Sergi Bermúdez i Badia

NOVA LINCS Group: Multimodal Systems
Research Topics: Virtual Reality; HCI; Rehabilitation; Cyberpsychology. Google Scholar: scholar.google.com/citations?user=9-qQaT4AAAAJ&hl=pt-PT
With a diverse scientific and professional trajectory, my career spans academia, research, and leadership roles. Currently, I am an Associate Professor with Habilitation at the University of Madeira, actively contributing since 2010. I earned a Telecommunications Engineering degree from UPC and a Ph.D. from ETHZ, conducting research in Europe and the USA, including EPFL, ETHZ, Universitat Pompeu Fabra, and Carnegie Mellon University. My interdisciplinary journey encompasses telecommunications, neuroscience, digital media, and clinical research, shaping my vision of interdisciplinary research, culture, and leadership.
I lead the NeuroRehabLab research group at the University of Madeira, with approximately 15 members exploring the intersection of technology, neuroscience, and clinical practice. As the Scientific Director of The Quality-of-Life Technologies Center of Madeira, I contribute to consolidating Madeira as an innovation hub in rehabilitation and quality-of-life technologies. Currently serving as the outgoing President of the International Society for Virtual Rehabilitation, I provided strategic direction during two mandates, fostering events and collaboration in rehabilitation technologies.
Dedicated to advancing research, my extensive publication record includes over 150 publications and over 4600 citations. I received 19 awards and established a startup company, Musiquence Technologies. With a central focus on connecting basic neuroscience, clinical research, and the creation of cost-effective technologies, my body of work encompasses 61 peer-reviewed journal articles, 87 conference papers, and 18 book chapters.They propose novel paradigms at the intersection of technology, neuroscience, and clinical practice, forming the basis for practical tools and applications.
Participation in 9 competitive research projects covering Healthcare Technologies using Virtual Reality and Serious Games, Physiological Computing Systems, Exergaming for Older Adults, Human-Computer Interaction, and Cognitive Rehabilitation and Training, with a total budget exceeding 1 million euros, has resulted in prototypes deployed in real-world settings.
My contributions have received acknowledgment, earning multiple awards that underscore the quality and innovation of my work. These recognitions span various categories, from scientific papers to innovation awards, highlighting the multifaceted impact of my research on both academic and practical fronts.
Selected publications:
- Faria, A. L., et al. (2020). A comparison of two personalization and adaptive cognitive rehabilitation approaches: a randomized controlled trial with chronic stroke patients. Journal of NeuroEngineering and Rehabilitation, 17(1), 78.
- Câmara, J., et al. (2022). Feasibility, Acceptability, and Preliminary Impact of Full-Body Interaction on Computerized Cognitive Training Based on Instrumental Activities of Daily Living: A Pilot Randomized Controlled Trial with Chronic Psychiatric Inpatients. Games for Health Journal, 11(6), 435-446.
- Gonçalves, A., et al. (2021). The Benefits of Custom Exergames for Fitness, Balance, and Health-Related Quality of Life: A Randomized Controlled Trial with Community-Dwelling Older Adults. Games for Health Journal, 10(4), 245¿253.
- Vourvopoulos, A., et al. (2019). Efficacy and Brain Imaging Correlates of an Immersive Motor Imagery BCI-driven VR System for Upper Limb Motor Rehabilitation: A Clinical Case Report. Front. Hum. Neurosci.
- Goncalves, A., et al. (2021). Evaluation of a Low-Cost Virtual Reality Surround-Screen Projection System. IEEE Transactions on Visualization and Computer Graphics, 1-1.

Identification

Personal identification

Full name
Sergi Bermúdez i Badia

Gender
Male

Birth date
1979/02/12

Citation names

Bermúdez i Badia, Sergi
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Websites

https://neurorehablab.arditi.pt/ (Professional)

Knowledge fields

Engineering and Technology - Electrotechnical Engineering, Electronics and Informatics

Languages

Language	Speaking	Reading	Writing	Listening	Peer-review
Catalan	Advanced (C1)	Advanced (C1)	Advanced (C1)	Advanced (C1)	
Spanish; Castilian	Advanced (C1)	Advanced (C1)	Advanced (C1)	Advanced (C1)	
Portuguese	Advanced (C1)	Advanced (C1)	Intermediate (B1)	Advanced (C1)	
English	Advanced (C1)	Advanced (C1)	Advanced (C1)	Advanced (C1)	
German	Beginner (A1)	Intermediate (B1)	Beginner (A1)	Beginner (A1)	
French	Intermediate (B1)	Intermediate (B1)	Beginner (A1)	Intermediate (B1)	

Education

	Degree	Classification
2023/07/06 - 2023/07/07 Concluded	Engenharia Informática (Título de Agregado) Universidade da Madeira, Portugal	n/a
2006 Concluded	PhD (Doktor (PhD)) Eidgenössische Technische Hochschule Zürich Departement Physik, Switzerland Institut für Neuroinformatik, Switzerland Departement Informationstechnologie und Elektrotechnik, Switzerland *"The Principles of Insect Navigation Applied to Roving and Flying Robots: from vision to olfaction"* (THESIS/DISSERTATION)	n/a
2002 Concluded	Telecommunications Engineering, specialized in Telecommunication systems (Licence) Major in Telematica Universitat Politècnica de Catalunya, Spain *"Modelling Human Perception for Texture Quality Control"* (THESIS/DISSERTATION)	7/10

