

Relatório de progresso lacrado a 28-02-2022 às 22:29

Relatório de Progresso

Nota Informativa:

Os relatórios de progresso e final da atividade científica devem ser elaborados em língua inglesa ou portuguesa e lacrados pelo Investigador Responsável (IR) no prazo de 30 dias úteis após a conclusão das atividades de cada ano, e da data final do financiamento (incluindo prorrogação, caso aplicável). Depois de lacrado, o relatório final será apreciado por painéis de avaliação, especificamente constituídos para o efeito.

Os relatórios da atividade científica devem descrever de forma detalhada a execução dos trabalhos do financiamento discriminando as publicações (quando aplicável) e outros resultados decorrentes da respetiva execução, de acordo com a programação prevista, bem como a análise dos desvios verificados face ao programado, a fim de permitir a avaliação dos trabalhos de investigação desenvolvidos.

Qualquer alteração à equipa de investigação que não esteja considerada no presente relatório deverá contactar os serviços da FCT.

Atenção: A sessão expira ao fim de 20 minutos de inatividade!

Formulário Relatório de Progresso - Componente Científica

1. Identificação do relatório

Relatório de Progresso nº : 2

Data de início : 01-01-2020 Data de fim : 31-12-2023

1.1 Identificação do projeto

Número do projeto : UIDB/00006/2020

Designação : Centro de Estatística e Aplicações

Investigador Responsável : Lisete Maria Ribeiro de Sousa

Instituição Proponente : FCIências.ID - Associação para a Investigação e Desenvolvimento de Ciências (FCiências.ID)

Entidade(s) copromotoras :

Data de início : 01-01-2020 Data de fim : 31-12-2023

Financiamento concedido : € 601.500,00

Financiamento FEDER concedido : € 0,00

Financiamento nacional concedido : € 601.500,00

Financiamento próprio : € 0,00

2. Trabalhos desenvolvidos e desvios à proposta aprovada

2.1. Sumário (em inglês)

10.2 Summary in English for general dissemination purposes

The Centre of Statistics and its Applications (CEAUL) is a research and development (R&D) unit connected to the Department of Statistics and Operational Research at the Faculty of Sciences of the University of Lisbon.

Established in 1975 by Tiago de Oliveira, CEAUL plays a central role in Portugal as the only R&D unit dedicated exclusively to fundamental research in the areas of Probability, Statistics and Stochastic Processes. Besides fundamental research, CEAUL is also dedicated to interdisciplinary activities in domains as diverse as Life, Health, Natural and Environmental Sciences and Financial Risk. CEAUL's policy has been to develop strong links with other areas and scientific domains. In this sense, it organizes seminars, courses, meetings and participates in the dissemination of Statistics.

In a very general sense, Statistics may be viewed as the study of the uncertainty arising from any phenomena and situations where chance mechanisms have a key role. Such study aims at describing the characteristics of interest in each practical situation and providing guidance for the making of decisions in contexts of unpredictability. Given the unavoidable randomness inherent to the vast majority of real world phenomena, statistical thinking today infuses so many scientific fields that it plays a crucial backdrop to the advance of the Science in general.

Statistics, as a scientific discipline, is relatively young with its foundations and main developments dating back to the XX century. However, with the advances of technology and consequent capacity for acquisition and data warehouse, the paradigm of Statistics has been changing in a fast speed. Statistical support is more and more required to give adequate answers to problems posed in a great variety of research activities. Consequently the strategy of this research unit is to (1) keep pace with the recent advances in the scientific domain of Statistics, to continue fundamental research in its areas of excellence, developing new methodologies and tools with the goal of communicating and using the most up-to-date knowledge, while collaborating with researchers from other scientific areas; (2) participate in national and international projects of an interdisciplinary nature; (3) participate actively in Society by giving support to Industry, Commerce, Services and Business; (4) develop advanced training activities through the involvement in PhD programs of High Education Institutions and the organization of advanced courses in emerging areas of Statistics; (5) integrate and initiate scientifically young researchers.

To carry out the objectives set and to implement the proposed strategy, CEAUL has 54 integrated researchers (11 non-PhD), coming from a range of Universities and Polytechnic Institutes from continental Portugal, Madeira and Azores, and 38 collaborators who are integrated members in other research units from the area of Mathematics, Environmental and Health Sciences.

10.3 Summary in English for evaluation

The Centre of Statistics and its Applications (CEAUL) is a research and development (R&D) unit connected to the Department of Statistics and Operational Research (DEIO) at the Faculty of Sciences of the University of Lisbon (FCUL). FCUL provides physical facilities, general computing infrastructures and communications, needed for the prosecution of its activities. The Association for Research and Development of CIÊNCIAS (FCiências.ID), the main host institution, supplies administrative and financial R&D management.

Established in 1975 by Tiago de Oliveira, CEAUL plays a central role in Portugal as the only R&D unit dedicated exclusively to fundamental research in the areas of Probability, Statistics and Stochastic Processes. Besides fundamental research, CEAUL is also dedicated to interdisciplinary activities in domains as diverse as Life, Health, Natural and Environmental Sciences and Financial Risk.

CEAUL is a member of CNM-Adhering Organization and Committee for Mathematics/International Mathematical Union and is an associated member of CIM-International Centre of Mathematics. It has close connections with the Portuguese National Institute of Statistics (INE), through the editorial support given by senior members of CEAUL to REVSTAT-Statistical Journal, an international journal in the area of Probability and Statistics, edited by INE and indexed by the ISI Web of Knowledge. At the international level CEAUL is connected to several prestigious universities through scientific collaboration and participation of its members in networks and research activities. CEAUL integrates BIOSTATNET, an interdisciplinary Biostatistics network, and PT-MATHS-IN, a member of the European Service Network of Mathematics for Industry and Innovation.

In a very general sense Statistics may be viewed as the study of the uncertainty present in phenomena and situations where chance mechanisms have a key action. Such study aims at describing the characteristics of interest in each practical situation and providing guidance for the making of decisions in contexts of unpredictability. Given the unavoidable randomness inherent to the vast majority of real world phenomena, statistical thinking today infuses so many scientific fields that it plays a crucial backdrop to the advance of the Science in general. Statistical theory and methodology cannot exist divorced from the needs of other sciences felt by the corresponding researchers and users.

Statistics, as a scientific discipline, is relatively young with its foundations and main developments dating back to the XX century. However, with the advances of technology and consequent capacity for data acquisition and storage, the paradigm of Statistics has been changing fast and statistical support is increasingly required to provide adequate solutions to problems posed in a great variety of research activities. Consequently the strategy of CEAUL is to keep up to speed with the recent advances in Statistics, to continue fundamental research in its areas of excellence, using the most up-to-date knowledge to develop and communicate new methodologies and tools, while collaborating with researchers from other scientific areas.

Therefore the strategic program of CEAUL for 2018-2022 has the following objectives:

1. Develop fundamental research on diverse domains of Statistics, aiming to extend the frontiers of statistical knowledge and provide statistical tools for experimental sciences, in close collaboration with researchers from other domains and scientific areas.
2. Participate in interdisciplinary national and international projects.
3. Participate actively in Society by giving support to Industry, Commerce, Services and Business in the form of consultancy or specialized courses.

4. Develop advanced training activities through the involvement in PhD programs of High Education Institutions and the organization of advanced courses in emerging areas of Statistics.

5. Encouraging young students into research, by involving them in the Centre's activities.

CEAUL organizes internally its members into two groups, according to the following lines of research: (1) Order Statistics, Extremes, Modelling and Simulation and (2) Statistical Models and Methods for Complex Systems.

Fundamental research will be carried out, in a diversified range of themes including but not restricted to, Statistics of Extremes, Computational Statistics and Simulation, Resampling Methodologies, Quality Control, Bayesian Statistics, Biostatistics, Environmental Statistics, Statistics in Genomics, Immunology and Epidemiology, Statistics in Medicine, Longitudinal Models and Survival Analysis, Time Series Analysis, Incomplete Data Analysis, Multivariate Analysis, Temporal and Spatial Statistics, Design of Experiments, History and Teaching of Statistics. Although the two groups work in different themes and areas of Statistics, they share similar interests in terms of areas of application. The main areas are Environmental and Ecological Statistics, Statistics in Life Sciences and Biostatistics, and Risk in Financial Extremes. The members working in these areas collaborate with researchers coming from other fields of science. This collaborative work is done either at an individual level, or through the participation in national and international projects. Knowledge transfer, in terms of consultancy work, participation in projects coming from the Industry, Services and Public Administration, is also a strategic objective of the areas of application.

To carry out the objectives set and to implement the proposed strategy, CEAUL counts with (i) 43 integrated PhD researchers, coming from a range of Universities and Polytechnic Institutes from North to South of Portugal, Madeira, and Azores; (ii) 38 collaborators who are integrated members in other research units from the area of Mathematics, Environmental and Health Sciences, and 11 integrated non-PhD (seven of them are PhD students).

2.2. Resumo dos trabalhos

Descrição sucinta das atividades desenvolvidas no período em apreço e dos resultados alcançados. De referir, em concreto, as tarefas que tiveram execução no período a que se reporta o relatório.

Our research resulted in many publications and communications. The number of published papers was higher than in 2020. However, due to the COVID-19 pandemic, the number of international and national communications during 2021 was still lower than in 2019, but higher than in 2020.

Extreme theory fundamental research and Environmental Statistics kept strengthened during 2020. Collaboration with other domains' researchers kept being reinforced, namely forensic dentistry, fisheries, environment, and health. Approaches were devised for Calibration Of The Bulk And Extremes Of Spatial Data. A work on the simulation assessment of EM algorithm in pseudo-convex mixtures generated by shape-extended stable distributions for extremes, was presented in an international conference. The estimation of the extreme value index locally was developed, as well as a global estimator for the trend and its joint asymptotic theory. Extreme Value Theory (EVT) continued being investigated as a tool to study precipitation and rainfall data prediction.

Regarding the contribution in the field of Environmental Statistics, negative binomial generalised linear models were used to relate spatial patterns of events of different types to natural and anthropogenic landscape characteristics, to evaluate how such characteristics may affect the risk of human-wildlife impact events involving mammals in Southeastern Brazil.

Continued collaborations with the University of St Andrews included work within the broad field of ecological statistics, including passive acoustic density estimation, through the comparison of the three available methods: plot Sampling, distance sampling and spatially explicit capture-recapture.

Applications included a wide variety of areas, such as medicine, genetics, public health, ecology, environment, and forensic. Some key examples include: discriminating between minors and adults by comparing the third molar maturity index between left and right lower third molars; development an automated script to identify biomarkers that distinguish two populations by applying the most suitable hypothesis tests to the corresponding independent groups of observations; application of multivariable analysis to characterize cystlike lesions, their risk factors, and association with other late adverse effects. Concerning COVID-19, CEAUL members published 5 international papers, are involved in 4 projects financed by national fundings, and produced a Github data repository.

Several members were strongly linked with entities such as IPMA (Instituto Português do Mar e da Atmosfera), GADES Solutions (training and consultancy) and Health Institutions. CEAUL's Societal contributions were strong in 2021, with specialized courses lectured by CEAUL members aimed at specific areas such as health and teaching at the high school level. We had several contributions related to the COVID19 pandemic, for example, studies to analyse the impact of COVID in public health and a project aiming to use wastewater as an early warning indicator of SARS-COV2 infection. The links developed in 2020 with RTP, the main Portuguese television network, lead to the implementation of the weekly segment "Dados Contados", to use in their program "Europa Minha", which aims to use numerical and statistical information to inform civil society on European issues.

In 2021 several advanced courses were lectured by CEAUL members, seven of them directly organized by this unit. The number of students following a PhD program in Statistics supervised by members of CEAUL was 22 (one concluded the PhD meanwhile), an increase of 55% since 2020 which is a result of the efforts put in place to attract more PhD students.

Activities to attract young researchers continued to be a priority. We organized and improved the 2nd edition of the program "Be a researcher for 3 weeks", with 8 topics and 24 students working closely with CEAUL researchers. The number of participants increased compared to the edition of 2020, and we plan to continue the program in 2022. Seven MSc level scholarships, three more than in 2020, were put in place under different projects. Through a protocol with the Academy of Sciences of Lisbon (ACL), CEAUL has been developing several forensic studies, namely related to the Lisbon Earthquake of 1755. Thus, since March 2019, CEAUL integrated in its research group several undergraduate and master's degree students, to follow from the beginning the research activities that combined the student's pedagogical component with that of research. This activity took place in the ACL laboratory, accompanied by CEAUL researchers. Several presentations on scientific events and publication of articles have resulted from this initiative.

Dissemination of the research:

The research developed by the integrated CEAUL members, resulted in:

-Publications (international/national): 0/1 edition of books; 3/1 chapter of books; 87/5 articles; 6/4 Proceedings;

-Communications: 8/1 plenary talks, 6/5 invited talks, 25/24 international contributed talks/posters, 16/17 national contributed talks/posters, 26 seminars.

