# Thiago de Paula Oliveira CV

Statistical computing:
R, Shiny, Maple, SageMath

▶ Computational programs: LaTex, Markdown, Office, Gimp, Inkscape, GitHub

Operational systems:
Linux, Mac, Windows

▶ Languages: Portuguese (native), English

▶ Research web pages: ORCID, Plubons, Personal Webpage



## **Solution** General Information

Work Address: The University of Edinburgh, Easter Bush Campus, Midlothian EH25 9RG, Scotland

**▶** Tel: +353 83 3814459

▶ E-mail Address: thiago.oliveira@ed.ac.uk

▶ Date of Birth 01 February 1985, Tatuí, Brazil

Nationality: Brazilian

Marital Status: Married

#### >>> Summary

I hold a PhD in Statistics from the University of São Paulo, Brazil, and have at least eight years of experience in experimental statistics, statistical modelling, and concordance analysis. As a PhD candidate, I was a visiting Scholar at the National University of Ireland in 2016, working with statistical modelling for agricultural data. Besides, I was a lecturer in the Department of Exact Sciences at ESALQ/University of São Paulo, Piracicaba, São Paulo, Brazil from 2017 to 2019.

I worked as a Researcher Biostatistician from 2019-2020 at Insight Centre for Data Analytics in partnership with Orreco, School of Mathematics, Statistics, and Applied Mathematics, and NUI Galway in the development of statistical methods applied to athlete performance, and predictive models for COVID-19. I developed statistical methods in longitudinal concordance correlation, multilevel model (hierarchical model), generalized linear mixed-effects model, state-space models, experimental design, longitudinal data.

As an enthusiast of the usage of dashboard apps to create an interactive data visualization, I believe that interactive applications are an easier way to create visual representations of large scale data sets, allowing the user explore the complex reality of the database, or even handle multiple sets of data in a single visualization.

Recently, I was awarded a Marie Skłodowska-Curie Individual Fellowship (TRAIN@Ed) to work at The Roslin Institute - The University of Edinburgh, where I currently work on the development of statistical models applied to quantitative genetics and genomics of plant breeding in partnership with Limagrain.

#### **Education**

2014 - 2018 PhD in Statistics (4 years)

University of São Paulo – ESALQ/USP

	<ul> <li>Title: Estimating the longitudinal concordance correlation throcomponents of polynomial mixed-effects regression model</li> <li>Advisor: Dr. Silvio Sandoval Zocchi and Prof. John Hinde</li> <li>Department of Exact Sciences</li> </ul>	ough fixed effects and variance
2016 (3 months)	Visiting scholar – internship	NUIGalway
	➤ Supervisor: Prof. John Hinde	
	▶ School of Mathematics, Statistics and Applied Mathematics	
	▶ Development of new methodology in Concordance Analysis	
2012 - 2014 (2 years)	MSc in Statistics	University of São Paulo – ESALQ/USP
	<ul> <li>Title: Mixed-effects models applied to hue peel color of papaya an scanner and colorimeter over time</li> <li>Advisor: Dr. Silvio Sandoval Zocchi</li> </ul>	cv. Sunrise Solo measured by
	▶ Department of Exact Sciences	
2007 - 2012 (5 years)	BSc in Agricultural Engineering	University of São Paulo – ESALQ/USP
	<ul> <li>Title: Calibration of scanner methodology to evaluate 'Golden'</li> <li>Advisor: Dr. Silvio Sandoval Zocchi</li> </ul>	papaya peel color.

