

Carlos Alberto Farinha Ferreira

Carlos Alberto Farinha Ferreira completed his PhD in 2013/02/06, a Master's degree in 2006/09/29 and a Degree in Electrical and Computer Engineering in 1999/11/16, all in Electrical and Computer Engineering from the University of Coimbra. He is an Adjunct Professor at the Polytechnic Institute of Tomar, Escola Superior de Tecnologia de Tomar. He has published several articles in specialized journals. In his professional activities, he built multiple prototypes and interacted with several collaborators in co-authoring scientific works.

Identification

Personal identification

Full name

Carlos Alberto Farinha Ferreira

Gender

Male

Birth date

1972/08/26

Citation names

Ferreira, Carlos

Author identifiers

Ciência ID

621E-0FB1-CB55

ORCID iD

[0000-0003-3948-2206](https://orcid.org/0000-0003-3948-2206)

Google Scholar ID

<https://scholar.google.pt/citations?hl=en&user=B1hQVEsAAAAJ>

Scopus Author Id

[55580438600](https://scopus.com/authid/detail.url?authorId=55580438600)

Email addresses

cferreira@ipt.pt (Professional)

Education

	Degree	Classification
2013/02/06 Concluded	PhD in Electrical and Computer Engineering (Doutoramento)	Approved with distinction and praise by unanimity
	Universidade de Coimbra, Portugal <i>"Modulação de Amplitude em Conversores Ressonantes para Amplificação de Áudio" (THESIS/DISSERTATION)</i>	

2006/09/29 Concluded	Master's Degree in Electrical and Computer Engineering (Mestrado) Major in Energy	Very good (Muito Bom)
	Universidade de Coimbra, Portugal "Amplificação Áudio Comutada" (THESIS/DISSERTATION)	
1999/11/16 Concluded	Graduation Electrical and Computer Engineering (5 year plan) (Licenciatura) Major in Sistemas Industriais	14
	Universidade de Coimbra, Portugal "Microrrato Controlo Motriz" (THESIS/DISSERTATION)	

Affiliation

Science

	Category Host institution/organization	Employer
1999/01/01 - 1999/12/30	Contracted Researcher (Research)	Universidade de Coimbra Instituto de Sistemas e Robótica, Portugal

Teaching in Higher Education

	Category Host institution/organization	Employer
2013/02/06 - Current	Adjunct Teacher (Polytechnic Teacher) Instituto Politécnico de Tomar, Portugal	Instituto Politécnico de Tomar Escola Superior de Tecnologia de Tomar, Portugal
2000/10/24 - 2013/02/06	Assistant (Polytechnic Teacher)	Instituto Politécnico de Tomar, Portugal

Other Careers

	Category Host institution/organization	Employer
2000/01/01 - 2000/10/24	Coordenador Técnico (Assistente Técnico)	Instrumentação e Sistemas de Automação (ISA), Portugal

Projects

Contract

	Designation	Funders
2018/06 - Current	Ciência nas escolas PEDIME -	
	Instituto Politécnico de Tomar, Portugal	
2022 - 2025	ProSTEAM - Erasmus+ KA2 2021-1-PTO 1 -KA220-SCH-000027742 Researcher	
2022/07 - 2023/07	EcoModZHC (Tratamento Sustentável e Valorização de Águas Residuais) CENTRO-01-0145-FEDER-179932 Researcher	Ongoing
2021 - 2023	Cognition UIDB/05567/2020/01 Researcher	
2021 - 2023	Transferência e Valorização de Tecnologia de Base Académica para as regiões Alentejo e Centro (TransCoTec) POCI-01-0246-FEDER-181321 Researcher	
2020 - 2023	Dragonfly UIDP/05567/2020/02 Researcher Instituto Politécnico de Tomar Centro de Investigação em Cidades Inteligentes, Portugal	Instituto Politécnico de Tomar Centro de Investigação em Cidades Inteligentes, Portugal
2020 - 2023	SmarterCW UIDP/05567/2020/03 Researcher	