Editorial work:

Members were involved in the editorial board of several national and international journals, including Associate Editors or Editorial Board Members in journals on different areas including Applied and Theoretical Statistics, Applied Mathematics and Machine Learning, Chaotic modelling, Extremes, Management and Tourism, Big Data and Cognitive Computing, Agricultural and Biological Sciences, Forensic Medicine and Forensic Sciences, among others. There is a strong involvement with REVSTAT, the international periodical edited by Instituto Nacional de Estatística, on the role of Editor in Chief, Co-Editor and associated Editors.

Advanced training:

There were 19 master dissertations, 8 Ph.D. theses supervised by members of CEAUL, and 16 other advisory work, namely 8 in the program "Being a researcher for 3 weeks". Members of CEAUL lectured 14 advanced or specialized courses and 6 of the courses were organized in partnership with the private company Gades Solutions. We supported conference attendance and courses for several members, collaborators, and students.

Organization of events:

Members were involved in the organization of several scientific events (e.g. seminars, and organizing and scientific committees) and were principal investigators of some of the projects where CEAUL participated: There were 25 seminars organized by CEAUL. Members of CEAUL participated in 27 scientific and organizing committees, organized 4 invited sessions and 5 other events.

Projects and consultancy:

Members were involved in 19 funded projects, 17 of them developed under national funds: 8 from FCT, 7 from Academic funding. Two projects under European funds: COST and Swiss funds. Most projects are in the medical area, some in industry. Two members are principal investigators of FCT projects. During 2021, members of CEAUL were involved in 6 Consultancy activities at Centro Hospitalar Universitário de Lisboa Central integrating 6 hospitals; Instituto Português do Mar e da Atmosfera (IPMA) where the main goal was the creation and validation of a generic tool analysis of resources/fisheries and formulation of scientific advice for its management. One member is a consultant for the Project Peer Reviewer of the Science Fund of the Republic of Serbia. A member is the Portuguese delegate of the Forensic Odontology sub working group of DVI team of Interpol. The Portuguese Network of Mathematics for Industry also has one CEAUL member in the Direction. A member is the responsible for the management of PORDATA, the Database of Contemporary Portugal.

Projects evaluation and refereeing:

Several CEAUL members were in panels for evaluating international projects and acted as referees of international journals.

CEAUL counts by the end of 2021 with 50 integrated PhD researchers, 35 collaborators and 25 non-PhD researchers (21 PhD students, 4 scholarships).

7996/ 8000 (FCT form)

2.3. Desvios dos trabalhos face à proposta aprovada

No caso de se terem registado desvios face ao programa de trabalho aprovado, incluindo a sua calendarização, solicita-se a identificação e descrição dos referidos desvios, bem como uma breve justificação para os mesmos.

No caso de se terem observado dificuldades na execução do plano de trabalhos aprovado, solicita-se a identificação e descrição das referidas dificuldades, bem como a forma de as ultrapassar / como foram ultrapassadas.

1. Develop fundamental research on diverse domains of Statistics, aiming to extend the frontiers of statistical knowledge and provide statistical tools for experimental sciences, in close collaboration with researchers from other domains and scientific areas.

This objective was well accomplished during 2021 although it is recognized that some members still showed limited activity during this period. This problem needs to go on being addressed in the future, nevertheless, the total of 106 papers (96 international) and 4 book chapters (3 international). Extreme theory fundamental research was strengthened during 2021, and the collaboration with researchers of other domains and scientific areas has been reinforced, namely in forensic dentistry, fuel related enterprises, health, and environment.

2. Participate in interdisciplinary national and international projects.

The number of national and international projects during 2021 was 17 and 2, respectively. During 2021 CEAUL members were participating in 11 ongoing projects, and 8 new proposals were approved and started during this year. Both international projects started before 2021. Clearly, this is still an area of future investment.

3. Participate actively in Society by giving support to Industry, Commerce, Services and Business in the form of consultancy or specialized courses.

Because only a small number of CEAUL members continues available to accept doing consultancy work due to an overload of teaching time, in 2021 the consultancy activity decreased substantially. This decrease is also due to the COVID-19 pandemic that limited this type of requests to our research centre.

Still, during 2021 several integrated/collaborator members of CEAUL were involved in consultancy work for 8 different entities.

4. Develop advanced training activities through the involvement in PhD programs of High Education Institutions and the organization of advanced courses in emerging areas of Statistics. Regarding specialized courses, 12 courses were lectured by CEAUL members, which is lower than the numbers before the pandemics, and 1 course was directly organized by CEAUL.

5. Encouraging young students into research, by involving them in the Centre's activities.

No violations to this point were found as many activities were developed to attract young students to our area of research.

2375\6000 (FCT count)

2.5. Orçamento

Descrição sucinta do orçamento, incluindo os principais itens de investimento aprovados e investimento por entidade beneficiária. No caso de se terem registado desvios face ao orçamento aprovado, solicita-se a identificação e descrição dos referidos desvios, bem como uma breve justificação para os mesmos.

CEAUL's expenses for 2021 were:

Human Resources: 2 014,35 Eur (budget: 28 250,00 Eur)
 Missions: 3 419,26 Eur (budget: 10 000,00 Eur)
 Consulting: 0,00 Eur (budget: 10 950,00 Eur)
 Acquisition of goods and services: 5 371,32 Eur (budget: 4 500,00 Eur)
 Other expenses: 0,00 Eur (budget: 1 000,00 Eur)
 Dissemination, Promotion and Publicity: 9 81,52 Eur (budget: 54 600,00 Eur)
 Equipment: 8 641,01 Eur (budget: 11 000,00 Eur)
 Overheads: 7 131,87 Eur (budget: 30 075,00 Eur)
 TOTAL: 35 659,33 Eur (budget: 150 375,00 Eur)

There is a positive balance of 114 715,67 Euros concerning the total amount for 2021. This is due to the restrictions caused by the COVID-19 pandemic, which have led to less participation in conferences and no hosting visiting researchers. The acquisition of tablets, iPads and computers increased since these are essential for remote work, but not as much as in 2020.

905/ 6000 (FCT count)

3. Indicadores

Indicar os valores do projeto até ao fim do período a que corresponde o presente relatório. Devem apenas ser indicadas concretizações efetivas. Não incluir publicações submetidas para publicação, nem teses que ainda não tenham sido discutidas.

3.1. Quadro de indicadores do projeto

Indicadores de realização física	Propostos	Realizados	Total realizado
A - Publicações			
Livros	0	0	1
Artigos em revistas internacionais	0	96	74
Artigos em revistas nacionais	0	10	18
B - Comunicações			
Comunicações em encontros científicos internacionais	0	55	49
Comunicações em encontros científicos nacionais	0	47	33
C - Relatórios	0	4	4
D - Organização de seminários e conferências	0	35	43
E - Formação avançada			
Teses de Doutoramento	0	3	2
Teses de Mestrado	0	19	17
Outras	0	7	8
F - Modelos	0	0	0
G - Aplicações computacionais	0	1	1
H - Instalações piloto	0	0	0
I - Protótipos laboratoriais	0	0	0
J - Patentes	0	0	0
K - Publicações científicas em domínios científicos enquadráveis na RIS3	0	0	0

L - Patentes EPO	0	<input type="text" value="0"/>	0
M - Outros	0	<input type="text" value="0"/>	0
	0	<input type="text" value="0"/>	0
	0	<input type="text" value="0"/>	0

4. Publicações e outras ações públicas de disseminação dos resultados do projeto

4.1. Publicações (opcional)

1. **Amaral Turkman MA, Turkman KF, de Zea Bermudez P, Pereira S, Pereira P** and **d e Carvalho M** (2021). *Calibration Of The Bulk And Extremes Of Spatial Data*, REVSTAT – Statistical Journal, 19(3), 309–325, URL: https://www.ine.pt/revstat/pdf/REVSTAT_v19-n3-01.pdf.
2. Angelakopoulos N, Galic I, Balla SB, Kis HC, Gómez Jiménez L, Zolotenkova G, Mohd MYP, Hadzic Selmanagic A, Pandey H and **Pereira CP** (2021). *Comparison of the third molar maturity index (I3M) between left and right lower third molars to assess the age of majority: a multi-ethnic study sample*, International Journal Legal Medicine, 135, 2423–2436, DOI: [10.1007/s00414-021-02656-2](https://doi.org/10.1007/s00414-021-02656-2), URL: <https://link.springer.com/article/10.1007%2Fs00414-021-02656-2>,
3. Bento de Almeida, JM, Gaspar, MB, Castro, M and **Rufino, MR** (2021). *Influence of wind, rainfall, and oceanography on bivalve biomass: implications to larval ecology*, Fisheries Research, 242: 106044, DOI: [10.1016/j.fishres.2021.106044](https://doi.org/10.1016/j.fishres.2021.106044), URL: <https://doi.org/10.1016/j.fishres.2021.106044>.
4. **Canto e Castro, L**, Pereira, AG, Ribeiro, R, Alves, C, Vicente, V, Veldhoen, Marc, Sousa, G, Mota, MM, Silva-Santos, B and Ribeiro, RM (2021). *Prevalence of SARS-CoV-2 Antibodies After First 6 Months of COVID-19 Pandemic, Portugal*, Emerging Infectious Diseases, 27(11), 2878–2881, DOI: [10.3201/eid2711.210636](https://doi.org/10.3201/eid2711.210636), URL: https://wwwnc.cdc.gov/eid/article/27/11/21-0636_article.
5. Chissaque A, Cassocera M, Gasparinho C, ..., **Gonçalves L** and de Deus N (2021). *Rotavirus A infection in children under five years old with a double health problem: undernutrition and diarrhoea—a cross-sectional study in four provinces of Mozambique*, BMC Infectious Diseases, 21(1), 21(1), 1-13., DOI: [10.1186/s12879-020-05718-9](https://doi.org/10.1186/s12879-020-05718-9), URL: <https://bmcinfectdis.biomedcentral.com/articles/10.1186/s12879-020-05718-9>.
6. Cunha B, **Aleixo SM**, Fonseca L and Calado C (2021). *Fast identification of off-target liabilities in early antibiotic discovery with Fourier-transform infrared spectroscopy*,

- Biotechnology and Bioengineering, 118(11), 4465-4476, DOI: [10.1002/bit.27915](https://doi.org/10.1002/bit.27915),
URL: <https://doi.org/10.1002/bit.27915>.
7. **Domingues TD**, Grabowska A, Lee JS, Ameijeiras-Alonso J, Westermeier F, Scheibenbogen C, Cliff JM, Nacul L, Lacerda E, Mouriño H and Sepúlveda N. (2021). *Herpesviruses Serology Distinguishes Different Subgroups of Patients From the United Kingdom Myalgic Encephalomyelitis/Chronic Fatigue Syndrome Biobank*, *Frontiers in Medicine*, 8, DOI: [10.3389/fmed.2021.686736](https://doi.org/10.3389/fmed.2021.686736),
URL: <https://www.frontiersin.org/article/10.3389/fmed.2021.686736>.
 8. Gil-da-Veiga M, Fragata I, Passos J, **Papoila AL**, **Alves M** and Salgado D (2021). *Cyst-like Lesions as a Late Sequela of Radiotherapy in Pediatric Patients*, *American Journal of Neuroradiology*, 42, 1543-1549, DOI: [10.3174/ajnr.A7156](https://doi.org/10.3174/ajnr.A7156),
URL: <https://pubmed.ncbi.nlm.nih.gov/34140275/>.
 9. **Gonçalves L**, **Turkman MAA**, **Brás-Geraldes C**, **Marques TA** and **Sousa L** (2021). *COVID-19: Nothing is Normal in this Pandemic*, *Journal of Epidemiology and Global Health*, 11(2), 146-149,
DOI: [10.2991/jegh.k.210108.001](https://doi.org/10.2991/jegh.k.210108.001), URL: <https://www.atlantispress.com/journals/jegh/125951270/view>.
 10. **Gonçalves MH** and **Cabral MS** (2021). *cold: An R Package for the Analysis of Count Longitudinal Data*, *Journal of Statistical Software*, 99(3), DOI: [10.18637/jss.v099.i03](https://doi.org/10.18637/jss.v099.i03),
URL: <https://doi.org/10.18637/jss.v099.i03>.
 11. Gonçalves P., Grilo F, Mendes R, Vierikko K, Elands B, **Marques TA** and Santos-Reis M (2021). *What's biodiversity got to do with it? Perceptions of biodiversity and restorativeness in urban parks*, *Ecology and Society*, 26, 25, DOI: [10.5751/ES-12598-260325](https://doi.org/10.5751/ES-12598-260325).
 12. **De Han L** and Chen Zhou (2021). *Trends in extreme value indices*, *J.A.S.A.*, 116(535), 1265-1279, DOI: [10.1080/01621459.2019.1705307](https://doi.org/10.1080/01621459.2019.1705307),
URL: <https://www.tandfonline.com/doi/full/10.1080/01621459.2019.1705307>.
 13. **Malato J**, Sotzny F, Bauer S, Freitag H, **Fonseca A**, Grabwska A, Graça L, **Cordeiro C**, ... and **Sepúlveda N** (2021). *The SARS-CoV-2 receptor angiotensin-converting enzyme 2 (ACE2) in Myalgic Encephalomyelitis/Chronic Fatigue Syndrome: a meta-analysis of public DNA methylation and gene expression data*, *Heliyon*, 7(8):e07665, DOI: [10.1016/j.heliyon.2021.e07665](https://doi.org/10.1016/j.heliyon.2021.e07665),
URL: [https://www.cell.com/heliyon/fulltext/S2405-8440\(21\)01768-](https://www.cell.com/heliyon/fulltext/S2405-8440(21)01768-)

0? returnURL=https%3A%2F%2Flinkinghub.elsevier.com%2Fretrieve%2Fpii%2FS2405844021017680%3Fshowall%3Dtrue.