# **Professional experience**

▶ Department of Exact Sciences

2020-Actual	Researcher Fellow	University of Edinburgh
	<ul> <li>PI: Dr. Gregor Gorjanc</li> <li>Quantitative genetics and genomics of plant breeding</li> <li>The Roslin Institute</li> </ul>	
2020 (3 months)	Postdoc in Biostatistics	NUIGalway
	<ul> <li>Supervisor: Prof. Dr. Carl Scarrott</li> <li>Early Detection of Secondary Waves of Covid-19 Infections</li> <li>School of Mathematics, Statistics &amp; Applied Maths; and Insight Co</li> </ul>	entre for Data Analytics
2020 (3 months)	Postdoc in Biostatistics	NUIGalway
	<ul> <li>Supervisor: Prof. Dr. John Newell</li> <li>Aspire Academy research collaboration project</li> <li>School of Mathematics, Statistics &amp; Applied Maths; and Insight Company</li> </ul>	entre for Data Analytics

2019 (8 months)	Postdoc in Biostatistics	NUIGalway
	<ul> <li>Supervisor: Prof. Dr. John Newell</li> <li>Statistical modeling for optimizing athlete performance</li> <li>School of Mathematics, Statistics &amp; Applied Maths; Charalytics</li> </ul>	Orreco; and Insight Centre for Data
2018-2019 (10 months)	Postdoc in Statistics	University of São Paulo – ESALQ/USP
	<ul> <li>Advisor: Prof. Dr. Clarice Garcia Borges Demétrio</li> <li>Title: Estimation of the longitudinal concordance correlate</li> <li>Department of Exact Sciences</li> </ul>	tion function: The 1cc package

2017 – 2019 Assistant Professor at University of São Paulo – ESALQ/USP (18 months)

>>>	Volunteer	experience

2016	Class tutor in Calculus at University of São Paulo – ESALQ/USP (5 months)
2015	Class tutor in Statistics at University of São Paulo – ESALQ/USP (5 months)

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Research	experience

Development of cattle and plant breeding programmes
Generalized linear mixed-effects models (Classical and Bayesian)
Concordance analysis (Agreement, precision, and accuracy measures)
Bootstrap methods for confidence intervals (Non-parametric and parametric)
Experimental Designs (Complete and Incomplete Blocks, Latin Square, Full factorial, Fractional Factorial, Split-Plot, Central Composite, Nested designs)
Longitudinal data and Observational Studies
State space models (ARMA, ARIMA and Random Walk models)
Digital Image Analysis, Agricultural Production, Post-Harvest Studies
Development of R packages, Dashboard Design, and Webpages (Github)

## **>>>** Publications

	Table 1	: Publications	summary	
	Article	R Package	Abstract	Preprint
Number	7	2	11	1

## Papers in Peer-Reviewed Journals

Oliveira, T.P.; Moral, R.A. Global Short-Term Forecasting of Covid-19 Cases, Scientific Reports, 2021. DOI: https://doi.org/10.1038/s41598-021-87230-x

Article Oliveira, T.P.; Moral, R. A.; Zocchi, S. S.; Demetrio, C. G. B; Hinde, J. lcc: an R package to estimate the concordance correlation, Pearson correlation, and accuracy over time. **PeerJ**.

Accepted for publication in August of 2020. DOI: 10.7717/peerj.9850

Article Kleina, H. T.; Kudlawiec, K.; Esteves, M. B.; Daibó, M.; Oliveira, T.P.; Maluta, N.; Lopes, J.

S.; Mio, L. M. Association of leaf morphology, vector settling and feeding behavior with resistence of plum genotypes to leaf scald disease. **Entomologia Experimentalis et Applicata**. Accepted

for publication in August of 2020. DOI: 10.1007/s10658-020-02104-8

Article Popin, G. V.; Santos, A. K. B.; Oliveira, T.P.; Camargo, P. B.; Cerri, C. E. P.; Siqueira-Neto;

M. Sugarcane straw management for bioenergy: effects of global warming on greenhouse gas emissions and soil carbon storage. **Mitigation and Adaptation Strategies for Global Change**,

2019. Link: https://doi.org/10.1007/s11027-019-09880-7

Article Esteves, M. B.; Kleina, H. T.; Sales, T. M.; Oliveira, T.P.; Lara, I. A. R.; Almeida, R. P. P.;

Coletta-Filho, H. D.; Lopes, J. R. S. Transmission efficiency of *Xylella fastidiosa* subsp. *pauca* sequence types by sharpshooter vectors after *in vitro* acquisition. **The American Phytopathological Society**, v. 109, no.2, 2019. Link: https://doi.org/10.1094/PHYT0-07-18-0254-FI