2022 - 2022	Verão com Ciência 2022, FCT Verão com Ciência UID 05567/2020 Supervisor	Concluded
2021/09 - 2021/10	Verão com Ciência 2021, FCT Verão com Ciência 2021 UID 5567	Fundação para a Ciência e a Tecnologia, Portugal Concluded
2017/11/01 - 2020/10/31	INFANTE Projeto mobilizador de I&DT, N° 024534 Instituto Politécnico de Tomar, Portugal	Fundação para a Ciência e a Tecnologia, Portugal Concluded
2017/09/25 - 2019/03/27	LIBÉLULA - Sistema robotizado de monitorização da qualidade de águas superficiais CENTRO-01-0145-FEDER-024052 Researcher Instituto Politécnico de Tomar, Portugal	Concluded
2016/12/01 - 2018/12/01	SMART-MONITOR (P01395) UID/EEA/50008/2013 Researcher	Instituto de Telecomunicações, Portugal Concluded
2016/10/06 - 2018/08/31	Aquatropolis - Intelligent Management System for Sustainable Aquacultures POCI-01-0247-FEDER-017888 Researcher Instituto Politécnico de Tomar, Portugal	Concluded
2013/01/01 - 2014/04/01	Escolher Robótica, Escolher Ciência! PEC 88 Other Instituto Politécnico de Tomar Escola Superior de Tecnologia de Tomar, Portugal	Concluded
2014 - 2014	CI&DT0314 Pneu Sines: CI&DT0314 Technical development	Concluded

2014 - 2014	<p>HHenriques, Instrumentação de Câmaras Hiperbáricas. CI&DT n° 02/14</p> <p>Technical development</p>	Concluded
2014 - 2014	<p>Body in White – Process Monitoring (monitorização de sistemas de soldadura) CI&DT0114</p> <p>Technical development</p>	Concluded
2011/07/01 - 2013/12/01	<p>AISMAD – Advanced Integrated Switched-Mode Audio Drivers AISMAD</p> <p>Researcher Instituto de Telecomunicações, Portugal</p>	Concluded
2013/01/01 - 2013/10/01	<p>Escolher Ciência - Viver com a Energia PEC241</p> <p>Principal investigator Instituto Politécnico de Tomar Escola Superior de Tecnologia de Tomar, Portugal</p>	<p>Ciência Viva, Portugal</p> <p>Concluded</p>
2011 - 2011	<p>SIVCI - Sistema de imobilização de veículos em circulação irregular Contrato I&DT (IPT/2011)</p> <p>Technical development</p>	Concluded
2008/11/01 - 2010/11/01	<p>HEAD – Integrated Class D Audio Amplifier with High Efficiency HEAD</p> <p>Researcher Instituto de Telecomunicações, Portugal</p>	Concluded
2010 - 2010	<p>Protótipo de veículo eléctrico bimotor multifuncional Contrato I&DT (IPT/2010)</p> <p>Technical development</p>	Concluded
2010 - 2010	<p>Desenvolvimento de protótipo de módulo pré-fabricado e auto-sustentável Contrato I&DT (IPT/2010)</p> <p>Technical development</p>	Concluded

2010 - 2010	Aquisição de dados de Soldadura Contrato I&DT (IPT/2010) Technical development	
2008/11/11 - 2009/03/31	Desenvolvimento de protótipo de veículo eléctrico para ponto de venda móvel Contrato I&DT (IPT/2008) Technical development	Concluded
2009 - 2009	Desenvolvimento de um protótipo de concentrador solar para produção de energia eléctrica e térmica Contrato I&DT (IPT/2009) Technical development	Concluded

Other

	Designation	Funders
2024/06/12 - Current	FlexEMG: Exploring Flexible Printed Circuits for Wearable Muscle Sensors FLEXEMG (UIDB/05567/2020/06) Researcher Instituto Politécnico de Tomar Centro de Investigação em Cidades Inteligentes, Portugal	Instituto Politécnico de Tomar Centro de Investigação em Cidades Inteligentes, Portugal Ongoing

