology* 80: 522-530.
27. CHERON, G., METTENS, P. and GODAUX, E. (1992). Gaze holding defect induced by injections of ketamine in the cat brainstem. *Neuroreport*, 3 (1): 97-100.
28. CHERON, G. and BORENSTEIN, S. (1992). Mental movement simulation affects the N30 frontal component of the somatosensory evoked potential. *Electroencephalography and Clinical Neurophysiology* 84: 288-292.
29. DRAYE, J.P., CHERON, G., LIBERT, G. and GODAUX, E. (1993). Simulation of the neural integrator of the oculomotor system: a biologically plausible model. *Proceedings IVth International Symposium on Computer Simulation in Biomechanics* (Paris), pp 2-5.
30. GODAUX, E. and CHERON, G. (1993). Testing of the common neural integrator hypothesis at the level of the individual abducens motoneurons in the alert cat. *Journal of Physiology, (Lond)* 469: 549-570.
31. GODAUX, E. and CHERON, G. (1993). The role of the vestibular commissure in the gaze holding of the cat. *Neurosciences Letters*, 153: 149-152.
32. GODAUX, E., METTENS, P. and CHERON, G. (1993). Differential effect of kainic acid microinjections into the prepositus and the medial vestibular nuclei of the alert cat. *Journal of Physiology, (Lond)* 472: 459-482.
33. METTENS, P., GODAUX, E., CHERON, G. and GALIANA, H.L. (1994). Effect of muscimol microinjections into the prepositus hypoglossi and the medial vestibular nuclei on cat eye movements. *Journal of Neurophysiology*, 72:785-802

34. CHERON, G., PIETTE, T., THIRIAUX, A., JACQUY, J. and GODAUX, E. (1994). Somatosensory evoked potentials at rest and during movement in Parkinson's disease: Evidence for a specific apomorphine effect on the frontal N30 wave. *Electroencephalography and clinical Neurophysiology*, 92: 491-501.
35. METTENS, P., GODAUX, E. and CHERON, G. (1994). NMDA receptors are involved in temporal integration in the oculomotor system of the cat. *Neuroreport* 5: 1333-1336.
36. METTENS, P., CHERON, G. and GODAUX, E. (1994). Involvement of the N-methyl-D-aspartate receptors of the vestibular nucleus in the gaze holding system. *Neuroscience Letters* 174: 209-212.
37. METTENS, P., CHERON, G. and GODAUX, E. (1994). Role of the vestibular commissure in the gaze holding of the cat: a pharmacological evaluation. *Neuroreport* 5: 1421-1424.
38. DRAYE, J.P., PAVISIC, D., CHERON, G. and LIBERT, G. (1995) Adaptative time constant improved the prediction capacity of recurrent neural network. *Neural Processing Letters*, 2, n°3: 1-5.
39. DRAYE, J.P., CHERON, G., BOURGEOIS, M., PAVISIC, D. and LIBERT, G.(1995) Identification of the human arm kinetics using dynamic recurrent neural networks. *Proceedings of the third European Symposium on Artificial Neural Networks (ESANN'95)*, pp 33-38.
40. DRAYE, J.P., PAVISIC, D., CHERON, G. and LIBERT, G. (1995) Analysis of the influence of adaptative time constants on the dynamical behaviour of recurrent neural networks. *Proceedings of the International Conference on Artificial Neural Networks (ICANN'95') II*, 455-460.
41. CHERON, G. SAUSSEZ, S., GERRITS, N. and GODAUX, E. (1995). Existence of horizontal eye-movement related burst-tonic neurones in the nucleus incertus projecting to the flocculus in the alert cat. *Journal of Neurophysiology*. 74: 1367-1372.
42. CHERON, G., ESCUDERO, M. and GODAUX, E. (1996). Discharge properties of the brain stem neurons projecting to the flocculus in the alert cat: I. Medial vestibular nucleus. *Journal of Neurophysiology*. 76: 1759-1774.
43. ESCUDERO, M., CHERON, G. and GODAUX, E. (1996). Discharge properties of the brain stem neurons projecting to the flocculus in the alert cat: II. Prepositus hypoglossi nucleus. *Journal of Neurophysiology*. 76: 1775-1785
44. GODAUX, E. and CHERON, G. (1996). The hypothesis of the uniqueness of the oculomotor neural integrator: direct experimental evidence in the cat. *Journal of Physiology (Lond)* 492.2: 517-527
45. CHERON, G., DRAYE, J.P., BOURGEOIS, M. and LIBERT, G. (1996). A dynamic neural network identification of electromyography and arm trajectory relationship during complex movements. *IEEE Transactions on Biomedical Engineering* 43.5: 552-558
46. DRAYE, J.P., PAVISIC, D., CHERON, G. and LIBERT, G. (1996). Dynamic recurrent neural networks: a dynamical analysis. *IEEE Transactions on Systems Man, and Cybernetics* 26. 5: 692-706
47. CHERON, G., DUFIEF, M.P., GERRITS, N. and GODAUX, E. (1996). Properties of nucleus incertus neurons of the cat projecting to the cerebellar flocculus. *Annals of the New York Academy of Sciences* 781: 589-593
48. DRAYE, J.P., CHERON, G., LIBERT, G. and GODAUX, E. (1996). Improvements of the neural network simulation of the vestibulo-oculomotor integrator. *Annals of the New York Academy of Sciences* 781:594-597.