14. **Martins R**, Caldeira J, Lopes I and Mendes JJ (2021). *Improving teeth aesthetics using a spatially shared-parameters model for independent regular lattices*, Journal of Applied Statistics, 373-392; 48(2), DOI: [10.1080/02664763.2020.1724273](https://doi.org/10.1080/02664763.2020.1724273), URL: <https://www.tandfonline.com/doi/abs/10.1080/02664763.2020.1724273?journalCode=cjas20>.
15. **Pereira S**, **Turkman KF**, Correia L and Rue H (2021). *Unemployment estimation - spatial point referenced methods and models*, Spatial Statistics, 41, DOI: [10.1016/j.spasta.2019.01.004](https://doi.org/10.1016/j.spasta.2019.01.004), URL: <https://www.sciencedirect.com/science/article/pii/S2211675318301623>.
16. **Rocha JL** and Taha A-K (2021). *Generalized r-Lambert Function in the Analysis of Fixed Points and Bifurcations of Homographic 2-Ricker Maps*, International Journal of Bifurcation & Chaos, 31 (11), 2130033 (19), DOI: [10.1142/S0218127421300330](https://doi.org/10.1142/S0218127421300330), URL: <https://www.worldscientific.com/doi/abs/10.1142/S0218127421300330>.

4.2. Websites gerados no contexto do projeto (opcional)

Enumerar as URL/endereços dos sites web criados no âmbito do projeto ou com informação sobre o mesmo, separados por vírgulas

URL's

<http://ceaul.org/covid19> - Webpage with information concerning scientific knowledge about COVID-19, our scientific publications and media articles.

<https://ceaul.org/dados-contados-rtp-europa-minha> - Webpage with information concerning weekly episodes of "Dados Contados" in the RTP's tv show "Europa Minha".

https://github.com/CEAUL/Dados_COVID-19_PT - CEAUL COVID-19 User Friendly Portuguese Data Repository. A repository with a user-friendly version of the Portuguese Daily Covid-19 data which is automatically updated daily. Example graphs and summaries statistics with R code are presented to help others get started.

4.3. Outras ações públicas (opcional)

Identificação de outras ações públicas de disseminação de resultados do projeto, como sejam conferências, seminários, cursos, filmes, vídeos, programas em rádio e/ou televisão, newsletters, etc.

Descrição

Newspaper Article to celebrate World Statistics Day: Marques TA "A Estatística como uma arma para a desinformação", Publico Online. - URL: <https://www.publico.pt/2021/10/20/ciencia/opiniao/estatistica-arma-desinformacao-1981731>

RTP TV show "Europa Minha" presenting the rubric "Dados Contados" at RTP
https://www.rtp.pt/noticias/mundo/dados-contados_i1338599

5. Ficheiros anexos (opcional)

Neste item poderão incluir-se, se necessário, ficheiros em formato PDF, que tenham sido referidos ao longo do presente relatório, como, por exemplo, gráficos, esquemas e/ou fotografias.

O conjunto dos ficheiros (em número máximo de cinco) ou o arquivo a submeter não poderão exceder 10MB.

Ficheiros

[Annex Report FCT 2021.pdf](#)



CIÊNCIA, TECNOLOGIA
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Annex to the 2021 CEAUL Report

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Plenary talks (International)

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Plenary talks (National)

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Pereira CP (2021). “*Papel do Médico Dentista no Diagnóstico de Maus Tratos Infantis: Enquadramento Normativo*”, 30.º Congresso de Ordem dos Médicos Dentistas (OMD), Braga, 4-6 november 2021, URL: <https://www.ombd.pt/congresso/2021/apresentacao/>.

Invited talks (International)

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Esperança-Martins M, Soares-do-Brito J, **Domingues TD**, Lopes-Brás RL, Melo-Alvim C, Costa L and Fernandes I (2021). “*Impact of conservative and radical surgical approaches on appendicular sarcomas in a National reference center of Europe - searching for prognostic factors*”, Connective Tissue Oncology Congress, Online meeting, 10-13 novembro 2021, URL: <https://www.ctos.org/Meeting/2021AnnualMeeting.aspx>.

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Invited talks (National)

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Borges A, **Cordeiro C** and **Ramos MR** (2021). “*Uncovering Abnormal Water Consumption Patterns for Sustainability’s Sake*”, XXV Conference of the Portuguese Statistical Society, October 13–16, URL: <http://www.spe2021.uevora.en/>.

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Silva Lomba J, **Fraga Alves MI** e **Neves C** (2021). “*Estimação espaço-temporal de chuva extrema: o estimador mixed moment*”, FCT - Encontro Nacional com a Ciência e a Tecnologia, Centro de Congressos de Lisboa, Junqueira, 28-30 Junho 2021,

URL: <https://www.encontrociencia.pt/2021/?acao=posters>.

Sousa-Ferreira I, Rocha C and Abreu AM (2021). “A Gap Time Model Based on Restricted Cubic Splines with a Zero-recurrence Proportion”, *Ciência 2021 – Encontro com a Ciência e Tecnologia em Portugal*, Lisboa, Portugal, June 28 – 30, 2021.

Seminar by Invitation

(26)

Amaral Turkman MA (2021). “*Bayesianismo: Advento, crítica e atualidade*”, Uma janela sobre o desconhecido: Tópicos sobre Filosofia e Estatística., Faculdade de Ciências ULisboa, 30 setembro - 4 de novembro, URL: <https://ciencias.ulisboa.pt/pt/evento/30-09-2021/uma-janela-sobre-o-desconhecido-topicos-de-filosofia-e-estatistica>, Inserido num curso livre que teve lugar às quintas-feiras. Organizado pelo Centro de Filosofia das Ciências.

Canto e Castro L (2021). “*Em Busca de Tesouros nos Oceanos de Dados*”, *Mundus Mathematica*, Ciclo de Palestras, ISEL, Online event, May 13, 2021, URL: <https://dmtalks.isel.pt/>, <https://www.youtube.com/watch?v=9BtrFIBPBVU>

Cordeiro C (2021). “*Water Challenges*”, *DaSSWeb*, Data Science and Statistics Webinar, 13 July, URL: https://sigarra.up.pt/fep/pt/noticias_geral.ver_noticia?p_nr=36629.

Cordeiro C, He Y and Hyndman R (2021). “*Detecting tail probabilities*”, *Probability and Statistics Seminar*, 12 May, URL: https://ceat.tecnico.ulisboa.pt/seminar.php?event_type_id=16&sem_id=2652.

André LM and **de Zea Bermudez P** (2021). “*Modelling dependence between observed and simulated wind speed data using copulas*”, *UL Extremes Webinar*, Zoom, 12 March 2021, URL: <http://ceaul.org/modelling-dependence-between-observed-and-simulated-wind-speed-data-using-copulas/>.

Domingues TD, **Mouriño H** and **Sepúlveda N** (2021). “*Finite Mixture Models based on Scale Mixtures of Skew-Normal distributions applied to serological data*”, *Seminários no âmbito da unidade curricular de seminário do Mestrado em Bioestatística*, Faculdade de Ciências da Universidade de Lisboa, 16 dezembro 2021.

Gomes MI (2021). “A ‘Escola de Extremos em Portugal’—A PORTSEA (‘Extremistas’ num Extremo da Europa)”, Invited (on-line) seminar at “Sessão da Classe de Ciências”, Academia das Ciências de Lisboa, January 21, 2021, URL: <http://www.acad-ciencias.pt/agenda/evento/665>.

Gonçalves L, Amaral Turkman MA, Brás-Geraldes C, Marques TA and **Sousa L** (2021). “COVID-19: Histórias de uma Pandemia Anormal”, Seminars Faculdade de Ciências e Tecnologia - Universidade Nova de Lisboa, Webinar, 19th May.

Henriques-Rodrigues L and **Gomes MI** (2021). “Box-Cox Transformations in Statistics of Extremes”, Probability and Statistics Seminar (on-line). Joint Seminar CEMAT and CEAUL, On-line, June 17, 2021, URL: <https://math.tecnico.ulisboa.pt/seminars/pe/?action=show&id=6101>.

Marques TA (2021) “No good name for talk, kind of who am I and why you might care”. Seminário no âmbito da unidade curricular Seminários em Bioinformática e Biologia Computacional, FCUL, DBA, Lisboa. URL: <https://fenix.ciencias.ulisboa.pt/courses/sbbc-284554468270504>

Marques TA (2021) “Pearls of wisdom about statistical data analysis in the biological sciences”. Seminário no âmbito da unidade curricular Tópicos Avançados de Microbiologia, FCUL, DBV, Lisboa

Schwacke L, Smith C, Gomez F, Zolman E, Balmer B, Speakman T, Takeshita R, Barratclough A, Quigley B, Thomas L, **Marques TA**, Booth C, Glennie R, Rowles T, Rosel P, Garrison L and Wells R, (2021) “Status of the Barataria Bay dolphin population 10 years after the Deepwater Horizon oil spill.” Effects of Low Salinity Exposure on Bottlenose Dolphins, A Meeting Webinar of the Marine Mammal Commission, USA (via Zoom). URL: <https://www.mmc.gov/events-meetings-and-workshops/other-events/effects-of-low-salinity-exposure-on-bottlenose-dolphins-webinar/>

Marques TA and Thomas L. (2021) “Online via GoToMeeting, Population consequences of the Deepwater Horizon oil spill for pelagic whale and dolphin species,”. Webinar in NOAA’s Toxicity of Oil Seminar Series, URL: [youtube.com/watch?v=9_mIDu04yyU](https://www.youtube.com/watch?v=9_mIDu04yyU).

Marques TA (2021) “Minicurso, Introdução à Amostragem por Distâncias”. 65a Reunião Anual da RBras e o 19o Simpósio de Estatística Aplicada à Experimentação Agronômica (SEAGRO), Piracicaba, Brasil (via Zoom), URL: <http://www.lce.esalq.usp.br/rbras65/>.

Marques TA (2021) “A tale from ecological statistics: estimating animal abundance using passive”, Colloquium at UNCG Mathematics and Statistics, North Carolina, USA (via Zoom), URL: <https://mathstats.uncg.edu/events/calendar/>

Martins JP, Felgueiras M and Santos R (2021). “*Sensitivity of rapid tests in the detection of Clostridium difficile: a meta-analysis*”, Ciclo Ibero-Americano de Seminários de Verão em Aplicações de Matemática em Saúde, Leiria, July 7, URL: https://www.ipleiria.pt/estg-dmat/wp-content/uploads/sites/77/2021/05/Cartaz_geral_0607-1.pdf.

Martins JP and Mendes A (2021). “*Como Mentir Com Estatística*”, Seminars of the Department of Mathematics of the School of Technology and Management of Leiria, Pombal, June 16, URL: <http://www.ciencializar.ipleiria.pt/?id=13>.

Martins R, de Sousa B, Kneib T, Hohberg M, Klein N, Rodrigues V and Duarte E (2021). “*Imputing information with a bivariate copula in a non-ignorable missing values scenario*”, Statistics and Risk Management Seminar, Department of Mathematics, CMA/FCT NOVA, Almada, 23rd June, URL: <https://novamath.fct.unl.pt/research-groups/statistics-and-risk-management/>.

Pereira CP (2021). “*Forensic Odontology*”, Postgraduate annual course in “Forensic Odontology and Dental Anthropology”, Medico-Legal Institute of the University of Turin, Italy, 9 October 2021.

Paulino CD, Costa EG and Singer, JM (2021). “*Tamanho Amostral Ótimo Para Estimar A Concentração De Organismos Em Água De Lastro: Uma Abordagem Bayesiana Sob Prefixados Critérios De Precisão Para Verificar A Conformidade Da Água Com Normas Internacionais*”, Seminário de Pós-graduação em Estatística da ESALQ, Universidade de São Paulo, Piracicaba, SP, Brasil, 15 abril 2021.

