

**Personal information** Torres/ João Paulo

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✉ joaoptorres@hotmail.com

Sex Male | Date of birth 10 May 1982

**Work experience as an Invited Professor Assistant** 

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**2018-now** **Electric Energy Fundamentals; Grids and Energy Installation; Theoretic Electrotechnics.**

**Sector:** University (Military Academy- Lisbon)

**2012-now** **Circuits Theory and Electronic Fundamentals; Electronics; Electronic Fundamentals; Introduction to the Research in Electrical and Computer Engineering; Portfólio; Integrated Electrical Systems of Solar Photovoltaic Technology**

**Sector:** University (Technical University of Lisbon)

**2011-2012** **Physics**

**Sector:** University (Piaget Institute)

**Work Experience as a Researcher** 

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**Sept. 2014 -August 2017** **Research Fellow**

Semiconductor Ring Lasers Simulators

Business or sector University (Technical University of Lisbon).

**July 2013 -August 2014** **Research Fellow**

Non-destructive Tests

**Sector:** University (Technical University of Lisbon) -IT: Telecommunication Institute

**July 2008 - Dec. 2013** **Research Fellow**

Semiconductor Ring Lasers Simulator: Development of a set of numerical routines which enable the analysis of ring lasers structures using the finite element method (FEM)

**Sector:** University (Technical University of Lisbon). DEEC: Department of Electrical Engineering and Computers

**Jan. 2005 – June 2008** **Research Fellow**

Localcorr: Study of the Current and Potential distribution on Metal Surfaces at a micro scale (corrosion phenomenon)

**Sector:** University (Technical University of Lisbon) GECEA: Department of Corrosion and Environmental Effects

## Supervisor

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### Projects in the subject of Introduction to the Research in Electrical and Computer Engineering

1. Estudo de uma antena ótica para comunicação inter-satélites (student: Rui David Furtado Ribeiro Gomes);
2. Sistemas de comunicação ótica inter-satélites para aplicações em Defesa - II, (student: Carlos Eduardo Henriques Rodrigues Fatela);
3. Sistemas de medida de distância utilizando laseres e suas aplicações, (student: João António Santos Dias Fonseca);
4. Estudo de antenas óticas para sensores (student: Jorge Diogo Dias Abrantes Farinha);
5. "Smart" antena para aplicação em UAV's (student: António Fernando Alves Carneiro);
6. Medidas óticas para determinação de distâncias e deformações (student: Tiago Fernando Ribeiro Fernandes Araújo Gouveia).

### Project in Engineering and Energy Management I

- 1 Maintenance management for mitigation of fault and degradation effects in photovoltaic panels – a systematization (student: Andreas Welschhof).

### Master Thesis

#### Completed thesis:

1. Estudo de uma antena ótica para comunicação inter-satélites (student Rui David Furtado Ribeiro Gomes);
2. Sistemas de comunicação ótica inter-satélites para aplicações em Defesa – II (student: Carlos Eduardo Henriques Rodrigues Fatela);
3. Sistemas de medida de distância utilizando laseres e suas aplicações (student: João António Santos Dias Fonseca).

#### Thesis in progress:

1. Estudo de antenas óticas para sensores (student: Jorge Diogo Dias Abrantes Farinha);
2. "Smart" antena para aplicação em UAV's (student: António Fernando Alves Carneiro);
3. Medidas óticas para determinação de distâncias e deformações (student: Tiago Fernando Ribeiro Fernandes Araújo Gouveia);
4. Triangular Shape Geometry in a Solarus AB Concentrating Photovoltaic-Thermal Collector (student: Luís Manuel Caldas Marques);
5. Study of the water dynamics into the CPVT system pipes (student: Michele Andreoli);

6. Influence of the Solarus AB Reflector / Receiver Geometry on the Output and Production Costs of Concentrating Photovoltaic-Thermal Collectors (student: Victor Seram);
7. Agregado de antenas inteligentes para aplicação em UAV's (student: João Miguel Nobre Pinto);
8. Análise das vibrações de uma superfície (student: Diogo Rodrigues Frutuoso);
9. Comunicações Táticas entre Viaturas Militares (student: André Filipe Da Silva Ferreira);
10. Power converter: DC-DC and DC-AC models (student: André Miguel Sousa Cardoso);
11. Circuit Modelling and Reliability of Hybrid Systems Involving Photovoltaic Solar Cells, Battery and Capacitors (student: Tiago Emanuel Rito Coelho);
12. Simulação e Otimização de guias de onda em anel semiconductor, (student: João Pedro Almeida Cordeiro).