Outputs

Publications

Book chapter	1	Pinho, Henrique; Barros, Manuel; Matos, Pedro; Ferreira, Carlos; Neves, Pedro; Mateus, Dina. "Development of a Smart Framework to Continuously Monitor Constructed Wetland Efficiency". In <i>New Developments in Environmental and Energy Technologies</i> , 14-26. Springer Nature Singapore, 2025. 10.1007/978-981-96-4345-5_2
	2	Pinho, Henrique; Barros, Manuel; Teixeira, André; Oliveira, Luís; Matos, Pedro; Ferreira, Carlos; Mateus, Dina. "Smart Monitoring of Constructed Wetlands to Improve Efficiency and Water Quality". In <i>Proceedings of the 5th International Symposium on Water Resource and Environmental Management</i> , 189-197. Springer Nature Switzerland, 2023. 10.1007/978-3-031-31289-2_15
	3	Marques, João; Lopes, Brígida; Ferreira, Carlos; Pinho, Henrique; Barros, Manuel; Granchinho, Pedro; Neves, Pedro. "Towards a Practical and Cost-Effective Water Monitoring System". In <i>IFIP Advances in Information and Communication Technology</i> , 266-272. Springer International Publishing, 2019.

Conference abstract	1	Barros, Manuel; Pinho, Henrique; GRANCHINHO, PEDRO; Ferreira, Carlos; Nuno Madeira (IPT). "Patrulhamento de recursos hídricos em ecossistemas naturais e artificiais". Paper presented in <i>XXXII ENCONTRO DA ASSOCIAÇÃO DAS UNIVERSIDADES DE LÍNGUA PORTUGUESA, São Tomé, 2023</i> . Published
	2	Barros, Manuel; Pinho, Henrique; Ferreira, Carlos; MATOS, PEDRO; Teixeira, André. Corresponding author: Barros, Manuel. "Patrol of water resources in natural and artificial systems". Paper presented in <i>WREM2022 The 5th International Symposium on Water Resource and Environmental Management, Sanya, 2022</i> . Published
Conference paper	1	Ferreira, Carlos; Maria C. Costa. "O ENSINO DA ACÚSTICA BASEADO NUMA ABORDAGEM CONSTRUTIVISTA INTEGRADA NA SOCIEDADE". Paper presented in <i>XII Congresso Ibérico de Acústica, Faro, 2024</i> .
	2	Barros, F.M.; Pinho, Henrique J. O.; Magalhães, Hugo; Ferreira, Carlos; Matos, Pedro. "Autonomous patrol of water resources in natural and artificial systems". Paper presented in <i>WREM2022 The 5th International Symposium on Water Resource and Environmental Management, 2022</i> .
	3	Barros, Manuel; Pinho, Henrique; Ferreira, Carlos; GRANCHINHO, PEDRO; Magalhães, Hugo. "Desenvolvimento de um sistema robótico de monitorização da qualidade de águas superficiais". Paper presented in <i>Encontro Ciência e Tecnologia 2020 (FCT/Ciência Viva), Lisboa, 2020</i> . Published
	4	Ferreira, Carlos. "APRENDIZAGEM POR INTERAÇÃO EXPERIMENTAL: "UMA EXPERIÊNCIA PEDAGÓGICA NA ÁREA DO SOM"". Paper presented in <i>XI Congresso Ibérico de Acústica, Faro, 2020</i> . Published
	5	Farinha, Diogo; Dias, Joao; Neves, Pedro; Pereira, Katia; Ferreira, Carlos; Pires, Gabriel. "Assistive Robotic Hand Orthosis (ARHO) controlled with EMG: evaluation of a preliminary prototype* ¹ ". 2019. 10.1109/enbeng.2019.8692562
	6	Ferreira, Carlos; Neves, Pedro; Costa, Cristina; Teramo, Domenico. "Socio-constructivist teaching powered by ICT in the STEM areas for primary school". <i>Lisboa, 2017</i> . Published · 10.23919/cisti.2017.7975706
	7	Ferreira, Carlos; Pedro Neves; Cristina Costa; Domenico Teramo. "O ensino socioconstrutivista potenciado pelas TIC na área das STEM no ensino básico". Paper presented in <i>12th Iberian Conference on Information Systems and Technologies (CISTI'2017), Lisbon, 2017</i> .
	8	Barros, Manuel; Magalhaes, Hugo; Granchinho, Pedro; Ferreira, Carlos; Neves, Pedro. "Robotic Vehicles For Fish Farming Applications - An Overview". Paper presented in <i>2nd Aquaculture Research Workshop, Porto, 2017</i> .