49. DRAYE, J.P., PAVISIC, D., CHERON, G., LIBERT, G. (1996). Adaptive time constants improve the dynamic features of recurrent neural networks. *Proceedings of the 4th European Symposium on Artificial Neural Networks (ESANN'96)* pp 31-36
50. PAVISIC, D., DRAYE, J.P., TERAN, R., CALDERON, G., CHERON, G. and LIBERT, G. (1996) Negative initial weights improve learning in recurrent neural networks. *Proceedings of the 4th European Symposium on Artificial Neural Networks (ESANN'96)* pp 43-48.
51. DRAYE, J.P. PAVISIC, D., CHERON, G. and LIBERT, G. (1997). Evidence of efficiency of recurrent neural networks with ARMA-like units. *Proceedings of the 4th European Symposium on Artificial Neural Networks (ESANN'97)* pp 327-332.
52. DRAYE, J.P., CHERON, G. LIBERT, G. and GODAUX, E. (1997) Emergence of clusters in the hidden layer of a dynamic recurrent neural network. *Biological Cybernetics* 76: 365-374.
53. DRAYE, J.P., PAVISIC, D., CALDERON, G., TERAN, R., CHERON, G. and LIBERT, G. (1997) Inhibitory initial weights improve the speed and quality of recurrent neural network learning. *Neurocomputing* 16, 3: 207-224.
54. DRAYE, J.P., CHERON, G., BOURGEOIS, M., PAVISIC, D., LIBERT, G. (1997) Improved identification of complex temporal systems with dynamic recurrent neural networks. Application to the identification of electromyography and human arm trajectory relationship. *Journal of Intelligent Systems Special Issue on Neural Networks Applications* 7: 83-102.
55. CHERON, G., BENGOTXEA, A., POZZO, T., BOURGEOIS, M. and DRAYE, J.P. (1997). Demonstration of a pre-programmed deactivation of the hamstring muscles for triggering rapid change of posture in human. *Electroencephalography and clinical Neurophysiology, Motor Control* 105: 58-71.
56. PAVISIC, D., DRAYE, J.P., TERAN, R., CALDERON, G., CHERON, G. and LIBERT, G. (1996). Negative initial weights improve learning in recurrent neural networks. *Proceedings of the 4th European Symposium on Artificial Neural Networks (ESANN'96)* pp 43-48.
57. POZZO, T., McINTYRE, J. and CHERON, G. (1998) Hand trajectory formation during a whole body reaching movement. *Neuroscience Letters* 140 : 159-162
58. DE GROOTE, A., WANTIER, M., CHERON, G., ESTENNE, M. and PAIVA, M. (1997) Chest wall motion during tidal breathing. *Journal of Applied Physiology* (83)5 : 1531-1537
59. DRAYE, J.P., CHERON, G., PAVISIC, D. and LIBERT, G. (1997) Improved identification of the human shoulder kinematics with muscle biological filters. *Lecture Note Series in Computer Science* 1211: 417-428.
60. CHERON, G. DAN, B., DRAYE, J.P., BENGOTXEA, A. (1996) Tridimensional analysis of complex drawing movements: effect of initial direction on kinematics and electromyographic signals. *Proceedings of the 3D Symposium* pp 50-56.
61. DRAYE, J.P., PAVISIC, D., CHERON, G. and LIBERT, G. (1997) Improved signal processing with dynamic recurrent neural models using ARMA-like units. *Proceedings of the IEEE International Symposium on Circuits and Systems I*, 525-528.
62. CHERON, G. DUFIEF, M.P., GERRITS, N., DRAYE, J.P. and GODAUX, E. (1997) Behavioural analysis of Purkinje cells output of the horizontal zone of the cat flocculus. *Progress in Brain Research*, 114: 367-376.
63. CHERON G., BENGOTXEA, A. DAN, B. and DRAYE, J-P. (1998) Multi-joint coordination strategies for straightening up movement in humans. *Neuroscience Letters* 242: 135-138.

