



Curriculum Vitae –Guy BOURHIS

LCOMS laboratory, Lorraine University,
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Diploma:

1999: Habilitation à Diriger des Recherches (Accreditation to supervise research), « Human-machine cooperation in the rehabilitation engineering field ».

1985: PhD Speciality Electrical and Biomedical Engineering, INPL Nancy, « Design and implementation of a microprocessor-based communication aid: application to people with severe motor and verbal disabilities ».

1982: Engineering degree ENSEM Nancy, speciality electronic and control.

Professional experience:

2002-2019: Professor, Lorraine University, CNU61

1988-2002: Lecturer, Metz University

1987: Biomedical engineer, CHU of Yaoundé (Cameroun)

Teaching:

Digital signal processing, Digital transmission, Microcontrollers, Human-machine modelling, Assistive technologies.

In charge of the Master EEA (Electronic, Electrical energy, Automation), University of Lorraine, 2019-XX.

Scientific responsibilities:

Head of the EPSAP team (Performance Assessment and Assistive Technologies, 18 permanent members) of the LCOMS laboratory: 2013-2016

Head of the LASC laboratory (18 permanent members): 2009-2012.

President of the organizing board for the conference Handicap 2018, Paris, June 2018.

President of the scientific board for the conference Handicap 2014, Paris, June 2014.

Leader of a CMEP-Tassili project with Tlemcen university (Algeria), « Assessment on powered wheelchair simulator for post-stroke people », 2019-2021.

Leader for the LCOMS of the Guidechair project (Région Grand-Est, France), 2022-2024.

Leader for the LCOMS of the Innov'chair project (Région Grand-Est, France), 2019-2021.

Leader of a CMEP-Tassili project with Tlemcen university (Algeria), « Analysis methodology for powered wheelchair driving », 2013-2016.

Leader of a CAPES-COFECUB project with Uberlandia university (Brazil), « Analysis of EMG signals as human-machine interface for people with motor disability », 2009-2012.

Research:

Human-machine interaction and cooperation in the rehabilitation engineering field.

Keywords: human-machine systems, human engineering, rehabilitation engineering, smart wheelchair, augmentative and alternative communication, human-machine modelling, assistive technologies, rehabilitation assessment.

Supervised thesis: 11; **Supervised thesis in progress:** 2

Publications: <https://orcid.org/0000-0002-5158-8831>

International journals: 34 ; National journals: 7 ; Collective books: 5; Editor : 2 ;

International conferences: 39 ; National conferences: 29 ; Invited lectures : 16

Selected publications

Ech-Choudany, Y., Grasse, R., Stock, R., Horn, O., & Bourhis, G.. “*Traded and combined cooperative control of a smart wheelchair*”. *Robotica*, 1-21, 2022. doi:10.1017/S0263574721001855.

Y. Meziani, M.A. Hadj-Abdelkader, Y. Morère, M. Benmansour, G. Bourhis, “*Towards Adaptive and Finer Rehabilitation Assessment: a Learning Framework for Kinematic Evaluation of Upper Limb Rehabilitation on an Armeo Spring Exoskeleton* », *Control Engineering Practice*, vol. 111, 2021, <https://doi.org/10.1016/j.conengprac.2021.104804>.

C.Galvao Pinheiro Jr, M. Fraga Vieira, C. Ferreira Amorim, G. Bourhis, A.O. Andrade, “*Facial muscular human computer interface at a motor unit level*”, *Advances in Data Science and Adaptive Analysis*, vol.11, n°3&4, 2019.

Y. Morere, G. Bourhis, K. Cosnuau, G. Guilmois, E. Blangy, E. Rumilly, “*ViEW, a wheelchair simulator for driving analysis*”, *Assistive Technology*, Aug 7:1-11, 2018.

B. Zhang, Y. Morere, L. Sieler, C. Langlet, B. Bolmont, G. Bourhis, “*Reaction time and physiological signals for stress recognition*”, *Biomedical Signal Processing and Control*, vol.38, september 2017, p.100-107.

Y. Morere, M.A. Hadj Abdelkader, K. Cosnuau, G. Guilmois, G. Bourhis, “*Haptic Control for Powered Wheelchair Driving Assistance*”, *IRBM - Innovation and Research in BioMedical Engineering*, 2015, vol.36, issue 5, p.293-304.

F. Leishman, V. Monfort, O. Horn, G. Bourhis, « *Driving assistance by deictic control for a smart wheelchair : the assessment issue* », *IEEE transactions on Human-Machine Systems*, vol.44, n°1, p.66-77, 2014.

M.A. Hadj Abdelkader, G. Bourhis, B. Cherki “*Haptic feedback control of a smart wheelchair*”, *Applied Bionics and Biomechanics*, vol.9, n°2, p.181-192, 2012.

C. Pinheiro, E. Naves, P. Pino, E. Losson, A. Andrade, G. Bourhis “*Alternative communication systems for people with severe motor disabilities: a survey*”, *Biomedical Engineering Online*, 10:31, doi:10.1186/1475-925X-10-31, 2011.

S. Ghedira, P. Pino, G. Bourhis, « *Conception and experimentation of a communication device with adaptative scanning* », *ACM Transactions on Accessible Computing*, special issue on Augmentative and Alternative Communication, vol.1, n°3, article n°14, 2009.

G. Bourhis, O. Horn, O. Habert, A. Pruski, “*Autonomous vehicle for people with motor disabilities*”, *IEEE Robotics and Automation magazine*, Special Issue on "Reinventing the wheelchair", vol.7, n°1, 2001, p.20-28.

G. Bourhis, Y. Agostini, “*Man-machine cooperation for the control of an intelligent powered wheelchair*”, *Journal of Intelligent and Robotic Systems*, Special Issue on "Mobile Robots in Health Care Services", vol.22, 1998, p.269-287.

G. Bourhis, P. Pino, “*Mobile robotic and mobility assistance for people with motor impairments: rational justification for the V.A.H.M. project*”, *IEEE Transactions on Rehabilitation Engineering*, vol.4, n°1, 1996, p.7-12.