- 9 Ferreira, Carlos. "New Phase Shift Modulator for Resonant Converters". Paper presented in *International Symp. in Circuits and Systems*, 2015.
- 10 Ribeiro, Hugo; Borges, Beatriz; Ferreira, Carlos. "Full-bridge single-stage PFC with reduced DC bus capacitor and improved light load operation as a solution for modern SMPS". Paper presented in *Energy Conversion Congress and Exposition – ECCE, Denver*, 2013.
10.1109/ecce.2013.6647149
- 11 Ribeiro, H.; Borges, B.; Ferreira, C.. "A family of Full-Bridge Single-Stage PFCs topologies: Identification of technical problems". Paper presented in *EEE Energy Conversion Congress and Exposition - ECCE*, 2012.
10.1109/ECCE.2012.6342695
- 12 Ferreira, C.; Borges, B.; De Sá, L.. "Design of one cycle control for low distortion bipolar switching inverters". 2009.
10.1109/IECON.2009.5414953
- 13 Ferreira, C.; Borges, B.; De Sá, L.. "Output filter solutions for class D power amplifiers: Analysis, characterization and recent developments". Paper presented in *AES 37th Conf. Class D Audio Amplification, Hillerød*, 2009.
- 14 Pestana, H.; Ferreira, C.; Ribeiro, H.; Matos, P.. "Constant power electronic gear for electrical vehicle". Paper presented in *International Conf. on Power Engineering, Energy and Electrical Drives - POWERENG, Lisbon*, 2009.
10.1109/POWERENG.2009.4915238
- 15 Ferreira, Carlos. "Single Stage Techniques for Power Factor Correction". Paper presented in *Conference on Telecommunications – ConfTele, Santa Maria da Feira*, 2009.
- 16 Marques, H.; Borges, B.; Ferreira, C.. "New modular two stage switching converter for high power stereo audio amplifier". Paper presented in *IEEE Industrial Electronics Conf. - IECON, Orlando*, 2008.
10.1109/IECON.2008.4758063
- 17 Ferreira, Carlos; Borges, Beatriz; Ferreira, C.; Borges, B.. "New notch low pass filter for use in switching audio amplification". Paper presented in *EEE Power Electronics Specialists Conf. - PESC*, 2008.
10.1109/pesc.2008.4592222
- 18 Ferreira, Carlos; Borges, Beatriz; Ribeiro, Hugo; Marques, Hugo. "Single stage switching audio power amplifier and power supply". Paper presented in *EEE International Symp. on Consumer Electronics - ISCE*, 2008.
10.1109/isce.2008.4559543
- 19 Ferreira, Carlos. "Low Distortion Switching Audio Amplifier using One Cycle Control and Notch Low Pass Filter". Paper presented in *Conference on Telecommunications, CONFETELE07, Peniche*, 2007.
- 20 Ferreira, Carlos. "Electric Vehicle - Power Converters Dimensioning and Control Strategies". Paper presented in *ICREPQ - INTERNATIONAL CONFERENCE ON RENEWABLE ENERGIES AND POWER QUALITY, Sevilha*, 2007.

Conference poster	1	Ferreira, Carlos. "RESULTADOS DE UMA ABORDAGEM À APRENDIZAGEM BASEADA EM PROJETOS NA ÁREA DA SUSTENTABILIDADE". Paper presented in <i>CCS 2020 2ª Conferência Campus Sustentável</i> , 2020.
	2	Barros, Manuel; Magalhaes, Hugo; Granchinho, Pedro; Ferreira, Carlos; Neves, Pedro. "Sensor Networks For Aquaculture Monitoring System". Paper presented in <i>2nd Aquaculture Research Workshop</i> , 2017.
Journal article	1	Lopes, Simão; Barros, Manuel; Ferreira, Carlos; Mateus, Dina; Matos, Pedro; Neves, Pedro; Pinho, Henrique J. O.. Corresponding author: Pinho, Henrique J. O.. "REMOTE MONITORING OF ENERGY-AUTONOMOUS CONSTRUCTED WETLANDS". <i>Ecology & Safety</i> 17 1 (2023): 1-15. http://dx.doi.org/10.62991/es1996214429 . Published · 10.62991/es1996214429
	2	Ferreira, Carlos A. F.; Borges, Beatriz Vieira. "Sine-Wave Amplitude-Modulation Concept for Linear Behavior of Phase-Modulated Resonant Converters". <i>IEEE Transactions on Industrial Electronics</i> 60 5 (2013): 2074-2083. http://dx.doi.org/10.1109/tie.2012.2228137 . 10.1109/tie.2012.2228137
Newspaper article	1	Costa, M.C.; Ferreira, Carlos; Pinho, H.J.O.. "Physics of Sound to Raise Awareness for Sustainable Development Goals in the Context of STEM Hands-On Activities", 2023; 15(4):3676, 2023, https://www.mdpi.com/2071-1050/15/4/3676 .
	2	Ferreira, Carlos. "Study of the requirements of an autonomous system for surface water quality monitoring", <i>Renewable Energy & Power Quality Journal</i> , Volume No.17, July 2019, 2019 https://doi.org/10.24084/repqj17.323
	3	Ferreira, Carlos. "Electric Mini - Challenges and Solutions for the electrical powertrain", 2007, http://www.icrepq.com/icrepq07/357-brito.pdf .