Affiliation

Science

	Category Host institution/organization	Employer

2023/01/01 - 2025/12/30	Past-President	International Society for Virtual Rehabilitation (ISVR), United States
2022/06/01 - 2024/06/01	Manager of Laboratory, Institute, Museum, Centre or Observatory *Universidade da Madeira, Portugal*	LifeTech Madeira – The Quality of Life Technologies Center of the Population of Madeira, Portugal
2022/06/01 - 2024/06/01	President of the Scientific Council *Universidade da Madeira Madeira N-Lincs, Portugal*	Universidade da Madeira Madeira N-Lincs, Portugal
2018/01/01 - 2022/12/31	President	International Society for Virtual Rehabilitation (ISVR), United States

Others

	Category Host institution/organization	Employer
2019/02/14 - Current	Director of the Master Program on Interactive Media Design	Universidade da Madeira, Portugal
2012/05/09 - 2014/09/01	Director of the PhD program in Informatics	Universidade da Madeira, Portugal
2011/12/08 - 2012/06/04	Scientific Director and President of the Scientific Council	Universidade da Madeira Madeira Interactive Technologies Institute, Portugal
2010/10/01 - 2012/02/13	Research Fellow (FCT CMU| Portugal)	Universidade da Madeira Madeira Interactive Technologies Institute, Portugal
2011/01/10 - 2011/04/30	Visiting faculty on the CMU	Portugal exchange program. Developing Virtual Reality applications for the rehabilitation of motor deficits using an arm robotic device. In collaboration with Myomo (r) (	Universidade da Madeira Madeira Interactive Technologies Institute, Portugal

2008/01/01 - 2010/11/01	Director of the Robotic Systems Laboratory and SPECS research associate	Universitat Pompeu Fabra, Spain
2006/12/01 - 2008/01/01	Post-doctorate researcher. Involved in the Presenccia project (European project with 14 partners). Its major goal the delivery of presence in wide area distributed mixed reality environments.	Universitat Pompeu Fabra, Spain
2003/03/01 - 2006/12/01	Research assistant. Involved in the A-Moth project (European project in collaboration with the University of Leicester, University of Sweeden, AlphaMos- Toulouse and INI-ETH Zürich).	Institut für Neuroinformatik, Switzerland

Projects

Grant

	Designation	Funders
2012/06 - 2016/06	RehabNet: Neuroscience Based Interactive Systems for Motor Rehabilitation 303891	Research Executive Agency, Belgium Concluded

Contract

	Designation	Funders
2022/10/01 - 2025/09/30	Smart Islands Hub SIH - Smart Islands Hub Researcher Agência Regional para o Desenvolvimento da Investigação Tecnologia e Inovação, Portugal	Ongoing
2022/01/12 - 2024/01/12	Realidade Virtual Adaptativa para suporte após perda gestacional precoce involuntária EXPL/CCI-INF/0298/2021 Universidade da Madeira, Portugal Universidade Nova de Lisboa Laboratório para a Ciência da Computação e Informática, Portugal	Fundação para a Ciência e a Tecnologia, Portugal Concluded

2022/01/01 - 2023/12/31	MACbioIDi2: Promoting the cohesion of Macaronesian regions through a common ICT platform for biomedical R & D & I INTERREG PROGRAM MAC2/1.1b/352 Principal investigator	Concluded
2018/10/01 - 2022/09/30	NeuroAugVR: Stroke Neurorehabilitation Augmented by Virtual Reality and EEG-neurofeedback: Neuroimaging-based Validation and Optimization PTDC/CCI-COM/31485/2017 Principal investigator Universidade da Madeira Madeira Interactive Technologies Institute, Portugal	Fundação para a Ciência e a Tecnologia, Portugal Concluded
2018/10/01 - 2022/09/30	BRaNT: Belief Bevision applied to Neurorehabilitation Therapy PTDC/CCI-COM/31046/2017 Principal investigator Universidade da Madeira Madeira Interactive Technologies Institute, Portugal	Fundação para a Ciência e a Tecnologia, Portugal Concluded
2018/04/10 - 2020/07/31	MAST: Master Module in Arts, Science and Technology LC-00793922 Principal investigator Universidade da Madeira Madeira Interactive Technologies Institute, Portugal	European Commission, Belgium Concluded
2017/01 - 2020/06/30	MACBIOIDI: PROMOTING THE COHESION OF MACARONESIAN REGIONS THROUGH A COMMON ICT PLATFORM FOR BIOMEDICAL R & D & I MAC/1.1b/098 Principal investigator Universidade da Madeira Madeira Interactive Technologies Institute, Portugal	Research Executive Agency, Belgium Concluded
2019/01/01 - 2019/12/31	Laboratório de Robótica e Sistemas de Engenharia UID/EEA/50009/2019 Associação do Instituto Superior Técnico para a Investigação e Desenvolvimento, Portugal Universidade de Lisboa Centro de Ciência e Tecnologia do Ambiente e do Mar, Portugal Agência Regional para o Desenvolvimento da Investigação Tecnologia e Inovação, Portugal	Fundação para a Ciência e a Tecnologia, Portugal Concluded