64. SCHIFFMANN, S.N. , CHERON,G. ,LOHOF, A. , D'ALCANTRA, P., MEYER, M., PARMENTIER, M. and SCHURMANS S. (1999) Impaired motor coordination and Purkinje cells excitability in mice lacking calretinin. *Proceedings of National Academy of Sciences* 96 :5257-5262
65. STAPLEY, P. POZZO, T., CHERON, G. and GRISHIN, A (1999). Does the coordination between posture and movement during human whole-body reaching ensure center of mass stabilization ? *Experimental Brain Research* 129:134-146.
66. CHERON, G., DRAYE, J.P., BENGOTXEA, A., DAN, B. (1999) Kinematics invariance in multi-directional complex movement in free space: effect of changing initial direction. *Clinical Neurophysiology, Motor Control* 110 : 757-764.
67. CHERON, G., SCHURMANS, S., LOHOF, A., d'ALCANTARA, P , MEYER, M., DRAYE, J.P., PARMENTIER, M. and SCHIFFMANN, S. (2000) Firing behaviour of Purkinje cells and sensori-motor coordination in calretinin knockout mice. *Progress in Brain Research* 124 :299-308
68. DAN, B., BOUILLOT, E., BENGOTXEA, A., NOEL, P., KAHN, A. and CHERON, G. (1999). Adaptive motor stability for squatting in spastic diplegia. *European Journal of Paediatrics*, 3 : 159-165
69. DAN, B. and CHERON, G. (2000) Intrathecal baclofen normalizes motor strategy for squatting in familial spastic paraplegia. *Clinical Neurophysiology*, 30: 1-6
This paper was highlighted in Clinical Neurophysiology.
70. CHERON, G. (1999) Is the frontal N30 component of the somatosensory evoked potentials a reliable physiological index of the dopaminergic motor pathways ? *Clinical Neurophysiology, Evoked Potentials*, 110: 1698-1699.
71. DAN, B., BOUILLOT, E., BENGOTXEA, A., NOEL, P. and CHERON, G. (2000). Head stability during whole body movements in spastic diplegia. *Brain and Development* 14;22 (2): 99-101.
72. DAN, B., BOUILLOT, E., BENGOTXEA, A. and CHERON, G. (2000) Effect of intrathecal baclofen on gait control in hereditary spastic paraparesis. *Neuroscience Letters* 280: 175-178.
73. DAN, B. and CHERON, G. (2000) Linking motor impairment to function. *Developmental Medicine & Child Neurology*, (Letter to editor) 42 : 850
74. DAN, B., CHRISTIEANS, F. and CHERON, G. (2000) Automatic-voluntary dissociation in Angelman Syndrome .*Brain and Development (Letter to editor)* 22: 139.
75. CHERON, G., DAN, B. and BORENSTEIN, S. (2000) Sensory and motor interfering influences upon somatosensory evoked potentials. (invited review). *The Journal of Clinical Neurophysiology* 17 (3): 280-294
76. CHERON, G., BOUILLOT, E., DAN, B., BENGOTXEA, A., DRAYE, J.P. and LACQUANITI F. (2001) Development of a kinematic coordination pattern in toddler locomotion: planar covariation. *Experimental Brain Research* 137(3-4):455-466
77. CHERON, G., BENGOTXEA, A., BOUILLOT, E., LACQUANITI F. and DAN, B. (2001) Early emergence of temporal coordination of lower limb segments elevation angles in human locomotion. *Neuroscience Letters* 308(2):123-127.
78. DAN, B., BOUILLOT, E. BENGOTXEA, A., BOYD, S. and CHERON, G. (2001) Distinct multi-joint control strategies in spastic diplegia associated with prematurity or Angelman syndrome. *Clinical Neurophysiology* 112(9):1618-1625.
79. CHERON, G., DAN B. (2001) High frequency evoked response to somatosensory stimulation. *Neuroreport* (Letter to the Editor) 13;12(8):A51-52