## **Jury Member**

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### **Introduction to the Research in Electrical and Computer Engineering:**

- 1 Characterization of non-normal condition of outdoor photovoltaic (PV) power generator modules: global and a Nepal case-study (student: Dinesh Rai);
- 2 Solar micro grid case-studies for three electrification project sites in Nepal. (student: Nabin Khadka);
- 3 Medida óticas para a Determinação de Distâncias e Deformações.(student: Tiago Gouveia);
- 4 Inter-satellite optical communication systems for Defence applications – II (student: Carlos Fatela);
- 5 Distance measuring systems using lasers and their application (student João Fonseca);
- 6 Photovoltaic Collector - Stationary Thermal with Concentrator: Thermal Analysis (student: Pedro Alves );
- 7 Definition of the best geometry for a concentrator of a photovoltaic-thermal solar collector (student: Catarina Barata).

### **Master Thesis:**

- 8 Sistemas de comunicação ótica inter-satélites para aplicações em Defesa – II; (student: Carlos Fatela);
- 9 Sistemas de medida de distância utilizando laseres e suas aplicações (student: João António Santos Dias Fonseca);
- 10 Monitoring and diagnosing the condition of high-power transformers to improve the reliability and management of their life cycle (student: Diogo Silva).
- 11 Photovoltaic Collector - Stationary Thermal with Concentrator: Thermal Analysis (student: Pedro Alves);
- 12 Definition of the best geometry for a concentrator of a photovoltaic-thermal solar collector (student: Catarina Barata);
- 13 Applications of IPMC materials in devices for fluid displacement (student Ézio);

- 14 Electromagnetic design of a single-sided disk-rotor induction motor forelectric propulsion (student: João Turras).

### **Educational Material**

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1. Rewriting some of the Electronic Fundamentals laboratory guides;
2. Electronic Devices notes provided to the students in the 2016/2017 academic year;
3. Writing of the Integrated Electric Systems of Solar Photovoltaic Technology laboratory guides and practice exercises.

### **Laboratory Management**

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1. Electronic Fundamentals laboratory responsible (Main responsibilities: Assembly of all laboratory work and verification of equipment that may be missing during the laboratory classes);
2. Electric Systems of Photovoltaic Solar Technology laboratory responsible (Main responsibilities: Assembly all the laboratory works and verification of equipment that may be missing during the laboratory classes).

### **Participation in International Conferences as a Technical Program Committee**

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1. BIT's 4th Annual World Congress of Smart Materials-2018 (WCSM-2018) (<http://www.bitcongress.com/wcsm2018/ProgramCommittee.asp>) (committee member);
2. The International Conference on Mechanical, Electric and Industrial Engineering (MEIE2018) (<http://www.icmeie.com/Committee.aspx>) (committee member);
3. Baltic Conference series Stockholm Sweden (BCS2017) (committee member);
4. The 2nd International Conference on Advanced Material Science and Engineering (AMSE2017) (committee member);
5. IEEE International Power Electronics and Motion Control Conference (PEMC), Varna, Bulgaria 2016. (<http://www.ieee-pemc2016.org/topics.php>) (Responsible for the creation of a special session and Chairman of this session)

### **Participation in International Conferences as an Invented Speaker**

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1. International Conference on Clean Energy for World's Electricity Grid (CEWEG-2017), Geneva, Switzerland, 2017;
2. Nanotech and Nanobiotechnology 2018 (CPD Accredited) Paris, France, 2018;

### **Participation in International Journals**

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1. Journal of Advances in Physics as a reviewer;
2. IEEE Transactions on Sustainable Energy (as a reviewer);
3. IEEE Journal of Quantum Electronics (as a reviewer);
4. International Robotics & Automation Journal (as a reviewer);

5. Journal of Electronics Science Technology and Application (as a reviewer and Editorial member);
6. Open Science Journal (as a reviewer and Editorial member);
7. Biography on the book who's in the world Marquis, by Who's Who American publisher.