2014/08/01 - 2018/12/31	AHA: Assistência Humana Aumentada	Fundação para a Ciência e a Tecnologia, Portugal
	CMUP-ERI/HCI/0046/2013	
	Associação do Instituto Superior Técnico para a Investigação e Desenvolvimento, Portugal Universidade de Lisboa Centro Interdisciplinar de Performance Humana, Portugal Universidade de Lisboa Faculdade de Motricidade Humana, Portugal Carnegie Mellon University, United States Universidade da Madeira Madeira Interactive Technologies Institute, Portugal Associação para a Inovação e Desenvolvimento da FCT, Portugal	Concluded

Outputs

Publications

Book chapter	1	Accoto, Floriana; Vourvopoulos, Athanasios; Gonçalves, Afonso; Bucho, Teresa; Caetano, Gina; Figueiredo, Patrícia; De Paolis, Lucio; Badia, Sergi Bermudez i. "The Effect of Neurofeedback Training in CAVE-VR for Enhancing Working Memory". In *Technology-Augmented Perception and Cognition*, 11-45. Springer International Publishing, 2021.
		10.1007/978-3-030-30457-7_2
	2	Bermúdez i Badia, Sergi; Fluet, Gerard G.; Llorens, Roberto; Deutsch, Judith E.. "Virtual Reality for Sensorimotor Rehabilitation Post Stroke: Design Principles and Evidence". In *Neurorehabilitation Technology*, 573-603. Springer International Publishing, 2016.
		10.1007/978-3-319-28603-7_28
	3	Cameirão, Mónica S.; Bermúdez i Badia, Sergi. "An Integrative Framework for Tailoring Virtual Reality Based Motor Rehabilitation After Stroke". In *Human Computer Confluence*, 244-261. De Gruyter Open, 2015.
		10.1515/9783110471137-014
	4	Vouloutsi, Vasiliki; Lopez- Serrano, Lucas L.; Mathews, Zenon; Chimeno, Alex Escuredo; Ziyatdinov, Andrey; Perera i Lluna, Alexandre; Bermúdez i Badia, Sergi; et al. "The synthetic moth: a neuromorphic approach toward artificial olfaction in robots". In *Neuromorphic Olfaction*. CRC Press, 2013.
	5	Mathews, Zenon; Badia, Sergi Bermúdez i; Verschure, Paul F. M. J.. "Action-Planning and Execution from Multimodal Cues: An Integrated Cognitive Model for Artificial Autonomous Systems". In *Intelligent Systems: From Theory to Practice*, 479-497. Springer Berlin Heidelberg, 2010.
		10.1007/978-3-642-13428-9_24
	6	i Badia, Sergi Bermudez; F.M.J., Paul. "Humanitarian Demining Using an Insect Based Chemical Unmanned Aerial Vehicle". In *Humanitarian Demining*. I-Tech Education and Publishing, 2008.
		10.5772/5414

| Conference paper | 1 | Cameirão, Mónica S; Agrela, José Gabriel; Mendes, Diana C Gonçalves; Costa, Rita; Bermúdez i Badia, Sergi. "Providing Psychological Support After Miscarriage Through a Customizable Virtual Reality Experience". Paper presented in *International Conference on Serious Games and Applications for Health (SeGAH)*, 2023. |

10.1109/segah57547.2023.10253763

2   Freitas, Guilherme; Paulino, Teresa; Bermudez i Badia, Sergi. "Usability Evaluation of the RehabMarket: A CAVE-Based Game for Stroke Rehabilitation". Paper presented in *International Conference on Serious Games and Applications for Health (SeGAH)*, 2023.

10.1109/segah57547.2023.10253765

3   Ferreira-Brito, Filipa; Gjoreski, Hristijan; Mayora, Oscar; Luštrek, Mitja; Kizhevska, Emilija; Guerreiro, João; Gerling, Kathrin; Bermúdez i Badia, Sergi; Guerreiro, Tiago. "Virtual Reality for Health and Wellbeing". Paper presented in *International Conference on Mobile and Ubiquitous Multimedia*, 2022.

10.1145/3568444.3568560

4   Diana C. Gonçalves Mendes; Yuri Aristides da Silva Godinho de Almeida; Carla Vale Lucas; Luísa Soares; Sergi Bermúdez i Badia. "A Pilot Study to Evaluate the Feasibility of a Science-Based Game Called Symphony to Alleviate Depression Symptoms". Paper presented in *ICT for Health, Accessibility and Wellbeing*, 2022.

10.1007/978-3-031-29548-5_10

5   Luis Ferreira; Mónica Spínola; Sofia Cavaco; Sergi Bermúdez I Badia. "Impact of Combined Music and Reminiscence Cognitive Stimulation in Dementia: A Longitudinal Pilot Study Using Musiquence". Paper presented in *ICT for Health, Accessibility and Wellbeing*, 2022.

10.1007/978-3-031-29548-5_4

6   Vourvopoulos, Athanasios; Blanco-Mora, Diego Andres; Aldridge, Audrey; Jorge, Carolina; Figueiredo, Patricia; Badia, Sergi Bermudez i. "Enhancing Motor-Imagery Brain-Computer Interface Training With Embodied Virtual Reality: A Pilot Study With Older Adults". Paper presented in *IEEE International Conference on Metrology for Extended Reality, Artificial Intelligence and Neural Engineering (MetroXRAINE)*, 2022.

10.1109/metroxraine54828.2022.9967664

7   Blanco-Mora, D.; Aldridge, A.; Jorge, C.; Vourvopoulos, A.; Figueiredo, P.; Bermúdez i Badia, S.. "Finding the Optimal Time Window for Increased Classification Accuracy during Motor Imagery". Paper presented in *International Joint Conference on Biomedical Engineering Systems and Technologies*, 2021.