Rocha JL (2021). “*Funções de Lambert na Análise de Dinâmicas Populacionais do Tipo de Ricker*”, Seminário da Área Departamental de Física, ISEL - Instituto Superior de Engenharia de Lisboa, Lisboa, 26 Abril, URL: <http://cfisica.isel.pt/actividades.html>.

Santos R (2021). “*Estatística Aplicada à Epidemiologia*”, Escola Superior de Enfermagem de Vila Real, Universidade de Trás-os-Montes e Alto Douro, janeiro de 2021, Destinados aos estudantes do Mestrado em Enfermagem Comunitária.

Santos R (2021). “*Análises clínicas e probabilidade condicionada*”, Escola Secundária de Pombal, junho de 2021, Destinados aos estudantes do curso Técnico de Análises Laboratoriais.

Silva GL (2021). “*Joint Analysis of Overall Survival and Disease-Free Times Based on Copula: An Application to Breast Cancer*”, Immune-Stats Group Seminar, Federal University of Sao Carlos (DS) and University of Sao Paulo (ICMC), 17 September 2021,

URL: <https://www.pipges.ufscar.br/seminars/17-09-2021-joint-analysis-of-overall-survival-and-disease-free-times-based-on-copula-an-application-to-breast-cancer-speaker-giovani-silva-university-of-lisbon>.

Silva GL (2021). “*Joint Modeling of Dependent Diverse Format Data: A Review from Several Case-Studies*”, Graduate Seminar - CEMSE Division, King Abdullah University of Science and Technology, 4 October 2021, URL: <https://cemse.kaust.edu.sa/events/event/joint-modeling-dependent-diverse-format-data-review-several-case-studies>.

Silva GL (2021). “*Joint Mixed Modeling of Different Outcomes via Several Case-Studies*”, Graduate Seminar - Statistics and Agronomic Experimentation, Luiz de Queiroz College of Agriculture - University of Sao Paulo, 25 November 2021, URL: <https://www.esalq.usp.br/pg/programas/estatistica/>.

SUPERVISION

Ph.D. Theses

(3)

Ivanilda Maria dos Santos Cabral Semedo (Ivanilda Cabral) got the Ph.D. Degree at Risk Management, FCT-DM, Universidade Nova de Lisboa, under the supervision of **Caeiro F** and **Gomes MI** (discussed in February 2021).

Thesis title: “Estimação Assintoticamente Centrada em Estatística de Extremos”.

URL: <http://hdl.handle.net/10362/118646>

Tiago Dias Domingues (**Domingues TD**) got the Ph.D. Degree at Biostatistics and Bioinformatics, DEIO-FCUL, Universidade de Lisboa, under the supervision of **Mouriño H** and **Sepulveda N** (discussed in October 2021).

Thesis title “Finite Mixture Models based on Scale Mixtures of Skew-Normal distributions applied to serological data”.

Jorge Manuel Lopes Basílio got the Ph.D. degree in Applied Mathematics and Modelling, Universidade Aberta, Lisbon, under the supervision of **Oliveira A** and Rahim Mamoudvand (Bu-Ali Sina University, Hamedan, Iran) (discussed in July 2021).

Title: Modelling and Estimation of Systemic Risk: New Perspectives;

Master Dissertations

(19)

Antunes M and Soares P (Supervisors): Mariana Vieira. "Spatial distribution of the severity of lung cancer at diagnosis – is it related to socioeconomic factors and access to primary health care?". Master's degree in Biostatistics, FCUL, June 2021, URL: <http://hdl.handle.net/10451/48684>

Antunes M and Torres J (Supervisors): Alexandra Almeida. "The Predictive value of Microscopic Inflammation beyond The Endoscopic Margin at Diagnosis in Ulcerative Colitis Outcomes". Master's degree in Biostatistics, FCUL, April 2021., URL: <https://repositorio.ul.pt/handle/10451/47654>

Antunes M and Torres V (Supervisors): Ana Margarida Pereira. "Classification of OSA diagnosis - Revision of supervised methodology". Master's degree in Biostatistics, FCUL, July 2021, URL: <http://hdl.handle.net/10451/49338>

Brás-Geraldes C and **Sousa L** (Supervisors): Margarida Azevedo. "Comparative analysis of non-linear models with parametric link function based on the family of Czado functions and asymmetric functions of Aranda Ordaz". Master's degree in Biostatistics, FCUL, June 2021.

Brás-Geraldes C and **Sousa L** (Supervisors): Teresa Gonçalves. "Modelo Aditivo Generalizado com função de ligação baseada num Perceptrão Multicamada: Estimação da função de razão de possibilidades e respectivo intervalo de confiança". Master's degree in Biostatistics, FCUL, July 2021.

Canto e Castro L (Supervisor): Inês Oliveira. "Retrato de Risco dos Municípios Portugueses". Master's degree in Applied Mathematics for Economics and Management, FCUL, 2021

Pereira S (Supervisor): Bernardo Almeida. "Analysis and improvement of the multi-risk housing product retention process". Master dissertation in Applied Mathematics to Management and Economy. FCUL, 2021.

de Zea Bermudez P (Supervisor): Gimeno-Sotelo L. "Univariate and bivariate extremes in meteorology: an application to the Great Plains Low-Level Jet System". Master's degree in Statistics and Operations Research, FCUL, June 2021, URL: <http://hdl.handle.net/10451/49021>

de Zea Bermudez P and Costa L (Supervisors): Pedro Oliveira.

"Bayesian approach to ecological monitoring data: latent growth curve models". Master's degree in Biostatistics, FCUL, April 2021, URL: <http://hdl.handle.net/10451/48722>

Figueiredo FO (Co-supervisor): Inês Correia."Segmentation of Fashion Brands in a Land-and-Expand Strategy Context: the Case of a "Logistics as a Service" Tech Company". Master in Management, FEP, 2021.

Martins R (Supervisor): Rute Dores. "Analysis of variance and regression methods in assessing the development of periodontal disease." Master's degree in Applied Mathematics for Economics and Management, FCUL, 2021. URL: <https://biblios.ciencias.ulisboa.pt/detalhes/53396>

Oliveira A (Supervisor): Leonel Baptista."Impacto da Volatilidade na Otimização de Portfólios Financeiros" Master in Statistics, Mathematics and Computation. Universidade Aberta, Lisbon, November 2021.

Pereira CP and **Santos R** (Supervisors): Victoria Ionel. "Diagnose sexual baseada em parâmetros radiológicos craniomandibulares", Integrated Master of Dentistry at Faculty of Dental Medicine, University of Lisbon, in the field of Forensic Dental Medicine. FMDUL, December 2021.

Pereira CP, **Salvado F** and **Santos R** (Supervisors): Catarina Gonçalves. "Estudo Epidemiológico do traumatismo oro-maxilo-facial na consulta de Estomatologia: Implicações na avaliação do dano corporal em Direito Civil e Direito de trabalho" Integrated Master of Dentistry at Faculty of Dental Medicine, University of Lisbon, in the field of Forensic Dental Medicine. FMDUL, September 2021

São João R (Supervisor): Carlos Pedro. "The impact of rotation of the Statutory Auditor/ Audit Firm on audit quality". School of Management and Technology, Polytechnic Institute of Santarém, Santarém, 2021, URL: <http://hdl.handle.net/10400.15/3509>

São João R (Supervisor): Luís Ferreira. "Gross value added and intangible assets: their relationship in the Portuguese textile sector". School of Management and Technology, Polytechnic Institute of Santarém, Santarém.2021, URL: <http://hdl.handle.net/10400.15/3842>

São João R (Supervisor): José Lopes. "Knowledge Management in Nursing Teams at the District Hospital of Santarém", EPE. School of Management and Technology, Polytechnic Institute of Santarém, 2021, URL: https://siesgt.ipsantarem.pt/esgt/web_base.gera_pagina?P_pagina=1344759

Silva C and Grilo A (Supervisors): Ivandra Araújo. "A Study of Adherence to the Mobile Application STAYAWAY COVID: Determinant Factors". Master's in Health Technology Assessment of ESTeSL, 2021.

Sousa L and João C (Supervisors): Carolina Pestana (Pestana C). "Statistical methods for the study of extracellular vesicles content and their potential as biomarkers of multiple myeloma aggressiveness". Master's degree in Biostatistics, FCUL, June 2021.

Other Advisory Work

(7)

Aleixo SM: Supervision of the curricular internship in Mathematics Applied to Technology and to the Enterprise, concluded on July 26, 2021, by Joana Vieira, together with the guidance of Professor Iola Maria Silvério Pinto (ADM/ISEL/IPL) and Engineers Paulo Miguel Ferreira and Carlos Mota (ATQP/GALP). Internship developed at GALP, Department of Technical Assistance and Product Quality, entitled "Empirical Statistical Modeling of Equipment with Monitoring of Lubricants in Service for Proactive Maintenance".

Aleixo SM: Supervision of the curricular internship in Mathematics Applied to Technology and to the Enterprise, concluded on July 15, 2021, by Gonçalo Pereira, together with the guidance of Professor Ricardo Enguiça (ADM/ISEL/IPL) and Engineers David Figueiredo and Nuno Pimentel (AdTA). Internship developed at AdTA, entitled "Filling in gaps in data series".

Aleixo SM: Supervision of the curricular internship in Mathematics Applied to Technology and to the Enterprise, concluded on July 12, 2021, by Rafaela Oliveira, together with the guidance of Professor José Madeira (ADM/ISEL/IPL) and Engineer Catarina Pires (Delta). Internship developed at Delta, entitled "Planning".

Silva GL: Mathematics Project of BSc in Applied Mathematics and Computation: "Spatiotemporal Poisson Regression in Forest Fires" by João Vasco Certal Afonso, in the Instituto Superior Técnico at the University of Lisbon., URL: <https://fenix.tecnico.ulisboa.pt/cursos/lmac>

São João R: Supervisor of the curricular internship of the student Carolina Rodrigues Veloso at SMS-Timing (Belgium) integrated in the graduation in Marketing and Advertising, School of Management and Technology, Polytechnic Institute of Santarém, Santarém.

São João R: Supervisor of the curricular internship of the student Filipe André Caldeira Batista at Empresa Jornalística da Madeira (Madeira, Portugal) integrated in the graduation in Marketing and Advertising, School of Management and Technology, Polytechnic Institute of Santarém, Santarém.

São João R: Supervisor of the curricular internship of the student José Manuel Castilho Mendes at Mensagem Ímpar, Unipessoal Lda (Santarém, Portugal) integrated in the graduation in Marketing and Advertising, School of Management and Technology, Polytechnic Institute of Santarém, Santarém.

FINANCED PROJECTS RUNNING IN 2021

(19)

Aleixo SM, Brás-Geraldes C. DSAIPA/DS/0117/2020 - *Predictive Models of COVID-19 Outcomes for Higher Risk Patients Towards a Precision Medicine*. Financed By: FCT. Participating institutions: ISEL, Centro Hospitalar Universitário Lisboa Central, Instituto Superior Técnico, Instituto Português do Sangue e da Transplantação. Project Ref: DSAIPA/DS/0117/2020. Principal investigator: Bento L - Centro Hospitalar Universitário Lisboa Central.

Aleixo SM. NephroMD - *On-skin Diagnostic Device for Kidney Chronic Disease Management Based on Sweat Analysis*. Financed By: IPL. Participating institutions: ISEL. Project Ref: DI&CA/IPL/2020/NephoMD/ISEL. Principal investigator: Calado C - ISEL.

Antunes M and **Albuquerque J** (CEAUL team members). DYSLIPIDidTOOL - Dyslipidaemia Stratification: New Screening Tools for a Cost-Effective Approach. Project Ref: PTDC/SALSER/29180/2017. Project financed by Fundação para a Ciência e Tecnologia (FCT). Participating institutions: FCIências.ID. Principal investigator: Antunes M - FCIências.ID. URL: https://www.fct.pt/apoios/projectos/consulta/vglobal_projecto?idProjecto=150373&idElemConcurso=11918

de Carvalho M, de Zea Bermudez P, Turkman KF, Amaral Turkman MA, Pereira P, Pereira S, Scotto M and **de Hann L.** FillGapsInMaps - *Data Fusion and Calibration Methods for Spatial Risk Analysis*. Financed By: FCT Fundação para a Ciência e para a Tecnologia. Participating institutions: FCIências.ID. Project Ref: PTDC/MAT-STA/28649/2017. Principal investigator: **de Carvalho M** - School of Mathematics, University of Edinburgh, UK. URL: <https://www.maths.ed.ac.uk/~mdecarv/dfus/>

Gonçalves L, Gonçalves MH and Silva GL. LONG-DATA - *LONG-DATA - Longitudinal data in (under)nutrition*. Financed By: IHMT NOVA. Participating institutions: IHMT NOVA/CISA-Angola/CEAUL. Project Ref: LONG-DATA. Principal investigator: Gonçalves L - IHMT NOVA.