Activities

Oral presentation

	Presentation title	Event name Host (Event location)
2015/12/03	Desvendar os Mistérios do Som	integrado na acção de formação certificada pelo IEFP da Academia da Ciência, Arte e Património Instituto Politécnico de Tomar (Tomar, Portugal)
2014	Eletromagnetismo e ondas	Eletromagnetismo e ondas Escola Secundária de Jácome Ratton e Escola Secundária de Santa Maria dos

2013/05/13	Reprodução áudio	Seminário por convite do núcleo de estudantes de engenharia electrotécnica e de computadores do IPT Instituto politécnico de Tomar, Escola Superior de Tecnologia (Tomar, Portugal)
2013/04/16	Veículos eléctricos, energia para a mobilidade	Inserido no programa Escolher Ciência da Ciência Viva Escola Secundária de Ourém (Ourém, Portugal)
2007/04/18	Mini Eléctrico, o paradigma dos transportes	7ª semana de Engenharia Mecânica Escola Superior de Tecnologia de Abrantes, Instituto Politécnico de Tomar (Abrantes, Portugal)
2003/12/18	Amplificadores Áudio de Potência Comutados	Orador por convite Instituto de Telecomunicações, Polo de Coimbra (Universidade de Coimbra) (Coimbra, Portugal)

Event organisation

	Event name Type of event (Role)	Institution / Organization
2013 - Current	Fundamental concepts of Physics: electromagnetism, construction and testing of a loudspeaker (aimed at secondary school students of Jácome Ratton and Santa Maria dos Olivais) (2013) Workshop	Instituto Politécnico de Tomar Escola Superior de Tecnologia de Tomar, Portugal
2013 - Current	workshop: "Fundamental Physics concepts: capacitors, construction and visualization of their charge/discharge with the oscilloscope". Targeted at Jácome Ratton and Santa Maria dos Olivais Secondary Schools. (2013) Workshop	Instituto Politécnico de Tomar Escola Superior de Tecnologia de Tomar, Portugal
2023/04/26 - 2023/04/30	Member of the organization team of the FNR – National Robotics Festival, which took place from the 26th to the 30th of April 2023, promoted by the Instituto Politécnico de Tomar (IPT) and the Portuguese Robotics Society, with the support of Ciência Viva, logistical support from the Templários School	

Group and the Tomar City Council.
(2023/04/26 - 2023/04/30)

Event participation

	Activity description Type of event	Event name Institution / Organization
2015/03/25 - Current	Speaker at the event: "Empresas e I&D, Workshop de sustentabilidade", no painel: "Projectos do IPT e Interação com a comunidade". Presented the theme: "Conversão de energia para a sustentabilidade".	Empresas e I&D, Workshop de sustentabilidade Instituto Politécnico de Tomar, Portugal
	Conference	

Course / Discipline taught

	Academic session	Degree Subject (Type)	Institution / Organization
2023/06/26 - 2023/06/26	Microcredenciação em Eletrónica Básica (SIMEF): trainer on the course aimed at SIMEF workers with the aim of providing students with the fundamental concepts of electronics.	(Outros)	

Distinctions

Award

2005	Supervisor of the "Gestão dinâmica de graves" project that won the "Achievements in audio engineering" competition promoted by APEA, AES.
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