10.5220/0010316101440151

8   Ahmad, Muhammad; Sousa, Honorato; Quintal, Élvio; Bermúdez i Badia, Sergi. "Efficacy of Augmented Reality-based Virtual Hiking in Cardiorespiratory Endurance: A Pilot Study". Paper presented in *14th International Joint Conference on Biomedical Engineering Systems and Technologies*, 2021.

10.5220/0010312405750582

9   Lee, Min Hun; Siewiorek, Daniel P.; Smailagic, Asim; Bernardino, Alexandre; Bermúdez i Badia, Sergi Bermúdez. "A Human-AI Collaborative Approach for Clinical Decision Making on Rehabilitation Assessment". Paper presented in *CHI Conference on Human Factors in Computing Systems*, 2021.

10.1145/3411764.3445472

10   Almeida, Yuri; Sirsat, Manisha; Bermúdez i Badia, Sergi; Fermé, Eduardo. "AI-Rehab: A Framework for AI Driven Neurorehabilitation Training - The Profiling Challenge". Paper presented in *International Joint Conference on Biomedical Engineering Systems and Technologies*, 2020.

10.5220/0009369108450853

11   Lee, Min Hun; Siewiorek, Daniel P.; Smailagic, Asim; Bernardino, Alexandre; Bermúdez i Badia, Sergi. "Interactive hybrid approach to combine machine and human intelligence for personalized rehabilitation assessment". Paper presented in *ACM Conference on Health, Inference, and Learning*, 2020.

10.1145/3368555.3384452

12   Lee, Min Hun; Siewiorek, Daniel P.; Smailagic, Asim; Bernardino, Alexandre; Bermúdez i Badia, Sergi. "An Exploratory Study on Techniques for Quantitative Assessment of Stroke Rehabilitation Exercises". Paper presented in *ACM Conference on User Modeling, Adaptation and Personalization*, 2020.

10.1145/3340631.3394872

13   Lee, Min Hun; Siewiorek, Daniel P.; Smailagic, Asim; Bernardino, Alexandre; Bermúdez i Badia, Sergi; Badia, Sergi Bermudez. "Towards personalized interaction and corrective feedback of a socially assistive robot for post-stroke rehabilitation therapy". Paper presented in *IEEE International Conference on Robot and Human Interactive Communication (RO-MAN)*, 2020.

10.1109/RO-MAN47096.2020.9223462

14   Silva, Paula Alexandra; Bermúdez i Badia, Sergi; Cameirão, Mónica S.. "Diving into a Decade of Games for Health Research: A Systematic Review". Paper presented in *Fifth International Congress on Information and Communication Technology*, 2020.

10.1007/978-981-15-5856-6_51

15   Cabral, Diogo; Castro, Deborah; Rigby, Jacob M.; Vasanth, Harry; Cameirão, Mónica S.; Badia, Sergi Bermúdez i; Nisi, Valentina. "To Binge or not to Binge: Viewers' Moods and Behaviors During the Consumption of Subscribed Video Streaming". Paper presented in *Entertainment Computing - ICEC 2020*, 2020.

10.1007/978-3-030-65736-9_33

16   Gonçalves, Afonso; Nóbrega, Filipa; Cameirão, Mónica; Muñoz, John E.; Gouveia, Élvio; Bermúdez i Badia, Sergi; Afonso Gonçalves; et al. "From body tracking interaction in floor projection displays to elderly cardiorespiratory training through exergaming". Paper presented in *Physiological Computing Systems: International Conferences*, 2019.

10.1007/978-3-030-27950-9_4

17   Vourvopoulos, Athanasios; Ferreira, André; Bermudez i Badia, Sergi. "Development and Assessment of a Self-paced BCI-VR Paradigm Using Multimodal Stimulation and Adaptive Performance". Paper presented in *PhyCS 2018: Physiological Computing Systems*, 2019.

10.1007/978-3-030-27950-9_1

18   Lee, Min Hun; Siewiorek, Daniel P.; Smailagic, Asim; Bernardino, Alexandre; Badia, Sergi Bermúdez i. "Learning to assess the quality of stroke rehabilitation exercises". Paper presented in *International Conference on Intelligent User Interfaces*, 2019.

10.1145/3301275.3302273

19   Paulino, Teresa; i Badia, Sergi Bermudez; Cameirao, Monica. "Usability evaluation of an integrative exergaming system for the senior population". Paper presented in *2019 5th Experiment International Conference (exp.at'19)*, 2019.

10.1109/expat.2019.8876582

20   Andrade Ferreira, Luis Duarte; Cavaco, Sofia; Bermudez i Badia, Sergi. "Musiquence: a framework to customize music and reminiscence cognitive stimulation activities for the dementia population.". Paper presented in *2019 5th Experiment International Conference (exp.at'19)*, 2019.

10.1109/expat.2019.8876575

21   Sousa, H.; Bermudez i Badia, S.; Gouveia, E. R.; Cameirao, M.S.; Goncalves, A.; Munoz, J. E.; Paulino, T; et al. "Custom-made exergames for older people: New inputs for multidimensional physical". Paper presented in *2019 5th Experiment International Conference (exp.at'19)*, 2019.