Marques TA. COVIDETEC - Create an early warning system for the presence of the SARS-CoV-2 virus through the analysis of wastewater, helping to improve the response to possible new outbreaks of the disease. Participating institutions: FCUL, IST, Águas do Tejo Atlântico, Águas do Norte, SIMDOURO. Principal investigator: Mónica Cunha (FCUL). Mais Institution: Águas de Portugal. URL: <https://www.adp.pt/pt/atividade/inovacao/covidetect/?id=222>

Martins R. S3 - *Shining Spectroscopic Smile*. Financed By: Centro de Investigação Interdisciplinar Egas Moniz - CIEM. Participating institutions: CIEM. Principal investigator: Caldeira J - Centro de Investigação Interdisciplinar Egas Moniz - CIEM.

Martins R. SHSADREM - *Addressing Social and Health Challenges through new developments in Structured Additive Distributional Regression Models*. Financed By: FCT. Participating institutions: University of Coimbra, University of Munich, University of Goettingen. Project Ref: PTDC/MAT-STA/29443/2017 - POCI-01-0145-FEDER-029443. Principal investigator: de Sousa B - University of Coimbra. URL: <https://cineicc.uc.pt/projects/>

Martins R. Riseup-PPD - *Research Innovation and Sustainable Pan-European Network in Peripartum Depression Disorder*. Financed By: European Cooperation in Science and Technology (COST). Participating institutions: University of Coimbra, University of Goettingen, University of Santiago de Compostela, University of Porto, etc.... Project Ref: COST Action CA18138. Principal investigator: Ganho-Ávila A - University of Coimbra. URL: <https://www.cost.eu/actions/CA18138/>

Rufino MM. ICW3P - *Impact of climate warming in the coastal upwelling system and primary production off Portugal: a study linking classical and emergent proxies*. Financed By: FCT. Participating institutions: Centro de Ciências do Mar (CCMar), GEOLOGICAL SURVEY OF DENMARK AND GREENLAND (GEUS), Instituto Português do Mar e da Atmosfera, I. P. (IPMA),. Project Ref: PTDC/CTA-CLI/2884/2021. Principal investigator: Fatima Abrantes - CCMar.

Silva C. OCROP - *Optimization of conventional radiography examinations performed on obese patients*. Financed By: Commission Scientifique du Domaine Santé, Suisse. Participating

institutions: Haute École de Santé Vaud - HESAV, Lausanne, Suisse. Project Ref: 07-O19. Principal investigator: Reis C - Haute École de Santé Vaud - HESAV.

Silva C. OCLOVID19 - *Ocular repercussions in those infected with COVID-19: Microbiota and structural changes in the retina and choroid.* Financed By: Instituto Politécnico de Lisboa.

Participating institutions: ESTeSL-IPL and HTRC. Principal investigator: Cunha JP - Escola Superior de Tecnologia da Saúde de Lisboa.

Silva C. MICROVID19 - *Gut microbiome analysis associated to COVID-19.* Financed By: Instituto Politécnico de Lisboa. Participating institutions: ESTeSL-IPL and HTRC. Principal investigator: Brito M - Escola Superior de Tecnologia da Saúde de Lisboa.

Silva C. ESCRI-VER - *Dificuldades de Escrita e visão Funcional nas Crianças do Ensino Básico - a Disortografia e a Visão.* Financed By: Instituto Politécnico de Lisboa. Participating institutions: ESTeSL-IPL and HTRC and ESE. Principal investigator: Poças I - Escola Superior de Tecnologia da Saúde de Lisboa.

Silva C. DiffMeDiMe - *Differential DNA Methylation in Persistent Diabetic Macular Edema Associated Inflammatory Genes: New Therapeutic Approaches.* Financed By: Instituto Politécnico de Lisboa. Participating institutions: ESTeSL-IPL and HTRC. Principal investigator: Camacho P - Escola Superior de Tecnologia da Saúde de Lisboa.

Silva C. MONICED - *Metodologias de Monitorização e Avaliação.* Financed By: Portugal2020. Participating institutions: ESTeSL-IPL. Project Ref: POAT-77-2021-06. Principal investigator: Ribeiro R - Escola Superior de Tecnologia da Saúde de Lisboa.

Sousa L, Pedro S. EMOTION - *authEntic cheesoMics: from big data, through labOratory, towards the fuTure of protected designation of Origin.* Financed By: FCT. Participating institutions: 'FCiências.ID, Instituto de Biologia Experimental e Tecnológica (IBET), Instituto Superior de Agronomia (ISA/ULisboa). Project Ref: PTDC/OCE-ETA/1785/2020. Principal investigator: Semedo T - FMV-ULisboa.

URL: https://www.fct.pt/apoios/projectos/consulta/vglobal_projecto.phtml.en?idProjecto=159741&idEmConcurso=14550

Sousa L. GEnvIA - *Gene-Environment Interaction in Autism Spectrum Disorder.* Financed By: FCT. Participating institutions: FCiências.ID. Project Ref: PTDC/MED-OUT/28937/2017. Principal

investigator: Vicente A - FCIências.ID.

URL: https://www.fct.pt/apoios/projectos/consulta/vglobal_projecto.phtml.en?idProjecto=150144&idEmConcurso=12066

Turkman KF, Amaral Turkman MA, Pereira P. FireCast - *FireCast- Forecasting Fire Probability And Characteristics For A Habitable Pyroenvironment*. Financed By: FCT. Participating institutions: FCIências.ID, ISA, IPMA. Project Ref: PCIF/GRF/0204/2017. Principal investigator: DaCâmara C - FCIências.ID.

ORGANIZATION OF CONFERENCES, SEMINARS AND INVITED SESSIONS

Seminars

(25)

Título	Orador/Instituição	Local	Data
Modelos De Mistura Finitos Baseados Em Mistura De Escala Da Distribuição Normal-Assimétrica Aplicados A Dados Serológicos	Tiago Domingues-CEAUL	ZOOM - 18:30	16/dez/21
Rainfall Extremes	Jennifer Israelsson and Helga Kristín Ólafsdóttir University of Reading and Gothenburg University/Chalmers	ZOOM - 15:30	15/dez/21
Estatística Bayesiana Em Ensaio Clínicos De Fase I	Miguel Pereira	ZOOM - 18:30	09/dez/21
Drawing inferences about wildlife populations from limited data examples with spatial capture recapture	David Borchers- Centre for Research into Ecological & Environmental Modelling Professor at University of St Andrews	ZOOM - 14:00	07/dez/21
Study Of Biomarkers In Multiple Myeloma: A Statistical Approach For Longitudinal Assessment Of Extracellular Vesicles And Its Prognostic Value	Carolina Pestana-Fundação Champalimaud	ZOOM - 18:30	25/nov/21
Are The Least Knowledgeable Unaware Of It? A Statistical Revisitation Of The Dunning-Kruger Effect	Joana Gonçalves de Sá-IST	ZOOM - 14:30	24/nov/21
Dense Classes Of Multivariate Extreme Value Distributions	John Nolan American University CAS-Math and Statistics	ZOOM - 17:00	17/nov/21
Generalized additive models with principal component analysis an application to time series of	Glaura da Conceicao Franco- Universidade de Minas Gerais, Brasil	ZOOM - 14:30	03/nov/21

respiratory disease and air pollution data			
Development And Assessment Of Risk Models For Interval-Censored Events Post Kidney Transplant Using The Variability Of A Longitudinal Biomarker	Kristen Campbell-University of Colorado Anschutz Medical Campus, USA	ZOOM - 14:30	27/out/21
Measuring The Fine Structure Of Jump Processes Through Extreme Value Theory	Ana Ferreira-Dept. Matemática do Instituto Superior Técnico	ZOOM - 14:00	20/out/21
How to measure reliable bird vocal activity using passive acoustic monitoring?	Cristian Pérez-Granados - Ecology Department, Alicante University, Spain; Julia Gómez-Catasús - Ecology Department, Autonomous University of Madrid, Spain	ZOOM - 14:00	29/set/21
Modelling and prediction in recurrent time-to-event sports injury data: a penalized Cox regression approach	Dae-Jin Lee - BCAM - Basque Center for Applied Statistics	ZOOM - 14:30	22/set/21
Extreme value threshold selection and uncertainty	Paul Northrop - University College London	ZOOM - 13:00	14/jul/21
Box-Cox transformations in Statistics of Extremes	Lígia Henriques-Rodrigues - Departamento de Matemática, Universidade de Évora	ZOOM - 13:00	17/jun/21
COMBINING STAKEHOLDER INTERVIEWS AND CENSORED REGRESSIONS TO CORRECTING MISREPORTED CATCHES	Rodrigo Wiff - Pontificia Universidad Católica de Chile UC · Departamento de Ecología	ZOOM - 14:30	16/jun/21
Diagnostic Tools to Conditional Density Models	Rafael Izbicki - Federal University of São Carlos, Brazil	ZOOM - 14:30	12/mai/21
Detecting tail probabilities	Clara Cordeiro - FCT, Universidade do Algarve e CEAUL	ZOOM - 13:00	12/mai/21
Biomarker discovery in cancer transcriptomic data using network-based regularization	Marta Belchior Lopes - CMA, FCT NOVA e NOVA LINCS, FCT NOVA	ZOOM - 14:30	28/abr/21
Applications and Extensions of the Iterated Local Search	Helena Ramalinho Lourenço - Universidade Pompeu Fabra, Barcelona	ZOOM - 13:00	15/abr/21
A nonparametric estimator of the extremal index	Juan Juan Cai - Department of Econometrics and Data Science, School of Business and Economics, Vrije Universiteit Amsterdam	ZOOM - 13:00	08/abr/21
A contribution to the assessment of apparent losses in water usage	Maria do Rosário Ramos - Universidade Aberta e CMAFçIO	ZOOM - 14:30	17/mar/21
Modelling dependence between observed and simulated wind speed data using copulas	Patrícia de Zea Bermudez - Departamento de Estatística e Investigação Operacional e CEAUL, Universidade de Lisboa	ZOOM - 13:00	10/mar/21
BAYESIAN STATE-SPACE MODELS FOR UNDERSTANDING AND MANAGING INFECTIOUS DISEASE CHALLENGES	Mafalda Viana - Institute of Biodiversity, Animal Health and Comparative Medicine, University of Glasgow, Scotland, UK	ZOOM - 14:30	25/fev/21

Extremal behaviour and rare events point processes for chaotic dynamical systems	Ana Cristina Moreira Freitas - Faculdade de Economia e Centro de Matemática da Universidade do Porto	ZOOM - 13:00	10/fev/21
News from the Max-INAR(1) process for time series of counts	Manuel Scotto, Instituto Superior Técnico and CEMAT	ZOOM - 13:00	13/jan/21

Other events Organized directly by members of CEAUL

(5)

Marques TA. and **Rufino MM:** 2021. 6-10/9. Coordination along with Tiago Marques of the workshop 'Hands-On Machine Learning In Ecology using R'. in CEAUL. 8h online.,

URL: <http://ceaul.org/workshop-hands-on-machine-learning-in-ecology/>

Martins R: Responsible for the organization of the thematic seminars at CEAUL.,

URL: <http://ceaul.org/eventos/seminarios/>

Rocha JL, Cal F and **Brás-Geraldes C:** Organizers of DMTalks - Mundus Mathematica, ISEL, seminars:

"A Matemática numa escola de Engenharia – uma perspetiva pessoal" by Luís T. Magalhães

"Em busca de tesouros nos oceanos de dados" by Luísa Canto e Castro Loura

"A matemática com inteligência aumentada" by João Araújo

"Inteligência Estatística" by Miguel de Carvalho

"Matemática Industrial em Portugal e na Europa: colaborações, iniciativas, carreiras e outras oportunidades" by Ana Jacinta Soares, Adérito Araújo

"Matemática Industrial: um exemplo de tecnologia matemática aplicado à Indústria Automóvel" by Manuel Cruz.

São João R: Organized jointly with Prof. João Samartinho (IPSantarém) two international seminars entitled "Use of free and open source software applied to Educational Sciences and Social and Human Sciences" that took place in two dates (part I -17th March from 18h-20h; part II - 24th March from 18h-20h). In these seminars he was the speaker and the target audience were students, researchers and teachers from the Polytechnic of Santarém, University of Santiago (Cape Verde) and Universities of Brazil. The referred seminars were virtual and the contents were about the use of free and open source software, being demonstrated to all participants in a "hands on" training the potentialities and versatilities of the R language., URL: <https://www.ipsantarem.pt/pt/webinars/>

Figueiredo FO, **Marques TA**, **Papoila AL**, **Silva C** and **Sousa L**: CEAUL Workshop 2021, 20th July.