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PUBLICATIONS FOR SCIENCE POPULARIZATION

1. HAINAUT, K., DUCHATEAU, J. et CHERON, G. (1983). Contribution à l'étude physiologique de l'adaptation du muscle à l'effort. *Journal de Médecine du Sport* 57: 159-162.
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3. CHERON, G. et GODAUX, E. Le cervelet est-il la mémoire du geste sportif ? *Actualités Sport et Médecine* n°28: 19-20 (1993).
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CONGRESSES WITH PEER REVIEWING (ORAL OR POSTER)

1. Castermans Thierry, Duvinage Matthieu, Hoellinger Thomas, Petieau Mathieu, Dutoit Thierry, Cheron Guy, "An analysis of EEG signals during voluntary rhythmic foot movements" in "5th International IEEE EMBS Neural Engineering Conference" , 584-587, Cancun, Mexique, (2011)
2. Cheron Guy, Verlinden Olivier, Dutoit Thierry, Clarinval A., Rustin C., Jimenez René, Castermans Thierry, Duvinage Matthieu, De Saedeleer C., Petieau Mathieu, *Integrated development of an intelligent customised foot orthosis*. - 10th Belgian Day on Biomedical Engineering – joint meeting with IEEE EMBS Benelux Chapter" , Brussels, Belgium, (2011).
3. Duvinage Matthieu, Castermans Thierry, Hoellinger Thomas, Cheron Guy, Dutoit Thierry, "Modeling Human Walk by PCPG for Lower Limb Neuroprosthesis Control" in "5th International IEEE EMBS Neural Engineering Conference " , 317-321, Cancun, Mexique, (2011)
4. Duvinage Matthieu, Castermans Thierry, Petieau Mathieu, Seetharaman Karthik, Hoellinger Thomas, Cheron Guy, Dutoit Thierry, "A Subjective Assessment of a P300 BCI System for Lower-Limb Rehabilitation Purposes" in "EMBC 2012 - 34rd Annual International Conference of the IEEE Engineering in Medicine and Biology Society", San Diego, USA, (2012)
5. Duvinage Matthieu, Castermans Thierry, Petieau Mathieu, Cheron Guy, Dutoit Thierry, "Are current gait-related artifact removal techniques useful for low-complexity BCIs?" in " IEEE World Congress On Computational Intelligence (IEEE WCCI)", Brisbane, Australia, (2012)
6. Duvinage Matthieu, Castermans Thierry, Petieau Mathieu, Hoellinger Thomas, De Saedeleer C., Seetharaman Karthik, Cheron Guy, Dutoit Thierry, "A P300-Based Quantitative Comparison Between The Emotiv Epoc Headset And A Medical Eeg Device" in "9th IASTED International Conference on Biomedical Engineering" , Innsbruck, Austria, (2012)
7. Castermans Thierry, Duvinage Matthieu, Cheron Guy, Dutoit Thierry, "Eeg and Human Locomotion" in "International Conference on Bio-inspired Systems and Signal Processing, subconference of the 5th International Joint Conference on Biomedical Engineering Systems and Technologies (BIOSTEC 2012)" , Vilamoura, Algarve, Portugal, (2012)
8. Duvinage Matthieu, Castermans Thierry, Jimenez René, Hoellinger Thomas, De Saedeleer C., Petieau Mathieu, Seetharaman Karthik, Cheron Guy, Verlinden