### Scientific Projects

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- 1 Climate-dependent optimising of PV systems in transport infrastructure (Projeto Europeu H2020 a ser submetido em Setembro de 2017 para avaliação) (Research).
- 2 Comunicação Tática por IV entre Viaturas Militares (IRCOMMIL). (2017/2018). (Research);
- 3 Análise e Mitigação de Efeitos da diafonia em redes baseadas em fibras multi-Núcleo (AMEN), IT Lisboa, em parceria com instituto Nacional de Informações e Tecnologias de Comunicação – Redes Óticas (NICT) de Tokyo, Projeto financiado pelo Instituto de Telecomunicações, pólo de Lisboa (Research);
- 4 Solar CPC PVT Production. Novel concentrating PV/T & T solar collector and automated production methods (Research and responsible for one task) (<https://www.eurostars-eureka.eu/project/id/10625>);
- 5 Semiconductor ring lasers simulator, projeto financiado pela Fundação para a Ciência e a Tecnologia (2008/2011); (Research);  
([http://www.fct.pt/apoios/projectos/consulta/vglobal\\_projecto.phtml.en?idProjecto=69515&idElemConcurso=892](http://www.fct.pt/apoios/projectos/consulta/vglobal_projecto.phtml.en?idProjecto=69515&idElemConcurso=892));
- 6 Study of the Local Potential and Current Distribution at the Metals Surface, financiado pela Fundação para a Ciência e a Tecnologia (2005/2007) (Research)([http://www.fct.pt/apoios/projectos/consulta/vglobal\\_projecto.phtml.en?idProjecto=59960&idElemConcurso=42](http://www.fct.pt/apoios/projectos/consulta/vglobal_projecto.phtml.en?idProjecto=59960&idElemConcurso=42)).

### Chapters in Books

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- 1 Book title: Two-dimensional Materials for Photodetector  
Chapter title: The influence of the nonlinear semiconductor properties in the PIN photodiode response.
- 2 Book title: Gas and Photonic Sensors  
Chapter title: Nanoantenna as a photonic sensor
- 3 NetLogo Book (<http://cftc.cii.fc.ul.pt/ICES/manual/>)  
Chapter Title: Transições de fase

### Scientific Publications in Journals

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1. João Paulo N. Torres, Carlos A. Fernandes, “Stationary Solar Concentrating Photovoltaic-Thermal Collector –Cell String Layout”, *Sustainable Energy*, Vol. 5, No. 1, pp. 16-25, 2017. doi: 10.12691/rse-5-1-3 (GIF: 1.45).