10.1109/expat.2019.8876569

22   Mora, Diego Andres Blanco; Bermudez i Badia, Sergi; Almeida, Yuri; Vieira, Carolina Jorge. "Inter- and Intra-Hemispheric EEG Connectivity in Healthy Subjects and Chronic Stroke Survivors". Paper presented in *International Conference on Virtual Rehabilitation (ICVR)*, 2019.

10.1109/icvr46560.2019.8994755

23   Pereira, Fabio; Bermudez i Badia, Sergi; Jorge, Carolina; da Silva Cameirao, Monica. "Impact of Game Mode on Engagement and Social Involvement in Multi-User Serious Games with Stroke Patients". Paper presented in *International Conference on Virtual Rehabilitation (ICVR)*, 2019.

10.1109/icvr46560.2019.8994505

24   Blanco-Mora, D.A.; Almeida, Y.; Vieira, C.; Badia, S. Bermudez i. "A Study on EEG Power and Connectivity in a Virtual Reality Bimanual Rehabilitation Training System". Paper presented in *IEEE International Conference on Systems, Man and Cybernetics (SMC)*, 2019.

10.1109/smc.2019.8914190

25   Paulino, Teresa; Faria, Ana Lúcia; Bermúdez i Badia, Sergi. "Reh@City v2.0: a comprehensive virtual reality cognitive training system based on personalized and adaptive simulations of activities of daily living". Paper presented in *2019 5th Experiment International Conference (exp.at'19)*, 2019.

26   Bucho, Teresa; Caetano, Gina; Vourvopoulos, Athanasios; Accoto, Floriana; Esteves, Ines; Bermúdez i Badia, Sergi; Rosa, Agostinho; Figueiredo, Patricia; i Badia, Sergi Bermudez. "Comparison of visual and auditory modalities for Upper-Alpha EEG-Neurofeedback". Paper presented in *2019 41st Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, 2019.

10.1109/EMBC.2019.8856671

27   Faria, Ana Lucia; Paulino, Teresa; Badia, Sergi Bermudez i. "Comparing adaptive cognitive training in virtual reality and paper-pencil in a sample of stroke patients". Paper presented in *2019 International Conference on Virtual Rehabilitation (ICVR)*, 2019.

10.1109/icvr46560.2019.8994746

28   Diogo Freitas; Teresa Paulino; Sergi Bermudez i Badia; Roberto Llorens; Judith E. Deutsch; Freitas, D.; Paulino, T.; et al. "Open Rehab Initiative: Second development iteration". Paper presented in *International Conference on Virtual Rehabilitation (ICVR)*, 2017.

10.1109/icvr.2017.8007524

29   Muñoz, J.E.; Gouveia, E.R.; Cameirão, M.S.; Badia, S.B.I.; Bermúdez i Badia, Sergi; Cameirão, M. S.; Gouveia, E. R.; Muñoz, J. E.. "The biocybernetic loop engine: An integrated tool for creating physiologically adaptive videogames". Paper presented in *International Conference on Physiological Computing Systems*, 2017.

10.5220/0006429800450054

30   Ferreira, L.D.A.; Cameirao, M.S.; Badia, S.B.; Ferreira, Luis Duarte Andrade; Cameirão, Mónica S.; Bermúdez i Badia, Sergi. "Music-based assistive feedback system for the exploration of virtual environments in individuals with dementia". Paper presented in *2017 International Conference on Virtual Rehabilitation (ICVR)*, 2017.

10.1109/ICVR.2017.8007522

31   Cameirão, Mónica S.; Pereira, Fábio; Bermúdez i Badia, Sergi; Cameirao, M.S.; Pereira, F.; Badia, S.B.. "Virtual reality with customized positive stimuli in a cognitive-motor rehabilitation task: a feasibility study with subacute stroke patients with mild cognitive impairment". Paper presented in *International Conference on Virtual Rehabilitation*, 2017.

10.1109/ICVR.2017.8007543

32   Vourvopoulos, A.; Badia, S.B.I.; Vourvopoulos, Athanasios; Bermúdez i Badia, Sergi. "Usability and cost-effectiveness in brain-computer interaction: Is it user throughput or technology related?". Paper presented in *Augmented Human International Conference*, 2016.

10.1145/2875194.2875244

33   Bernardino, A.; Vismara, C.; Badia, S.B.I.; Gouveia, E.; Baptista, F.; Carnide, F.; Oom, S.; et al. "A dataset for the automatic assessment of functional senior fitness tests using kinect and physiological sensors". Paper presented in *International Conference on Technology and Innovation in Sports, Health and Wellbeing (TISHW)*, 2016.

10.1109/TISHW.2016.7847782

34   Muñoz, J.E.; Cameirão, M.S.; Rubio, E.; Paulino, T.; Bermudez I Badia, S.; Muñoz, John Edison; Cameirão, Mónica S.; et al. "Modulation of physiological responses and activity levels during Exergame experiences". Paper presented in *International Conference on Games and Virtual Worlds for Serious Applications (VS-GAMES)*, 2016.

10.1109/VS-GAMES.2016.7590353

35   Bermúdez i Badia, Sergi; Ferreira, André; Vourvopoulos, Athanasios; Vourvopoulos, A.; Ferreira, A.; Badia, S.B.I.. "NeuRow: an immersive VR environment for motor-imagery training with the use of brain-computer interfaces and vibrotactile feedback". Paper presented in *International Conference on Physiological Computing Systems*, 2016.