Article Oliveira, T.P.; Hinde, J.; Zocchi, S. S. Longitudinal Concordance Correlation Function Based on Variance Components: An Application in Fruit Color Analysis. Journal of Agricultural,

**Biological, and Environmental Statistics**, v. 23, p. 233-254, 2018. Link: https://doi.org/

10.1007/s13253-018-0321-1

Article Oliveira, T.P.; Zocchi, S. S.; Jacomino, A. P. Measuring color hue in 'Sunrise Solo' papaya

using a flatbed scanner. Revista Brasileira de Fruticultura, v. 39, p. e-911, 2017. Link:

http://dx.doi.org/10.1590/0100-29452017911

#### **Software**

R package Gorjanc, Gregor; Obsteter, Jana; Oliveira, T.P. Partition/Decomposition of Breeding Values

by Paths of Information, R package version 0.8.2, 2021. See also https://github.com/

AlphaGenes/AlphaPart/tree/version-0.8.2

R package Oliveira, T.P.; Moral, R. A.; Hinde, J.; Zocchi, S. S.; Demetrio, C. G. B. Icc: Longitudinal

Concordance Correlation, R package version 1.0.2, 2018. See also https://github.com/

Prof-ThiagoOliveira/lcc

## **Preprint**

Preprint Oliveira, T.P.; Buinvels, G; Pedlar, C.; Newell, J. Modelling menstrual cycle length in athletes

 $\textbf{usingstate-space models}, \textbf{arXiv:} \textbf{2006.00111v1}, 2020. \ \ \mathsf{DOI:} \ 10.21203/\mathsf{rs.} 3.\mathsf{rs-} 122553/\mathsf{v1}. \ \ \mathsf{Link:} \ \ \mathsf{$ 

https://www.researchsquare.com/article/rs-122553/v1

#### **Proceedings**

Extended abstract Oliveira, T.P.; Moral, R.A.; Hinde, J.; Zocchi, S.S.; Demétrio, C.G.B. The longitudinal concor-

dance correlation. In: 34<sup>th</sup> International Workshop on Statistical Modelling, 2019, Guimarães.

Proceedings of the 34<sup>th</sup> International Workshop on Statistical Modelling, 2019. v. 2.

Abstract Zocchi, S.S.; Oliveira, T.P. Propagação de Penicillium em Iaranja (Citrus cinensis): estimulando

o aprendizado de cálculo. 1º Oficina para o desenvolvimento docente de 2017, "Novas abordagens

de ensino - compartilhando experiências na ESALQ", 2017

Abstract Oliveira, T.P.; Hinde, J.; Zocchi, S.S. Longitudinal Concordance correlation function based on

variance components: an application in fruit color analysis. NUIG Statistics MiniSymposium,

2016.

Oliveira, T.P.; Moral, R.A.; Hinde, J.; Demétrio, C.G.B.; Zocchi, S.S.; Zanardo, A.B.R.; Delalibera Jr., I. Generalized linear mixed models applied to overdispersed proportion data in a fungal

occurrence study. In:  $30^{th}$  International Workshop on Statistical Modelling, 2015, Linz. Proceedings of the  $30^{th}$  International Workshop on Statistical Modelling, 2015. v. 2. p. 203-206.

Abstract

Oliveira, T.P.; Moral, R.A.; Hinde, J.; Demétrio, C.G.B.; Zocchi, S.S. Generalized linear mixed models: an application in fungal occurrence data. In: 60° Reunião Anual da Região Brasileira da Sociedade Internacional de Biometria e 16° Simpósio de Estatística Aplicada à Experimentação Agronômica, 2015, Presidente Prudente. Reunião Anual da Região Brasileira da Sociedade Internacional de Biometria, n. 60, Presidente Prudente, 2015. 172 p., 2015.

Abstract

Oliveira, T.P.; Zocchi, S.S.; Ferreira, I. E.P. Mixed models for analysis of hue peel colour of papaya (Carica papaya L.) cv. Sunrise Solo, measured along time by means of a scanner and a colorimeter. In: XXVII International Biometric Conference, 2014, Florence, Italy. Proceedings of XXVII International Biometric Conference, 2014. v. 1.