Invited Sessions Organized Directly by CEAUL

(4)

Cordeiro C: Clara Cordeiro (University of Algarve) and Filomena Teodoro (Naval School), organizers of the “Joint session SPE–CLAD: Statistics, a tool for sustainability” in the XXV Conference of the Portuguese Statistical Society (October 13–16, 2021)..,

URL: <http://www.spe2021.uevora.pt/en/thematic-sessions/>

Marques TA, Encontro Nacional da Sociedade Portuguesa de Matemática 2021, *Online, Zoom*.

Session organizer: A (non-representative) sample of Statistics. URL: <https://pt.enspm2021.spm.pt/>

Marques TA, International Conference on Advances in Interdisciplinary Statistics and Combinatorics, *Hybrid Online, Zoom*, Session on Ecological Statistics. Session Organizer & Chair (with Ben Swallow)

São João R: Organizer with Professor Conceição Amado (IST-UL) the joint session CLAD-SPE at the Conference on Data Classification and Analysis (JOCLAD-2021), December, 2021.,

URL: <http://www.joclad.ipt.pt/joclad2021/pt/programa-cientifico/programa>

Scientific and Organizing Committees

(27)

Carrasquinha E: Member of the program committee of LOD 2021 (7th International Conference on machineLearning, Optimization and Data science)., URL: <https://lod2021.icas.cc/>

Gomes MI: CHAOS 2021, Hybrid Conference, June 8-11, Athens, Greece. Member of the International Scientific Committee.., URL: <http://www.cmsim.org/committeesplenary2021.html>

Gomes MI: ASMDA 2021, Hybrid Conference celebrating 40 years of ASMDA conferences (1981-2021), June 1-4, Athens, Greece. Member of the Scientific Committee.,

URL: <http://www.smta.net/committeesplenarytalks.html>

Marques TA, National Centre for Statistical Ecology annual meeting, *on Zoom*, Member of the Local Organizing Committee. URL: <https://ncse.org.uk/conferences/>

Ramos SF: ISEP SEMINARS on Novel Teaching Methodologies.
URL: https://www.isep.ipp.pt/Page/ViewPage/ISEP_Seminars

Rufino MM: Co-host and organisation of the ICES hybrid Workshop on Geo-Spatial Data for Small-Scale Fisheries WKSSGEO. 29 November–3 December 2021. IPMA.,
URL: <https://www.ices.dk/community/groups/Pages/WKSSFGE0.aspx>

Pereira CP: Scientific Committee IASR, International Association of Scientists and Researchers: Scientific Committee member at 12th International eConference on Forensic Physics. 11th and 12th December 2021, URL: <https://www.forensicevents.com/>

Pereira CP: Scientific Committee IASR, International Association of Scientists and Researchers: Scientific Committee Member at 11th International eConference on CyberSecurity. 27th and 28th November 2021, URL: <https://www.forensicevents.com/>

Pereira CP: Scientific Committee Member at the 30th congresso Ordem dos Médicos Dentistas. 4 a 6 de novembro 2021., URL: <https://www.ond.pt/congresso/2021/apresentacao/>

Pereira CP: Scientific Committee IASR, International Association of Scientists and Researchers: Scientific Committee Member at the 10th International eConference on Crime Scene Investigation. 30th 31st October 2021., URL: <https://www.forensicevents.com/>

Pereira CP: Scientific Committee IASR, International Association of Scientists and Researchers: Scientific Committee Member at 9th International eConference on Forensic Chemistry and Toxicology 29th and 30th September 2021., URL: <https://www.forensicevents.com/>

Pereira CP: Scientific Committee IASR, International Association of Scientists and Researchers: Scientific Committee Member at the 8th International eConference on Forensic Medicine and Toxicology 28th and 29th august 2021., URL: <https://www.forensicevents.com/>

Pereira CP: Scientific Committee IASR, International Association of Scientists and Researchers: Scientific Committee Member at the 7th International eConference on Forensic Psychology 24th and 25th July 2021., URL: <https://www.forensicevents.com/>

Pereira CP: Scientific Committee IASR, International Association of Scientists and Researchers: Scientific Committee Member at the 6th International eConference on Cyber and Digital Forensics 2021., URL: <https://www.forensicevents.com/>

Pereira CP: Scientific Board Member of the Portuguese Dental Association (OMD).
URL: <https://www.ond.pt/info/comissao-cientifica/>

Oliveira A: International Doga Bap Conference 2021
22-29 May 2021, Doga Schools, Istanbul, Turkey
Member of Scientific Committee., URL: <http://dogabapkonferans.com/en/about-committee/>

Oliveira A: Member of Scientific Committee of EPIA 2021
7-9 September 2021., URL: <http://www.appia.pt/epia2021/kdbi>

Oliveira A: Economics of Natural Resources and the Environment - 7th Conference
26 - 27 November 2021 (online)
Member of Scientific Committee
University of Thessaly, Greece., URL: <http://envecon.econ.uth.gr/main/eng/index.php/7th-conference>

Oliveira A: IV Escola de Estudos Avançados – Pesquisa em Cultura, História e Educação Matemática; 22-26 February 2021 (online), Member of Scientific Committee
Grupo de Pesquisa Práticas Socioculturais e Educação Matemática (GPSEM) da Universidade Federal do Pará, Brasil., URL: <https://www.iemci.ufpa.br/index.php/noticias/268-estao-abertas-inscricoes-para-iv-escola-de-estudos-avancados-pesquisa-em-culturahistoria-e-educacao-matematica>

Oliveira A: 11^a Conferência Ibérica de Empreendedorismo
14-16 December 2021 (online), Member of Scientific Committee, Empreend – Associação Portuguesa para o Empreendedorismo, Universidade Complutense de Madrid - Madrid - Espanha., URL: <https://mcrmar.wixsite.com/ciem2021>

Oliveira A: 9th Conference of the Applied Stochastic Models and Data Analysis International Society ASMDA2021 and DEMOGRAPHICS2021 WORKSHOP, 1-4 June 2021, Athens, Greece
Member of Scientific Committee ASMDA International., URL: <http://www.asmda.es/asmda2021.html>

Oliveira A: Icoms 2021, Paris, France, 24-26 June 2021, Member of Scientific Committee.,
URL: <http://www.icoms.org>

São João R: Member of the Scientific Committee of the I International Congress on Entrepreneurial Education and Citizenship-CiECCI, November 10-12., URL: <https://cieeci.com/>

Ramos MR: Chair and Member of the Scientific Committee of The 13th International Workshop in Mathematics e-Learning (e-math 2021), Organized by UAb, UNED and UOC, 11-12 november, at UAb Lisbon and Online., URL: <https://eventos.uab.pt/13emath2021/>

Figueiredo FO: Member of the Organizing Committee of the International conference IFCS 2022, to be held at Faculdade de Economia da Universidade do Porto, July 2022.

Neves M: Member of Scientific Committee of the XXVIII Conference on Data Classification and Analysis (JOCLAD2021), which took place from December 9th to 11th, 2021, in Covilhã., URL: <http://www.joclad.ipt.pt/joclad2021/en/joclad2021/organizacao>

Figueiredo FO: Member of the Scientific Committee of the 15th International Conference on New Challenges in Management and Business. NCM september 21, 2021, Canadian Institute for Knowledge Development.

ADVANCED TRAINING

(14)

Almeida A. SPSS Course. To: Students of the Faculty of Veterinary Medicine. Number of hours: 8. Local: Online. Institution: CEAUL. January 2021.

Bashir S. Statistical Thinking. Number of hours: 16; Local: Online, Cisco Webex. Institutions: CEAUL, Gades Solutions, October\November 2021. URL: <http://ceaul.org/statistical-thinking/>

Bashir S. R Workshop – R in Real Life. Number of hours: 18; Local: Online. Institution: CEAUL, June 2021. URL: <https://ceaul.org/se-investigador-por-tres-semanas-edicao-2021/>

Marques TA: Dynamic reports in RMarkdown. Number of hours: 5; Local: Online, Cisco Webex. Institutions: CEAUL, Gades Solutions. December 2021. URL: <https://gades-solutions.com/relatorios-dinamicos-em-rmarkdown/>

Neves M: Responsible at Instituto Superior de Agronomia for the Postgraduate Course "Applied Biostatistics in R", which took place at the Faculty of Agricultural Sciences, in Nampula, Mozambique

with financial support from the Calouste Gulbenkian Foundation. This course ran from March to July 2021.

Pereira S and **Marques TA**: Introduction to R. Number of hours: 16; Local: Online, Cisco Webex. Institutions: CEAUL, Gades Solutions. January\Febreuary 2021. URL: <https://gades-solutions.com/data-scientist-com-r/>

Pereira S and **Rufino MM**. Visualizing Spatial Data in R. Number of hours: 8; Local: Online, Cisco Webex. Institutions: CEAUL, Gades Solutions. November 2021. URL: <https://gades-solutions.com/visualizacao-e-manipulacao-de-dados-espaciais-com-r/>

Pereira CP: Supervisor of the Specialization Course on Forensic Odontology, first edition 2021/2022. It is a course of international cooperation. University of Lisbon and University of Zagreb.

São João R: Statistics and Data Analysis in Health with SPSS. Training carried out online in partnership with GADES Solutions, in real time, through the Cisco Webex platform (16 hours). May and November 2021. URL: <https://gades-solutions.com/project/estatistica-e-analise-de-dados-em-saude/>

São João R: Multilevel Regression Models for Panel Data with IBM SPSS. Training carried out online in partnership with GADES Solutions, in real time, through the Cisco Webex platform (12 hours). June and December 2021. URL: <https://gades-solutions.com/project/estatistica-e-analise-de-dados-em-saude/>

Silva C: Workshop Introduction to SPSS; Event: 4th Health Week in ESTeSL, 25th May
Organization: Students Association of ESTeSL.

Silva C: Workshop Introduction to Descriptive Statistics Analysis with SPSS, 22nd June
Organization: Pedagogic Council of ESTeSL.

Silva C: Course Introduction to SPSS to Statistical Data Analysis, 26th, 27th, 28th October
Organization: Health and Technology Research Center (IPL).

Silva C: Workshop Introduction to R Programming Language, 3rd December
Organization: NucM - Núcleo de Matemática da FCT - NOVA.

PRIZES AND AWARDS

(6)

Silva GL: Teacher of Pedagogical Excellence in the academic year 2019/2020 in the Instituto Superior Técnico at the University of Lisbon., URL: <https://conselhopedagogico.tecnico.ulisboa.pt/>

Gomes MI: Biography, In Margarida Pereira-Muller & Florbela Barão da Silva (2021), Mulheres de Almada, Emporium Editores (biographies of 49 women who have marked the life of the municipality of Almada from the 15th century to the present day). ISBN: 9789899078338., URL: <https://www.bertrand.pt/livro/mulheres-de-almada-m-margarida-pereira-muller/25359280>

Gomes MI: Interview by Isabel Natário for a re-edition (on-line) of the seminar “Legado Matemático—Mulheres na Estatística”. Departamento de Matemática, Faculdade de Ciências e Tecnologia, Universidade Nova de Lisboa, January 27, 2021., URL: <https://www.facebook.com/legadomatematico>

Neves M: “Prémio Carreira” given by Sociedade Portuguesa de Estatística.

Pereira CP: First prize in 'Best Scientific ePoster Presentation' for the Poster presented at the 5th International eConference-2021 Forensic Odontology, International Association of Scientists & Researchers, New Delhi, India, May of 2021.

Pereira CP, Bento B, Scott R, Flamino C, Santos R, Antunes M. Commingled and Disarticulated Human Remains related to 1755 Lisbon Earthquake: Who were them? Secular Dental nonmetric traits characterization of Lisbon Population in 18th century., URL: https://www.forensicevents.com/event-detail/Forensic-Odontology_116

Pereira CP: Best preclinical research poster's. Poster presented at Melhor 30.º Congresso da Ordem dos Médicos Dentistas, novembro de 2021. Borges G, Oliveira D, Ferreira L, Martins M, Santos R, Pereira CP. Estimativa do Sexo através do Osso Coxal numa População Arqueológica do Terramoto de Lisboa de 1755., URL: <https://www.omd.pt/congresso/2021/en/>

CONSULTANCY

(8)

Aleixo S (Project Leader) (2020). GALP / ENACOL project, which aims to develop a decision support tool.