- Olivier, Dutoit Thierry, "A Five-State P300-based Foot Lifter Orthosis: Proof of Concept" in "3rd IEEE Biosignals and Biorobotics conference (ISSNIP)" , Manaus, Brazil, 2012 (2012)
9. Duvinage Matthieu, Cubeta Jeremie, Castermans Thierry, Petieau Mathieu, Hoellinger Thomas, Cheron Guy, Dutoit Thierry, "A Quantitative Comparison of the Most Sophisticated EOG-based Eye Movement Recognition Techniques" in "IEEE SSCI series" , Singapour, Singapour, (2013)
 10. Duvinage Matthieu, Castermans Thierry, Petieau Mathieu, Hoellinger Thomas, Seetharaman Karthik, Cheron Guy, Dutoit Thierry, "A Preliminary Fundamental Study of Ambulatory SSVEP " in "TOBI IV workshop" , SION, Switzerland, (2013)
 11. Guy Cheron and Axelle Leroy – “Neurophysiological biomarkers of the psychological ‘flow’ in real-world tightrope walking “- Annual Meeting for Society of Neurosciences – San Diego, USA (Nov. 2018) P111 586.11.
 12. Axelle Leroy, Ana-Maria Cebolla, Mathieu Petieau and Guy Cheron. « EEG dynamics and neural generators in slackline performance with and without virtual reality stimulation.” Frontiers Spotlight Meeting / Augmentation of the brain functions / Lausanne, Switzerland (Sept. 2018)
 13. Cheron, J. and Cheron, G. “Beta-Gamma burst stimulations of the inferior olive induche high-frequency oscillations in deep cerebellar nuclei.” – 11th Fens Forum of Neuroscience / Berlin, Germany (July 2018)
 14. Cheron Guy., Leroy Axelle, Cheron Julian, Marquez-Ruiz Javier and Ris Laurence “Multiple causes of pathological oscillations related to ataxia in mouse cerebellum”. Society for the Neural Control of Movement (NCM), Toyama, Japan (2019).
 15. .L. Ris, M. Fassin, A. Leroy, J. Marquez-Ruiz, G. Cheron (2019) Hippocampal and cerebellar abnormalities in a mouse model of alzheimer disease. Annual Meeting Neuroscience Society, S-11326, Chicago, USA.

Invited conferences 2018-2019

- Institut d’Etudes Avancées (IEA), Paris, 19-20 juin 2018, Symposium on "Space-time geometries and movement in the arts":“The EEG dynamics signature of flow sensation during movement in music” Guy Cheron
- 3rd International Mobile Brain/Body Imaging Conference in Berlin,(July 12-14, 2018): “Neural generators and brain states in real-world tightrope walking” Guy Cheron & Axelle Leroy
- VU University Amsterdam, Faculty of Behavioural and Movement. Institute for Brain and Behaviour Amsterdam (iBBA) (18 octobre 2018): “From human movement to mental state: a neuroscience perspective for the identification of the psychological flow”. Guy Cheron.
- The Spotlight Meeting: University of Lausanne, FPFL; Frontiers Research Topic Augmentation of Brain Function (19-21 septembre 2018): “EEG dynamics and neural generators in slackline performance with and without virtual reality stimulation”. Axelle Leroy, Ana-Maria Cebolla, Mathieu Petieau & Guy Cheron
- 4ème Rencontres Art & Sciences de Saint-Malo « La puissance du mouvement : l’étonnant dialogue du cerveau et du corps (5-6 octobre 2018) :« Le cerveau aux commandes du Mouvement » Guy Cheron ;« Le dialogue corps-cerveau chez les artistes et les sportifs » Guy Cheron ;« L’art de l’équilibre » Guy Cheron

- ANT Neurometing (16-19 January) (2019) Beaune , France : “New electrodiagnostic tools for ADHD in children and adults” Clarinval A.M. , Leroy A., Zarka, D., Petieau, M., Simar, C., Verbanck, P., Cheron G. “EEG Brain states and neural generators in rfeal-world tightrope walking “ Cheron, G. and Leroy, A.
- Journée du Collectif pour la Recherche Transdisciplinaire en Interfaces Cerveau-Ordinateur (CORTICO) (mars 2019) (Université de Lille) “Using BCIs to Enhance Motor Skill Acquisition: A promising approach to understand and improve athletes' performances » (G. Cheron & A. Leroy)
- “Conception of efficient BCI training procedures for motor skill acquisition: Lessons from the Flow Theory”(A. Leroy & G. Cheron)
- Gordon Conference Cerebellum (Switzerland) 2019, “EEG inverse modelling (swLORETA) reveals cerebellar contribution in different balance tasks and motor imagery in humans.” Cheron, G., Leroy, A. and Cebolla AM.
- Gordon Conference Cerebellum (Switzerland) (2019) “Immediate and long-term effects dissociation of transcranial direct current stimulation on alert mice cerebellar cortex”