10.5220/0005939400430053

36   Faria, Ana Lúcia; Pinho, Maria Salomé; Bermúdez i Badia, Sergi. "Do papel-e-lápis à realidade virtual: uma nova abordagem para reabilitação cognitiva personalizada". Paper presented in *11° Congresso Nacional de Psicologia da Saúde*, 2016.

10.13140/RG.2.1.3627.5284

37   Faria, A.L.; Badia, S.B.I.; Faria, Ana Lúcia; Bermúdez i Badia, Sergi. "Development and evaluation of a web-based cognitive task generator for personalized cognitive training: A proof of concept study with stroke patients". Paper presented in *Workshop on ICTs for improving Patients Rehabilitation Research Techniques*, 2015.

10.1145/2838944.2838945

38   Ferreira, André; Vourvopoulos, Athanasios; Bermúdez i Badia, Sergi. "Optimizing Performance of Non-Expert Users in Brain-Computer Interaction by Means of an Adaptive Performance Engine". Paper presented in *Brain Informatics and Health*, 2015.

10.1007/978-3-319-23344-4_20

39   Muñoz, J. E.; Bermúdez i Badia, Sergi; Rubio, E.; Cameirão, M. S.; Munoz, J.E.; Bermudez I Badia, S.; Cameirao, M.S.. "Visualization of multivariate physiological data for cardiorespiratory fitness assessment through ECG (R-peak) analysis". Paper presented in *IEEE Engineering in Medicine and Biology Society*, 2015.

10.1109/EMBC.2015.7318381

40   Neves, Davide; Vourvopoulos, Athanasios; Cameirão, Mónica; Bermúdez i Badia, Sergi; Neves, D.; Vourvopoulos, A.; Cameirão, M.; i Badia, S.B.. "Personalization of assistance and knowledge of performance feedback on a hybrid mobile and myo-electric robotic system for motor rehabilitation after stroke". Paper presented in *Workshop on ICTs for improving Patients Rehabilitation Research Techniques*, 2015.

10.1007/978-3-662-48645-0_9

41   Faria, Ana Lúcia; Cameirão, Mónica S.; Paulino, Teresa; Bermúdez i Badia, Sergi. "The benefits of emotional stimuli in a virtual reality cognitive and motor rehabilitation task: assessing the impact of positive, negative and neutral stimuli with stroke patients". Paper presented in *International Conference on Virtual Rehabilitation (ICVR)*, 2015.

10.1109/ICVR.2015.7358584

42   Alves, Júlio; Vourvopoulos, Athanasios; Bernardino, Alexandre; Bermúdez i Badia, Sergi. "Eye Gaze Patterns after Stroke: Correlates of a VR Action Execution and Observation Task". Paper presented in *Pervasive Computing Technologies for Healthcare*, 2014.

10.4108/icst.pervasivehealth.2014.255288

43   Neves, Davide; Vourvopoulos, Athanasios; Cameirão, Mónica; Bermudez I Badia, Sergi. "An Assistive Mobile Platform for Delivering Knowledge of Performance Feedback". 2014.

10.4108/icst.pervasivehealth.2014.255278

44   Vourvopoulos, Athanasios; Faria, Ana Lúcia; Ponnam, Kushal; Bermudez i Badia, Sergi. "RehabCity". Paper presented in *Conference on Advances in Computer Entertainment Technology*, 2014.

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Thesis / Dissertation	1	Bermúdez i Badia, Sergi. "The principles of insect navigation applied to flying and roving robots: from vision to olfaction". PhD, 2006. http://hdl.handle.net/10400.13/1400.

Activities

Supervision

	Thesis Title Role	Degree Subject (Type) Institution / Organization
2023 - 2023	Design and Development of RehabMarket An inspiring interactive experience for motor and cognitive rehabilitation after stroke. Co-supervisor of Guilherme Spínola Freitas	Engenharia Informática (Master) Universidade da Madeira Faculdade de Ciências Exatas e da Engenharia, Portugal

2023 - 2023	The Fisherman and the Devil an artístic short film based on a folklore tale from Madeira island using interdisciplinary animation techniques Supervisor of Vítor Tomé Soares Mendonça	Design de Media Interativos (Master) Universidade da Madeira Faculdade de Ciências Exatas e da Engenharia, Portugal
2022 - 2022	Splinter Studio - Narrative and game mechanics with context Supervisor of João David Martins de Freitas	Design de Media Interativos (Master) Universidade da Madeira Faculdade de Ciências Exatas e da Engenharia, Portugal
2022 - 2022	Splinter Stuidio - Modelação 3D englobando o Património Cultural. Co-supervisor of Louis Michael Sousa Rodrigues	Design de Media Interativos (Master) Universidade da Madeira Faculdade de Ciências Exatas e da Engenharia, Portugal
2022 - 2022	The Impact of Inhibitory Control Training on the Emotional Regulation of Individuals with Alexithymic Symptoms Co-supervisor of Jade Zina Manders	Neuropsicologia Clínica e Experimental (Master) Universidade de Coimbra Faculdade de Psicologia e de Ciências da Educação, Portugal
2022 - 2022	Reh@Store: An ecosystem for the management, deployment and update of serious games and virtual environments for health Supervisor of Ivan Gonçalo Freitas Teixeira	Engenharia Informática (Master) Universidade da Madeira Faculdade de Ciências Exatas e da Engenharia, Portugal
2021 - 2021	Meraki - Virtual Reality System for Application in Pediatric Oncology Supervisor of Ana Filipa Rodrigues Gomes	Design de Media Interativos (Master) Universidade da Madeira Faculdade de Ciências Exatas e da Engenharia, Portugal
2021 - 2021	Seal Appeal Uma produção audiovisual de animação em 3D para a conscientização sobre a poluição do oceano, Modelação 3D e Captura de Movimento Supervisor of Ana Laura Relva Santos	Design de Media Interativos (Master) Universidade da Madeira Faculdade de Ciências Exatas e da Engenharia, Portugal
2021 - 2021	Symphony. Alleviating Depression Symptoms Through Science Based Video Gaming Supervisor of Diana Carolina Gonçalves Mendes	Design de Media Interativos (Master) Universidade da Madeira Faculdade de Ciências Exatas e da Engenharia, Portugal
2020 - 2020	Ecova. An open - Source Frame work to increase ecological validaty in virtual reality experiences Supervisor of Diogo António de Andrade Branco	Engenharia Informática (PhD) Universidade da Madeira Faculdade de Ciências Exatas e da Engenharia, Portugal