Brilhante MF: Scientific consultant of the PROSPERO project (CRD42021251364) with the title “A systematic review and meta-analysis of oral and maxillofacial trauma”,

URL: https://www.crd.york.ac.uk/prospero/display_record.php?RecordID=251364

Silva C: Statistical Consultant of Associação Portuguesa para o Desenvolvimento Hospitalar,

URL: <https://www.apdh.pt/>

Sousa L, Marques TA, Silva C, Pereira S, Turkman KF, Figueiredo I, Brás-Geraldes C, Martins R, Correia IJF, Ribeiro E and Pestana C (2021). Institution: Instituto Português do Mar e da Atmosfera – IPMA Project title: Pequena Pesca na Costa Ocidental Portuguesa Main Goal: Creation and validation of a generic tool analysis of resources / fisheries and production of outputs necessary for the formulation of scientific advice for its management.

São João R: Cases of Carcinoma of the Stomatology Department of the Centro Universitário Lisboa Norte (Dr. José Coutinho & Dr.^a Leonor Cruz e Silva) in progress..

Polidoro MJ, Sequeira F, São João R: Determination of sample size in the clinical trial with Clarifix for the Research Centre of the Oeste Central Hospital (Prof. Dr. Araújo Martins).

São João R: Analysis of the Fonseca Anamnestic Index (FAI) scores in partnership with IPFace (Prof. Dr. David Ângelo & Dr. Henrique Cardoso).

São João R: Design and implementation of a methodology that makes it possible to monitor and evaluate the impact of Public Policies within the scope of Polytechnic Institute of Santarém.

OTHER

(21)

Canto e Castro L: Responsible for the management of Pordata.

PORDATA, the Database of Contemporary Portugal, organized and developed by the Francisco Manuel dos Santos Foundation, was created in 2009 by its founders - Alexandre Soares dos Santos and his family, descendants of Francisco Manuel dos Santos, to whose memory they dedicated the Foundation. URL: <https://www.pordata.pt/Home>

Martins R: Reviewer for: Brazilian Journal of Probability and Statistics, Statistics in Medicine, Communications in Statistics – Simulation and computation, Statistical Methods in Medical Research.

Martins R: Evaluator of research projects submitted for funding to the Science Fund of the Republic of Serbia, URL: <http://fondznanauku.gov.rs/>

Silva GL: Portuguese jury member of the poster competition of the International Statistical Literacy Project (ISLP) 2020/2021., URL: https://iase-web.org/islp/Poster_Competition_2020-2021.php

Gomes MI: Scientific Council Member, CIM, 2020-2023, upon invitation of the current CIM Director, Isabel Narra Figueiredo, University of Coimbra., URL: <http://www.cim.pt/council>

Gomes MI: ISI Committee on Women Statistics, Member of the Supporting Network Country Representatives, since 2017. Chair: Diana Stukel., URL: <https://www.isi-web.org/news-featured/131-isi-committee-on-women-in-statistics>

Gomes MI: Member of the Jury for the “Best Student Paper Award at EVA 2021”. Members of the Jury: Ana Ferreira, M. Ivette Gomes, Anja Janssen, Thomas Mikosch, Philippe Naveau, Gennady Samorodnitsky, June 2021.

Gomes MI: Evaluator of research projects, Dutch Research Council (NOW), NWO’s Open Competition Domain Science—M, 2021.

Gomes MI: Evaluator of research projects, South Africa’s National Research Foundation, July 2021.

Rufino MM: 2021. ICES member of Working Group on Ecosystem Assessment of Western European Shelf Seas – WGEAWESS; Member of the working Group on Spatial Fisheries Data – WGSFD; Member of the working Group on Ecosystem Effects of Fishing Activities - WGEACO.

Pereira CP: Registration at the Prospero, International Prospective register of systematic reviews, the systematic review "A systematic review and meta-analysis of oral and maxillofacial trauma", under the registration number ID: CRD42021251364. On 01/02/2021. **Pereira CP**, **Santos R**, Santos A, Gonçalves C, Augusto D, Rodrigues A, **Salvado F**. External consultant: **Brilhante MF**, URL: https://www.crd.york.ac.uk/prospero/display_record.php?RecordID=251364

Pereira CP: Affiliated Member from University of Lisbon at the NIST-OSAC with vote permission – group Odontology, sub group Age Estimation. NIST-OSAC is a Governmental Organization of Scientific Area Committees for Forensic Science's Public Workspace from USA.

Pereira CP: Interpol Member of DVI team at the Forensic Odontology Group from Portugal.

Pereira CP: Forensic Odontologist from the Portuguese DVI team (EML-DVI), INMLCF.

Cordeiro C, **Correia IJF**, **Correia R**, **Diamantino F**, **Gonçalves L**, **Marques CS**, **Marques TA**, **Martins R**, **Pereira S**, **Pinto V**, **Rufino MM**, **São João R**, **Silva C** and **Sousa L**: Participation in the TV Show segment "Dados Contados" (RTP-CEAUL) which aims to use numerical and statistical information to inform civil society on European issues., URL: https://www.rtp.pt/noticias/mundo/dados-contados_i1338599 and <http://ceaul.org/dados-contados-rtp-europa-minha/>

Ramos MR: Colaboration in Design and Data Analysis of the Survey on Universidade Aberta Bachelor Graduates' Work and Life Pathways as team member of the Observatory of Graduates' Work and Life Pathways of Universidade Aberta.

Figueiredo FO: Membro da direção da Rede Internacional de Matemática para a Indústria e Inovação PT-MATHS-IN.---- e SPE

Figueiredo FO: Auditora das Provas Nacionais de Matemática para o IAVE, em representação da SPE.

Figueiredo FO: Membro da Comissão Especializada de Educação (CEE) na Sociedade Portuguesa de Estatística.

Figueiredo FO: Member of the CFEnetwork, allocated to the following specialized team: BM - Bootstrap Methods.

Figueiredo FO: Member of the CMStatistics group, allocated to the following specialized team: GMS - General Methodological Statistics.

DATA REPOSITORY

(1)

Bashir S (2021). CEAUL COVID-19 User Friendly Portuguese Data Repository.

A repository with a user-friendly version of the Portuguese Daily Covid-19 data which is automatically updated daily. Example graphs and summaries statistics with R code are presented to help others get started.,

URL: https://github.com/CEAUL/Dados_COVID-19_PT

COMPUTATIONAL APPLICATIONS

(1)

Gonçalves MH and Cabral MS (2021). Reference Manual of Package “cold”: cold: Count

Longitudinal Data. An R package to perform regression analysis for longitudinal count data,

URL: <https://cran.r-project.org/web/packages/cold/cold.pdf>

Relatório de progresso lacrado a 01-03-2022 às 01:17

Relatório de Progresso

Nota Informativa:

Os relatórios de progresso e final da atividade científica devem ser elaborados em língua inglesa ou portuguesa e lacrados pelo Investigador Responsável (IR) no prazo de 30 dias úteis após a conclusão das atividades de cada ano, e da data final do financiamento (incluindo prorrogação, caso aplicável). Depois de lacrado, o relatório final será apreciado por painéis de avaliação, especificamente constituídos para o efeito.

Os relatórios da atividade científica devem descrever de forma detalhada a execução dos trabalhos do financiamento discriminando as publicações (quando aplicável) e outros resultados decorrentes da respetiva execução, de acordo com a programação prevista, bem como a análise dos desvios verificados face ao programado, a fim de permitir a avaliação dos trabalhos de investigação desenvolvidos.

Qualquer alteração à equipa de investigação que não esteja considerada no presente relatório deverá contactar os serviços da FCT.

Atenção: A sessão expira ao fim de 20 minutos de inatividade!

Formulário Relatório de Progresso - Componente Científica

1. Identificação do relatório

Relatório de Progresso nº : 2

Data de início : 01-01-2020 **Data de fim :** 31-12-2023

1.1 Identificação do projeto

Número do projeto : UIDP/00006/2020

Designação : Centro de Estatística e Aplicações

Investigador Responsável : Lisete Maria Ribeiro de Sousa

Instituição Proponente : Fciências.ID - Associação para a Investigação e Desenvolvimento de Ciências (Fciências.ID)

Entidade(s) copromotoras :

Data de início : 01-01-2020 **Data de fim :** 31-12-2023

Financiamento concedido : € 253.000,00

Financiamento FEDER concedido : € 0,00

Financiamento nacional concedido : € 253.000,00

Financiamento próprio : € 0,00

2. Trabalhos desenvolvidos e desvios à proposta aprovada

2.1. Sumário (em inglês)

10.2 Summary in English for general dissemination purposes

The Centre of Statistics and its Applications (CEAUL) is a research and development (R&D) unit connected to the Department of Statistics and Operational Research at the Faculty of Sciences of the University of Lisbon.

Established in 1975 by Tiago de Oliveira, CEAUL plays a central role in Portugal as the only R&D unit dedicated exclusively to fundamental research in the areas of Probability, Statistics and Stochastic Processes. Besides fundamental research, CEAUL is also dedicated to interdisciplinary activities in domains as diverse as Life, Health, Natural and Environmental Sciences and Financial Risk. CEAUL's policy has been to develop strong links with other areas and scientific domains. In this sense, it organizes seminars, courses, meetings and participates in the dissemination of Statistics.

In a very general sense, Statistics may be viewed as the study of the uncertainty arising from any phenomena and situations where chance mechanisms have a key role. Such study aims at describing the characteristics of interest in each practical situation and providing guidance for the making of decisions in contexts of unpredictability. Given the unavoidable randomness inherent to the vast majority of real world phenomena, statistical thinking today infuses so many scientific fields that it plays a crucial backdrop to the advance of the Science in general.

Statistics, as a scientific discipline, is relatively young with its foundations and main developments dating back to the XX century. However, with the advances of technology and consequent capacity for acquisition and data warehouse, the paradigm of Statistics has been changing in a fast speed. Statistical support is more and more required to give adequate answers to problems posed in a great variety of research activities. Consequently the strategy of this research unit is to (1) keep pace with the recent advances in the scientific domain of Statistics, to continue fundamental research in its areas of excellence, developing new methodologies and tools with the goal of communicating and using the most up-to-date knowledge, while collaborating with researchers from other scientific areas; (2) participate in national and international projects of an interdisciplinary nature; (3) participate actively in Society by giving support to Industry, Commerce, Services and Business; (4) develop advanced training activities through the involvement in PhD programs of High Education Institutions and the organization of advanced courses in emerging areas of Statistics; (5) integrate and initiate scientifically young researchers.

To carry out the objectives set and to implement the proposed strategy, CEAUL has 54 integrated researchers (11 non-PhD), coming from a range of Universities and Polytechnic Institutes from continental Portugal, Madeira and Azores, and 38 collaborators who are integrated members in other research units from the area of Mathematics, Environmental and Health Sciences.

10.3 Summary in English for evaluation

The Centre of Statistics and its Applications (CEAUL) is a research and development (R&D) unit connected to the Department of Statistics and Operational Research (DEIO) at the Faculty of Sciences of the University of Lisbon (FCUL). FCUL provides physical facilities, general computing infrastructures and communications, needed for the prosecution of its activities. The Association for Research and Development of CIÊNCIAS (FCiências.ID), the main host institution, supplies administrative and financial R&D management.

Established in 1975 by Tiago de Oliveira, CEAUL plays a central role in Portugal as the only R&D unit dedicated exclusively to fundamental research in the areas of Probability, Statistics and Stochastic Processes. Besides fundamental research, CEAUL is also dedicated to interdisciplinary activities in domains as diverse as Life, Health, Natural and Environmental Sciences and Financial Risk.

CEAUL is a member of CNM-Adhering Organization and Committee for Mathematics/International Mathematical Union and is an associated member of CIM-International Centre of Mathematics. It has close connections with the Portuguese National Institute of Statistics (INE), through the editorial support given by senior members of CEAUL to REVSTAT-Statistical Journal, an international journal in the area of Probability and Statistics, edited by INE and indexed by the ISI Web of Knowledge. At the international level CEAUL is connected to several prestigious universities through scientific collaboration and participation of its members in networks and research activities. CEAUL integrates BIOSTATNET, an interdisciplinary Biostatistics network, and PT-MATHS-IN, a member of the European Service Network of Mathematics for Industry and Innovation.

In a very general sense Statistics may be viewed as the study of the uncertainty present in phenomena and situations where chance mechanisms have a key action. Such study aims at describing the characteristics of interest in each practical situation and providing guidance for the making of decisions in contexts of unpredictability. Given the unavoidable randomness inherent to the vast majority of real world phenomena, statistical thinking today infuses so many scientific fields that it plays a crucial backdrop to the advance of the Science in general. Statistical theory and methodology cannot exist divorced from the needs of other sciences felt by the corresponding researchers and users.

Statistics, as a scientific discipline, is relatively young with its foundations and main developments dating back to the XX century. However, with the advances of technology and consequent capacity for data acquisition and storage, the paradigm of Statistics has been changing fast and statistical support is increasingly required to provide adequate solutions to problems posed in a great variety of research activities. Consequently the strategy of CEAUL is to keep up to speed with the recent advances in Statistics, to continue fundamental research in its areas of excellence, using the most up-to-date knowledge to develop and communicate new methodologies and tools, while collaborating with researchers from other scientific areas.