Missions AWEX

- Visit Oslo University : Plateforme Neuroinformatique du Human Brain Project, Professeur Jan Bjaalie) (2018)
- Visit of the Norwegian Brain Center NTNU and Kavli institute for System Neuroscience (Kay Gastinger) (2018)
- Visit of Trondheim University Neuro-medicine Trondheim Norway Professor Lars Jacob Stovner (2018)
- Visit of the Neurosciences Department Karolinska Institute Professeur Sten Grillner (2018)
- Visit of Lund University, Wallenberg Neuroscience Centre (Professeur Joohan Jakobsson) (2018).

MAJOR COLLABORATIONS:

Out Europe: -Department of Physical Sciences, IBM T.J. Watson Research Center, Yorktown Heights, NY, USA, (Prof. R. Traub). Department of Mechanical Engineering National Polytechnic School Quito, Ecuador (Prof. C. Cevallos). Department of electronics, telecommunications and information networks National Polytechnic School Quito, Ecuador (Prof. R. Alvarez).

In Europe:

Machine Learning Group, Département d'Informatique ULB (Prof. G. Bontempi) - Laboratoire de Neurosciences (Prof. L. Ris), UMONS, Belgium. de l'École des hautes études en Sciences Sociales de Paris (Prof. E. Brian) -Institute of Myology, AP-HP, Groupe hospitalier La Pitié Salpêtrière, Paris, France, (Dr. L. Servais). -Division of Histology, Department of Medicine, University of Fribourg, Fribourg, Switzerland (Prof. B. Schwaller). -Hôpital Necker-Enfants Malades, Paris, France, (Prof. G. Gourdon). -Department of Pharmacology and Toxicology, Institute of Pharmacy, Universität Tübingen, Germany, (Prof. P. Ruth). -Human Physiology Section of the Scientific Institute Santa Lucia and the University of Rome Tor Vergata, Rome, Italy,(Prof. F. Lacquaniti and Prof. Y Ivanenko). - Laboratoire de Physiologie de la Perception et de l'Action, CNRS Collège de France, Paris,

France, (Prof. A. Berthoz), Institut Neurosciences et Cognition, CNRS - Université Paris Descartes, Paris, France (Dr.J. McIntyre)-Anatomy, Department of Medicine, University of Fribourg Fribourg, Switzerland, (Prof. B. Schwaller) --Department of Cell Biology, Nijmegen Centre for Molecular Life Sciences, Radboud University Nijmegen Medical Centre, Nijmegen, The Netherlands, (Prof. W. Heindriks). -Division de Neurociencias, Universidad Pablo de Olavide, Sevilla, (Prof. JM. Delgado-Garcia and Prof. J. Marquez-Ruiz). - Neuroscience and Behavior Group, Departamento de Fisiología, Facultad de Biología, Universidad de Sevilla, Spain, (Prof M. Escudero). - Université de Bourgogne, Unité de Formation et de Recherche en Sciences et Techniques des Activités Physiques et Sportives, Dijon, France, (Prof. T. Pozzo). In Belgium: -Laboratory of Neurophysiology, Faculty of Medicine (Prof. S. Schiffmann) ULB.-Department of Neurology, (Prof. B. Dan) Hôpital Universitaire des Enfants reine Fabiola, ULB, - Institute of Neuroscience, University of Louvain, (Prof A Goffinet).

MEDIA INTERVIEWS

- La Prem1ère (RTBF) – Regional actualities with KHELFAT Mehdi – Neurosciences pour améliorer les performances des sportifs / April 2017
- RMC découverte - France - « la Science du Sport » diffusée en juin 2018 - https://tv-programme.com/la-science-du-sport_documentaire/.
- RTBf – « le pouvoir de notre cerveau » - Matière Grise diffusée en Mars 2018 - https://www.rtb.be/tv/emission/detail_matiere-grise/actualites/article_utilisons-nous-reellement-qu-une-partie-de-notre-cerveau?id=9880290&emissionId=65
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