2. João Paulo N. Torres, "Measurement and identification of micro cathodic and anodic areas on metals surface: A statistical Analysis", *Bulletin of the Polish Academy of Sciences: Technical Sciences, Sciences of the Polish Academy of Sciences*, 2017 (Submetido, SJR: 0.46, IF: 1.251).
3. João Paulo N. Torres and Maló Machado, António Baptista, "Electric field propagation in ring waveguides: A supermode Analysis", *Iranian Journal of Science and Technology, Transactions of Electrical Engineering, Springer*, 2017 (Aceite, SJR: 0.15, IF: 0.33).
4. Diogo Fernando Ferreira da Silva, P.J.C. Branco, João Paulo N. Torres, "Condition monitoring and diagnostic of large power transformers to improve its reliability and life cycle management", *Electric Power Systems Research, Elsevier*, 2017 (Submetido, SJR: 1.17, IF: 3.24).
5. Edgar Manuel Branco Ruano, António Baptista, M<sup>a</sup> João Martins, João Paulo N. Torres, "Comparative analysis of two antennas for communication in 2.4 GHz", *Far East Journal of Electronics and Communications*, 2017 (Submetido, SJR: 0.36, IF: 0.826).
6. Pedro Marques, António Baptista, M<sup>a</sup> João Martins, João Paulo N. Torres, "Communication Antenas for UAVs", *Far East Journal of Electronics and Communications*, 2017 (Submetido, SJR: 0.36, IF: 0.826).
7. João Paulo N. Torres, António Baptista, M<sup>a</sup> João Martins, Carlos Fatela, "Communication Receptor System for Defense application", *International Journal of Engineering Development and Research*, 2017 (Aceite, IF: 5.67).
8. João Paulo N. Torres, Maló Machado, António Baptista, "Supermode analysis of Ring waveguide" *Optoelectronics and Advanced Materials - Rapid Communications*, vol. 11, N<sup>o</sup>. 7-8, 2017 (SJR: 0.23, IF: 0.58).
9. Joao Antonio Santos Dias Fonseca, Antonio Baptista, Ma Joao Martins, Joao Paulo N. Torres, "Distance Measurement Systems Using Lasers and Their Applications", *Applied Physics Research*, Vol. 9, N<sup>o</sup>. 4, pp.33-43, 2017. <https://doi.org/10.5539/apr.v9n4p3>.
10. João Miguel Trindade, João Paulo N. Torres, António Baptista and M<sup>a</sup> João Martins, "Inter-satellites Optical Communication Systems for Defense", *American Journal of Electrical and Electronic Engineering*, Vol. 5, N<sup>o</sup>. 3, pp. 108-119, 2017. doi: 10.12691/ajeec-5-3-6. (GIF: 0.9)
11. Carlos A.F. Fernandes, João Paulo N. Torres, P. J. Costa Branco, João Fernandes, João Gomes, "Cell string layout in solar photovoltaic collectors", *Energy Conversion and Management, Elsevier*, Vol. 149, N<sup>o</sup>.1, pp. 997-1009 2017. <https://doi.org/10.1016/j.enconman.2017.04.060> (SJR: 2.29, IF:6.063 ).
12. Rui Gomes, Maria João Martins, António Baptista, João Torres, "Translating RF Concepts in Antenna Theory to the Optical Domain", *Proelium*, Vol. 7, No. 12, pp. 133-143, 2017.

13. Rui David Furtado Ribeiro Gomes, M<sup>a</sup> João Martins, António Baptista, João Paulo N. Torres, "Study of a Nano Optical Antenna for Intersatellite Communications", *Optical and Quantum Electronics, Springer*, Vol. 49, No. 135, pp. 1-22, 2017. doi: 10.1007/s11082-017-0966-y (SJR:0.32 , IF:1.07).
14. Samuel K. Nashih, Carlos A. F. Fernandes, João Paulo N. Torres, João Gomes and P. J. Costa Branco, "Validation of a Simulation Model for Analysis of Shading Effects on Photovoltaic Panels", *J. Sol. Energy Eng.* Vol.138, N<sup>o</sup>. 4 pp: 044503-044503-6, 2016. doi:10.1115/1.4033646 (SJR:0.46 , IF:0.957).
15. João Paulo N. Torres, Samuel K. Nashih, Carlos A. F. Fernandes, João C. Leite, "The effect of shading on photovoltaic solar panels", *Energy Systems, Springer*. pp: 1-14, 2016. doi:10.1007/s12667-016-0225-5 (SJR:0.71, IF:1.53).
16. João Paulo N. Torres, António Baptista, Vitor Maló Machado, "Analysis of semiconductor coupled waveguides with interband absorption", *Optical and Quantum Electronics, Springer*, Vol.48 N<sup>o</sup>. 366, pp. 1-12, 2016. doi:10.1007/s11082-016-0626-7(SJR:0.32 , IF:1.07).
17. J. T. Pereira, João Paulo N. Torres, "Frequency Response Optimization of Dual Depletion InGaAs/InP Photodiodes", *Photonic Sensors, Springer*, Vol. 6, No. 1, pp. 63-70, 2016. doi: 10.1007/s13320-015-0296-2 (SJR:0.45 , IF:1.28).
18. J. Torres, A. Baptista, V. M. Machado, "Analysis of dielectric optical ring slab waveguides with a layered refractive index", *International Journal of Electrical Engineering and Technology*, Vol.4, No.1, pp.15-29, 2014.
19. João Torres, António Baptista e Victor Maló Machado, "Coupling Analysis in Concentric Ring Waveguides", *IEEE-Journal of Lightwave Technology*, Vol. 31, No. 13, pp. 2140-2145 ,2013. DOI:10.1109/JLT.2013.2263633 (SJR: 1.53, IF: 4.20)
20. M. Simões, J. Torres, R. Picciochi, J. C. S. Fernandes, "Corrosion inhibition at galvanized steel cut edges by phosphate pigments", *Electrochimica Acta*, vol. 54, No. 15, pp. 3.857-3.865, 2009 (SJR:1.54, IF:3.7).