Therefore the strategic program of CEAUL for 2018-2022 has the following objectives:

1. Develop fundamental research on diverse domains of Statistics, aiming to extend the frontiers of statistical knowledge and provide statistical tools for experimental sciences, in close collaboration with researchers from other domains and scientific areas.
2. Participate in interdisciplinary national and international projects.

3. Participate actively in Society by giving support to Industry, Commerce, Services and Business in the form of consultancy or specialized courses.
4. Develop advanced training activities through the involvement in PhD programs of High Education Institutions and the organization of advanced courses in emerging areas of Statistics.
5. Encouraging young students into research, by involving them in the Centre's activities.

CEAUL organizes internally its members into two groups, according to the following lines of research: (1) Order Statistics, Extremes, Modelling and Simulation and (2) Statistical Models and Methods for Complex Systems.

Fundamental research will be carried out, in a diversified range of themes including but not restricted to, Statistics of Extremes, Computational Statistics and Simulation, Resampling Methodologies, Quality Control, Bayesian Statistics, Biostatistics, Environmental Statistics, Statistics in Genomics, Immunology and Epidemiology, Statistics in Medicine, Longitudinal Models and Survival Analysis, Time Series Analysis, Incomplete Data Analysis, Multivariate Analysis, Temporal and Spatial Statistics, Design of Experiments, History and Teaching of Statistics. Although the two groups work in different themes and areas of Statistics, they share similar interests in terms of areas of application. The main areas are Environmental and Ecological Statistics, Statistics in Life Sciences and Biostatistics, and Risk in Financial Extremes. The members working in these areas collaborate with researchers coming from other fields of science. This collaborative work is done either at an individual level, or through the participation in national and international projects. Knowledge transfer, in terms of consultancy work, participation in projects coming from the Industry, Services and Public Administration, is also a strategic objective of the areas of application.

To carry out the objectives set and to implement the proposed strategy, CEAUL counts with (i) 43 integrated PhD researchers, coming from a range of Universities and Polytechnic Institutes from North to South of Portugal, Madeira and Azores; (ii) 38 collaborators who are integrated members in other research units from the area of Mathematics, Environmental and Health Sciences, and 11 integrated non-PhD (seven of them are PhD students).

2.2 Resumo dos Trabalhos (8000 caracteres)

To prepare young students to do research and motivate them for an academic profile, we established a strategic plan for 2018-2022.

Two fellowships for MSc students in BioStatistics (Correia R and Pestana C) were given in middle 2020. Both students, together with two other students with similar scholarships, although financed by funds obtained via a CEAUL partnership with IPMA, worked mainly in the IPMA project Pequena Pesca. All these scholarships continued until the middle of 2021 and a 3rd student got a scholarship from IPMA funding in November. They developed mixed effects linear regression models capable of identifying fishing art from landing data; application of spatial point process models using the INLA approach available in R software to the spatial analysis of the number of rays detected by fishermen on the Portuguese coast; the study of sea bass landings time series in different fishing ports located along the Portuguese coast - in a first phase, Box & Jenkins decomposition models were used, which allowed to identify different behaviours between the time series of different ports - in a second phase, progress will be made with Bayesian models in order to estimate abundance and find limits that allow identifying "alarm" situations due to too small abundances. The contribution of the grantees in the intermediate report produced within the scope of the IPMA project was very important in fulfilling the scientific component of the task in which they collaborated.

Both students also participated in the planning of “Dados Contados” project, a weekly feature in partnership with RTP, broadcast on the “Europa Minha” program, researching some of the themes presented. The outputs achieved in the “Dados Contados” project, namely the segment that Correia R led and the support to all the other segments that she helped to manage, represent a clear added value in terms of dissemination and affirmation of CEAUL also with a strong strategic partner such as is RTP. Correia R, was also a keypoint in the organization and selection of the scientific thematic of the program.

During the 11 months of the research fellowship, student Pestana C actively contributed to “Pequena Pesca-IPMA” project, in which she developed mixed effects linear regression models able to define each fishing gear under study. Through this methodology it was possible to predict, at each new voyage, which fishing gear is most likely to have been used. It was also implemented a principal components approach that allowed us to take into account the composition of the species caught on each trip. In this task, she also had the support CEAUL member Geraudes C. Pestana C also finished her MSc Thesis during 2021, was invited to give a seminar for CEAUL and was a candidate for the prize ULisboa – Rede Saúde 2022?

There was one fellowship, got by a bachelor enrolled in a non-degree course, opening during 2021, shared between CEAUL (84%) and IBEB – Institute of Biophysics and Biomedical Engineering (16%).

A call for 3 PhD students grants opened in 2021 and there were only two candidates. Both candidates were accepted: Correia IJF, who started the PhD in September 2021 on “Combining Repulsion and Attraction at Different Scales in Spatial Point”, and Barletta F, a foreign candidate, who will start the PhD in February 2022.

A call for an international selection procedure for recruitment of a Science Manager, to be shared between CEAUL (88,57%) and IBEB – Institute of Biophysics and Biomedical Engineering (11,43%). Romero S was hired, however, after the experimental month, she decided no to continue.

Calls for 2 Bachelor students and 2 MSc students opened in December 2021 until January 2022. Selected students will start their work in February 2022.

2.2. Resumo dos trabalhos

Descrição sucinta das atividades desenvolvidas no período em apreço e dos resultados alcançados. De referir, em concreto, as tarefas que tiveram execução no período a que se reporta o relatório.

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spatial point process models using the INLA approach available in R software to the spatial analysis of the number of rays detected by fishermen on the Portuguese coast; the study of sea bass landings time series in different fishing ports located along the Portuguese coast - in a first phase, Box & Jenkins decomposition models were used, which allowed to identify different behaviours between the time series of different ports - in a second phase, progress will be made with Bayesian models in order to estimate abundance and find limits that allow identifying “alarm” situations due to too small abundances. The contribution of the grantees in the intermediate report produced within the scope of the IPMA project was very important in fulfilling the scientific component of the task in which they collaborated.

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Calls for 2 Bachelor students and 2 MSc students opened in December 2021 until January 2022. Selected students will start their work in February 2022.

2.3. Desvios dos trabalhos face à proposta aprovada

No caso de se terem registado desvios face ao programa de trabalho aprovado, incluindo a sua calendarização, solicita-se a identificação e descrição dos referidos desvios, bem como uma breve justificação para os mesmos.

No caso de se terem observado dificuldades na execução do plano de trabalhos aprovado, solicita-se a identificação e descrição das referidas dificuldades, bem como a forma de as ultrapassar / como foram ultrapassadas.

As expected, graduate and master scholarships were opened.

Again, due to the pandemic, there was no participation in infrastructures or international networks like BIOSTATNET or PT-MATHS-IN.

2.4. Equipa de Investigação

2.5. Orçamento

Descrição sucinta do orçamento, incluindo os principais itens de investimento aprovados e investimento por entidade beneficiária. No caso de se terem registado desvios face ao orçamento aprovado, solicita-se a identificação e descrição dos referidos desvios, bem como uma breve justificação para os mesmos.

CEAUL's expenses for 2021 were:

Human Resources: 14 752,00 Eur (budget: 46 051,75 Eur)

Missions: 0,00 Eur (budget: 2 000,00 Eur)

Consulting: 0,00 Eur (budget: 0,00 Eur)

Acquisition of goods and services: 0,00 Eur (budget: 1 303,50 Eur)

Other expenses: 0,00 Eur (budget: 1 250,00 Eur)

Dissemination, Promotion and Publicity: 0,00 Eur (budget: 10 750,00 Eur)

Equipment: 0,00 Eur (budget: 1 894,75 Eur)

TOTAL (2021): 14 752,00 Eur (budget: 63 250,00 Eur)

There is a positive balance of 48 498,00 Euros concerning the total amount for 2021.

This is due to the restrictions caused by the COVID-19 pandemic, as referred to in the previous sections.

3. Indicadores

Indicar os valores do projeto até ao fim do período a que corresponde o presente relatório. Devem apenas ser indicadas concretizações efetivas. Não incluir publicações submetidas para publicação, nem teses que ainda não tenham sido discutidas.

3.1. Quadro de indicadores do projeto

Indicadores de realização física	Propostos	Realizado anterior	Realizados	Total realizado	% d
A - Publicações					
Livros	0	0	0	0	
Artigos em revistas internacionais	0	0	0	0	
Artigos em revistas nacionais	0	0	0	0	
B - Comunicações					
Comunicações em encontros científicos internacionais	0	0	1	1	
Comunicações em encontros científicos nacionais	0	0	4	4	
C - Relatórios	0	1	1	2	
D - Organização de seminários e conferências	0	0	0	0	
E - Formação avançada					
Teses de Doutorado	0	0	0	0	
Teses de Mestrado	0	0	1	1	
Outras	0	0	0	0	
F - Modelos	0	0	0	0	
G - Aplicações computacionais	0	0	0	0	
H - Instalações piloto	0	0	0	0	
I - Protótipos laboratoriais	0	0	0	0	
J - Patentes	0	0	0	0	
K - Publicações científicas em domínios científicos enquadráveis na RIS3	0	0	0	0	
L - Patentes EPO	0	0	0	0	
M - Outros					
	0	0	0	0	
	0	0	0	0	
	0	0	0	0	

N - Nº de contratos de trabalho de acordo com o previsto na alínea ii, do nº 1, da cláusula 2ª do Contrato Programa

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4. Publicações e outras ações públicas de disseminação dos resultados do projeto

4.1. Publicações (opcional)

Ano	Publicações
	<p>Correia IJF (speaker), Marques TA and Cuyler C (2021). "Estimating caribou abundance in West Greenland using distance sampling methods". XXV Congresso da Sociedade Portuguesa de Estatística, Évora, Portugal. 13-16 October. URL: http://www.spe2021.uevora.pt/en/inicio-english/</p> <p>Martins R (speaker), Sousa L, Correia IJF, Farias I and Figueiredo I (2021). "Modelling the population dynamics of the Blackspot Seabream with a bayesian state-space model", XXV SPE congress, Évora, 13-16 November. URL: http://www.spe2021.uevora.pt/en/inicio-english/</p> <p>Pestana C (2021). Statistical methods for the study of extracellular vesicles content and their potential as biomarkers of multiple myeloma aggressiveness. Master thesis in Biostatistics, FCUL, June 2021. URL: https://repositorio.ul.pt/</p> <p>Pestana C (speaker), Sousa L and João C (2021). "Study of biomarkers in Multiple Myeloma: A Statistical Approach for Longitudinal Assessment of Extracellular Vesicles and its Prognostic Value", 5.ª Conferência Anual da redeSAÚDE - Uma Agenda de Investigação em Saúde para 2030, Universidade de Lisboa, 30th November. https://www.ulisboa.pt/evento/5a-conferencia-anual-da-redesaude-uma-agenda-de-investigacao-em-saude-para-2030</p> <p>Pestana C (2021). "Study Of Biomarkers In Multiple Myeloma: A Statistical Approach For Longitudinal Assessment Of Extracellular Vesicles And Its Prognostic Value". Seminar by Invitation - Master in Biostatistics. 25th November. http://ceaul.org/study-of-biomarkers-in-multiple-myeloma-a-statistical-approach-for-longitudinal-assessment-of-extracellular-vesicles-and-its-prognostic-value/</p> <p>Pinto V, Correia IJF, Marques CS (presenters), Marques TA and Sousa L (2021). "The Role of Statistics in Science and Society: CEAUL's Contributions", Ciências Research Day 2021, Faculdade de Ciências - Universidade de Lisboa, 27th October. https://ciencias.ulisboa.pt/pt/evento/ciencias-research-day-2021#1</p>

4.2. Websites gerados no contexto do projeto (opcional)

Enumerar as URL/endereços dos sites web criados no âmbito do projeto ou com informação sobre o mesmo, separados por vírgulas

URL's
<p>https://ceaul.org/dados-contados-rtp-europa-minha - Webpage with information concerning weekly episodes of "Dados Contados" in the RTP's tv show "Europa Minha".</p> <p>http://ceaul.org/se-investigador-por-tres-semanas-edicao-2021 - Webpage with information concerning the program "Be a Researcher for 3 Weeks".</p>

4.3. Outras ações públicas (opcional)

Identificação de outras ações públicas de disseminação de resultados do projeto, como sejam conferências, seminários, cursos, filmes, vídeos, programas em rádio e/ou televisão, newsletters, etc.

Descrição

5. Ficheiros anexos (opcional)

Neste item poderão incluir-se, se necessário, ficheiros em formato PDF, que tenham sido referidos ao longo do presente relatório, como, por exemplo, gráficos, esquemas e/ou fotografias.

O conjunto dos ficheiros (em número máximo de cinco) ou o arquivo a submeter não poderão exceder 10MB.

Ficheiros