2020 - 2020	A Biofeedback spatial augmentted reality platform to promote elderly fitness Supervisor of Muhammad Asif Ahmad	Engenharia Informática (PhD) Universidade da Madeira Faculdade de Ciências Exatas e da Engenharia, Portugal
2020 - 2020	Tailoring a Psychophysiologically Driven Rating System Supervisor of Harryharasuthan Vasantharajah	Engenharia Informática (Master) Universidade da Madeira Faculdade de Ciências Exatas e da Engenharia, Portugal
2020 - 2020	ReLiPh - Rehabilitation for Lower limb with Phantom pain Supervisor of Carlos André Freitas Costa	Design de Media Interativos (Master) Universidade da Madeira Faculdade de Ciências Exatas e da Engenharia, Portugal
2019 - 2019	O Bando do Lim. Jogo de aprendizagem de Bandolim Supervisor of Micaela Sofia Silva Sousa	Engenharia Informática (Master) Universidade da Madeira Faculdade de Ciências Exatas e da Engenharia, Portugal
2019 - 2019	Animal-Assisted Therapy for Alzheimer Patients Using Virtual reality Supervisor of Henrique Dantas Ferreira	Engenharia Informática (Master) Universidade da Madeira Faculdade de Ciências Exatas e da Engenharia, Portugal
2018 - 2018	Revisão de crenças como abordagem para a monotorização e personalização no processo de reabilitação cognitiva. Co-supervisor of Yuri Aristides da Silva Godinho de Almeida	Engenharia Informática (PhD) Universidade da Madeira Faculdade de Ciências Exatas e da Engenharia, Portugal
2018 - 2018	Musiquence - Design, Implementation and Validation of a Customizable Music and Reminiscence Cognitive Stimulation Platform for People with Dementia Supervisor of Luis Duarte Andrade Ferreira	Media Digitais (PhD) Universidade Nova de Lisboa Faculdade de Ciências e Tecnologia, Portugal
2018 - 2018	Physiopad. Development of a non-invasive game controller toolkit to study physiological responses for game user research. Supervisor of Diogo Cró Rodrigues	Engenharia Informática (Master) Universidade da Madeira, Portugal
2018 - 2018	KAVE - Kinect CAVE Design, Tools and comparative Analysis with Other Technologies. Supervisor of José Diogo Camacho Freitas	Engenharia Informática (Master) Universidade da Madeira, Portugal
2017 - 2017	Keepers of Intheris: Story and Aesthetics.	Engenharia Informática (Master) Universidade da Madeira, Portugal

Supervisor of Tatiana Severim Vieira

2017 - 2017	Uma Ferramenta Interativa Baseada em Jogos para Aprendizagem Colaborativa Supervisor of José Adriano Fernandes Faria	Engenharia Informática (Master) Universidade da Madeira, Portugal
2017 - 2017	Keepers of Intheris - Uma produção audiovisual de animação 3D, Modelação 3D, captura de movimento e efeitos visuais. Co-supervisor of Erika Carmen Fernandes da Silva	Engenharia Informática (Master) Universidade da Madeira, Portugal
2017 - 2017	Thought-Controlled Games With Brain-Computer Interfaces Supervisor of André José da Silva Ferreira	Engenharia Informática (Master) Universidade da Madeira, Portugal
2015 - 2015	Integrating eye tracking in virtual reality for stroke rehabilitation. Supervisor of Júlio Miguel Gomes Rebelo Alves	Engenharia Informática (Master) Universidade da Madeira, Portugal
2015 - 2015	Full Body Interaction in Virtual Environments with Large Projection Displays - Uses for finess assessment, exergaming and in immersive systems Supervisor of Afonso Rodrigues Gonçalves	Engenharia Informática (PhD) Universidade da Madeira, Portugal
2014 - 2014	Supporting Physical Training in Healthy Older Adults Through Biocybernetic Adaptation and Exergaming Supervisor of John Edison Muñoz Cardona	Engenharia Informática (PhD) Universidade da Madeira, Portugal
2014 - 2014	RehabNet - a social network for the deployment of online rehabilitation. Supervisor of Artur César Nunes Vieira	Engenharia Informática (Master) Universidade da Madeira, Portugal
2013 - 2013	Interactive Brain-Computer Interface (BCI) System for Neuro-rehabilitation Supervisor of Athanasios Vourvopoulos	Engenharia Informática (PhD) Universidade da Madeira, Portugal
2013 - 2013	Uma Abordagem Floor Interaction para o Apoio à Aprendizagem e ao Comportamento das Crianças Autistas. Supervisor of Patrícia José Andrade Nascimento	Engenharia Informática (Master) Universidade da Madeira, Portugal