## **Participation in Conferences**

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1. Pedro Alves, João Fernandes , João Torres, Paulo Branco, Carlos Fernandes, João Gomes "Energy Efficiency of a PV/T Collector for Domestic Water Heating Installed in Sweden or in Portugal: The Impact of Heat Pipe Cross-Section Geometry and Water Flowing Speed", *12<sup>th</sup> Conference on Sustainable Development of Energy, Water and Environment Systems (sdewes)*, 2017.
2. João Fernandes , Carlos Fernandes, João Torres, Paulo Branco, Catarina Barata, "Effect of the Collector Geometry in the Concentrator Photovoltaic-Thermal Solar Collector Performance", *12<sup>th</sup> Conference on Sustainable Development of Energy, Water and Environment Systems (sdewes)*, 2017.

3. Carlos A.F. Fernandes, João Paulo N. Torres, P. J. Costa Branco, João Fernandes, João Gomes, “Cell String Layout in Stationary Solar Concentration Photovoltaic Collectors”, *2<sup>nd</sup> South East European Conference of Energy, Water and Environment Systems (sdewes-see)*, 2016.
4. Carlos A. F. Fernandes, João Paulo N. Torres, João Gomes, P. J. Costa Branco, Samuel K. Nashih, “Stationary solar concentrating photovoltaic-thermal collector — Cell string layout, *IEEE International Power Electronics and Motion Control Conference (PEMC)*, pp. 1275 - 1282, 2016.
5. João Gomes, Bonfiglio Luc, Giovinazzo Carine, Carlos A. F. Fernandes, João Paulo N. Torres, Olle Olsson, P. J. Costa Branco, Samuel K. Nashih, “Analysis of different C-PVT reflector geometries” *IEEE International Power Electronics and Motion Control Conference (PEMC)*, pp. 1248 - 1255, 2016.
6. Carlos A. F. Fernandes, João Paulo N. Torres, Miguel Morgado, José A. P. Morgado, “Aging of solar PV plants and mitigation of their consequences”, *IEEE International Power Electronics and Motion Control Conference (PEMC)*, pp. 1240 – 1247 , 2016.
7. Rui Gomes, Maria João Martins, António Baptista e João Torres, “Antenas Óticas para Aplicações Militares”, *Jornadas das Engenharias da Academia Militar*, 2016.
8. João Fonseca, António Baptista, João Torres e Maria João Martins, “Sistemas de Medida de Distância com Laseres”, *Jornadas das Engenharias da Academia Militar*, 2016.
9. Samuel K. Nashoh, João Paulo N. Torres, Carlos A. F. Fernandes, João C. Leite, "Shading Effects on Photovoltaic Panels", *Proc. 10th Conference on Telecommunications- ConfTele2015*, Aveiro, Portugal, 17-18, September, 2015.
10. João Torres, Maló Machado, António Baptista, " Supermode analysis of Ring waveguide", *Proc. 10th Conference on Telecommunications- ConfTele2015*, Aveiro, Portugal, 17-18, September, 2015.
11. Helena Geirinhas Ramos, João Paulo Torres, Artur Lopes Ribeiro, and João Marcos Rebellob, “NDT Inspections Exploiting Invariances on Scale Transformations”, 41st Annual Review of Progress in Quantitative Nondestructive Evaluation Conference, Boise, AIP Conference Proceeding, Vol. 1650, N° 327, 2015.
12. J. Torres, A. Baptista, V. Machado, "Bent-Bent Waveguide Coupling System", *Proc. 9th Conference on Telecommunications – ConfTele2013*, Castelo Branco, Portugal, Vol. 1, pp. 349 - 352, May, 2013.
13. J. Torres, J.T. Pereira, "Modeling Double Depletion PIN Photodiodes using the Finite Element Method", *Proc. 9th Conference on Telecommunications – ConfTele2013*, Castelo Branco, Portugal, Vol. 1, pp. 241 -244, 2013.
14. J. Torres, C. F. Fernandes, "Numerical Analysis of Dielectric Optical Waveguides", *Proc. 9th Conference on Telecommunications – ConfTele2013*, Castelo Branco, Portugal, Vol. 1, pp. 25 - 27 , 2013.