2013 - 2013	Desenvolvimento de uma Solução de Aprendizagem Interativa Orientada às Necessidades das Crianças com Trissomia 21	Engenharia Informática (Master)
		Universidade da Madeira, Portugal
	Supervisor of Cátia Raquel Faria de Afonseca	

Distinctions

Award

2022	Best Paper Award for the paper entitled "Adaptive Control of Cardio-respiratory Training in a Virtual Reality Hiking Simulation: A Feasibility Study" by Lima, R., Asif, M., Sousa, H., & Bermúdez i Badia, S.
	15th International Conference on Bio-inspired Systems and Signal Processing (BIOSIGNALS/BIOSTEC), Portugal
2020	Finalist - Building Tomorrow Together - Roche
	Roche International Ltda, Uruguay
2019	Honorable Mention Demo Award - Honorato Sousa, Élvio Gouveia, Mónica Cameirão, Afonso Gonçalves, John Muñoz, Teresa Paulino, Hugo Simão, Ricardo Nunes, Alexandre Bernardino and Sergi Bermúdez i Badia. (2019). Custom-made exergames for older people: New in
	The Experiment@ International Conference 2019 (exp.at'19), Portugal
2019	Best Demo Award for "Musiquence: a framework to customize music and reminiscence cognitive stimulation activities for the dementia population" by Luis Duarte Andrade Ferreira, Sofia Cavaco, & Sergi Bermúdez i Badia
	The Experiment@ International Conference 2019 (exp.at'19), Portugal
2019	Honorable Mention - Costa et al. for the poster "Cognitive rehabilitation through virtual reality and paper-and-pencil interventions as complementary tools in addictive behaviors treatment"
	Lusíadas Clinical Summit, Portugal
2018	Best Student Paper Award - Faria, A. L., & Bermúdez i Badia, S. (2018). Personalizing paper-and-pencil training for cognitive rehabilitation: a feasibility study with a web-based Task Generator. Presented at the ICAP –
	ICAP – International Conference on Applied Psychology and Human Behavior, Portugal
2018	NVIDIA GPU Grant
	NVIDIA Corp, United States
2018	Best Student Paper Award - Pereira, F., Ornelas, R., Bermúdez i Badia, S., & Cameirão, M. S. (2018). Exploring Materials and Object Properties in an Interactive Tangible System for Upper Limb Rehabilitation.
	12th International Conference on Disability Virtual Reality and Associated Technologies, United Kingdom
2018	Best Short Paper Award - Modroño, C., Bermúdez I Badia, S., Cameirão, M. S., Pereira, F., Paulino, T., Marcano-Serrano, F., … González-Mora, J. L. (2018). Is it necessary to show virtual limbs in action observation neurorehabilitation systems?
	12th International Conference on Disability Virtual Reality and Associated Technologies, United Kingdom

2017	Best Paper Award at the International Conference on Physiological Computing Systems, July 27-28, 2017, in Madrid, Spain for the paper "The Biocybernetic Loop Engine an integrated tool for creating physiologically adaptive videogames".
	PhyCS 4: International Conference on Physiological Computing Systems, Spain
2016	Best Paper Commendation obtained for "Impact of combined cognitive and motor rehabilitation in a virtual reality task: an on-going longitudinal study in the chronic phase of stroke"
	11th international conference on disability, virtual reality and associated technologies (ICDVRAT 2016), United States
2016	Best Paper Award for "NeuRow: An Immersive VR Environment for Motor-Imagery Training with the Use of Brain-Computer Interfaces and Vibrotactile Feedback"
	PhyCS 2016 : 3rd International Conference on Physiological Computing Systems, Portugal
2016	Best Paper Award for "Modulation of Physiological Responses and Activity Levels During Exergame Experiences"
	VS-Games 2016 - The 8th International Conference on Virtual Worlds and Games for Serious Applications, Spain
2014	Bronze Paper Award for the paper "RehabCity: Design and Validation of a Cognitive Assessment and Reha
	11th International Conference on Advances in Computer Entertainment technology (ACE 2014), Portugal
2014	Best Paper Commendation for the paper entitled " Integrative virtual reality cognitive-motor intervention approach in stroke rehabilitation: a pilot study with the RehabNet"
	International Society for Virtual Rehabilitation at the International Conference on Disability, Virtual Reality and Associated Technologies 2014, Sweden
2011	Best Paper Award at the International Conference on Virtual Rehabilitation (ICVR) 2011
	International Conference on Virtual Rehabilitation (ICVR), United States

Other distinction

2012	Marie Curie Career Integration Grant
	European Commission, Belgium
2011	CMU|Portugal Faculty Exchange Grant
	Fundação para a Ciência e a Tecnologia, Portugal
2010	Postdoctoral research grant "Ciencia"
	Universidade da Madeira Madeira Interactive Technologies Institute, Portugal
2007	Juan de la Cierva Research Fellow (3 year post-doc grant)
	Gobierno de España, Spain