15. J.T. Pereira, J.P. Torres. "Frequency Response Optimization of Dual Depletion InGaAs/InP PIN Photodiodes", *Proc International Symp. on Electromagnetic Fields in Mechatronics, Electrical and Electronic Engineering - ISEF*, Funchal, Portugal, Vol. 1, pp. 1 - 8, 2011.
16. J. Torres, A. Baptista, V. M. Machado, "Analysis of dielectric optical ring slab waveguides with interband absorption", *Proc. IEEE Eurocon and Conftele 2011*, Lisboa, Portugal, Vol. 1, pp. 1 - 3, 2011.
17. J. Torres, A. Baptista, V. M. Machado, "Analysis of dielectric optical slab waveguides with layered refractive index", *Proc. 18th Telecommunications Forum - TELFOR*, Belgrade, Serbia & Montenegro, Vol. 1 pp. 910 - 913 , 2010.
18. J. Torres, A. Baptista, V. M. Machado, "Curvature Losses Of Slab Waveguides Using Analytical and FEM Analysis", *Proc. International Conf. on Optics-photonics Design*, Yokohama, Japan, 2010.
19. F. Queiroz; A.M. Simões, J. Torres, "Estudo da nucleação e repassivação de pites na liga de alumínio 2024-T3 por SVET", *Proc. International Corrosion Meeting, InterCorr2008*, Sevilha, Spain, 2008.
20. Castela, A., Fernandes, J., Torres, J. — Statistical Analysis on SVET Results — *Actas do 59º Congresso de International Society of Electrochemistry (ISE)*, Recife, Maio, 2008.
21. Castela, A., Fernandes, J., Torres, J. — Statistical Studies on the Distribution of Cathodic and Anodic Areas — *Actas do 28º Congresso Brasileiro de Corrosão e 2ª International Corrosion Meeting, InterCorr2008*, Sevilha, setembro, 2008.
22. C. Castela; J.S.Fernandes Fernandes, J. Torres, "Distribution of Cathodic and Anodic Areas on Metals: Statistical Studies", *Proc. Iberic Meeting of Electrochemistry*, Coimbra, 2007.
23. J. Torres, A. C. Castela, J.S.Fernandes Fernandes; "Study of the local Potential and current distribution at the metals", *Proc. Jornadas de Eletroquímica e Inovação*, Porto, Portugal, 2006.

## Education Training

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**2009 - 2014**    **PhD in Electrical and Computer Engineering with the Thesis Title: "Simulation of Semiconductor Ring Lasers"**

Technical University of Lisbon. DEEC: Department of Electrical Engineering and Computers

**Approved with very good by unanimity**

**2006 - 2008**    **Master in Chemical Engineering and Applied Chemistry with the Thesis Title: "Statistics Applied to Optimize The Scanning Vibrating Electrode Technique".**

Technical University of Lisbon. GECEA. Department of Corrosion and Environmental Effects

**Approved.**

**2000 - 2004 Bachelor of Physics**

Science University of Lisbon (FCUL)

**16/20****Personal Skills**

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Mother tongue(s) Portuguese

Other language(s)

**English**

<b>Understanding</b>		<b>Speaking</b>		<b>Writing</b>
Listening	Reading	Spoken interaction	Spoken production	
B2	C1	B1	B1	B1

Technical skills Advanced programming knowledge in multiple languages (C, C#, C++, Java, ...)

Computer skills Ms Word, Ms Excel, Ms PowerPoint, Corel Draw, Ms windows, Origin, Wolfram Mathematica, Visio.

Driving licence B

Annexes PhD, Master and degree certificates