Abstract

Oliveira, T.P.; Zocchi, S.S. Mixed models for analysis of hue peel color of papaya (Carica papaya L.) cv. 'Sunrise Solo', measured along time by means of a scanner and a colorimeter. I Workshop on Experimental Statistics e IV Encontro dos Alunos do PPG em Agronomia (Estatística e experimentação agrnômica), 2014.

Extended abstract

Oliveira, T.P.; Zocchi, S. S. . Análise de dados circulares com aplicação em tonalidade da cor de casca de mamão 'Sunrise Solo'. In: **58**° Reunião Anual da Região Brasileira da Sociedade Internacional de Biometria e **15**° Simpósio de Estatística Aplicada à Esperimentação Agronômica, 2013, Campina Grande. Anais..., 2013. p. 202.

Extended abstract

Oliveira, T.P.; Zocchi, S. S. Análise de dados circulares com aplicação em tonalidade da cor de casca de mamão 'Sunrise Solo'. In: **58ª Reunião Anual da Região Brasileira da Sociedade Internacional de Biometria e 15º Simpósio de Estatística Aplicada à Esperimentação Agronômica**, 2013, Campina Grande. Anais..., 2013. p. 202.

Abstract

**Oliveira, T.P.**; Zocchi, S. S. Modelos lineares de efeitos mistos: um estudo de caso. Encontro dos Alunos do Programa de Pós-Graduação em Estatística e e Experimentação Agronômica, 2013

Abstract

Camara, G. M. S.; Oliveira, T.P.; Navarro, B. L.; Brigliadori, L. D. Crescimento e produtividade de soja em três arranjos espaciais. In: VI Congresso Brasileiro de Soja, 2012, Cuiabá-MT. Anais. Londrina-PR: Embrapa Soja, 2012. v. 1. p. 151-153.

#### **Thesis**

Thesis

**Oliveira, T.P.** Estimating the longitudinal concordance correlation through fixed effects and variance components of polynomial mixed-effects regression model. University of São Paulo, 2018

Thesis

**Oliveira, T.P.** Mixed-effects models applied to hue peel color of papaya cv. Sunrise Solo measured by an scanner and colorimeter over time. University of São Paulo, 2014

333	Reviewer

2021	Journal of Open Source Software (JOSS)	Link
	▶ Number of papers reviewed: 1	
2020	PeerJ - Life and Environment	Link
	▶ Number of papers reviewed: 2	
2019	Biocontrol Science and Technology, Taylor & Francis	Link

▶ Number of papers reviewed: 1

#### Masters and PhD Examiners

2019

Nascimento, C.O.; Lara, I.A.R. Analysis of color peel of the papaya cv. Sunrise Solo through of the mixed linear regression model. Thesis (Master's Degree in Statistics) – University of São Paulo, Piracicaba, Brazil.

B 30	-	Α	wa	rc	c

2020	Runner-up Poster on Young-ISA Twitter Poster Conference promoted by the Irish Statistical Association. Poster Title: Global short-term forecasting of Covid-19 cases. Authors: <b>Oliveira</b> , <b>T.P.</b> ; Moral, R.A., July, 2020
2020	Marie Skłodowska-Curie Actions Fellowship under the project "Quantitative genetics and genomics of plant breeding"
2010	Honorable Mention at the $18^{th}$ USP International Symposium of Undergraduate Research,

## **Extracurricular courses**

2021	Equality & Diversity Essentials (2h)
2021	Challenging Unconscious Bias (1h)
2021	Genome-wide prediction of complex traits in humans, plants and animals (30h)
2020	Programming Fundamentals, Coursera, Duke University, USA. (32h)
2019	Survival Analysis in R. DataCamp, USA. (4h)
2019	Building Web Applications in R with Shiny: Case Studies Course. DataCamp, USA. (4h)
2019	Building Dashboards with shinydashboard. DataCamp, USA. (4h)
2019	Building Web Applications in R with Shiny. DataCamp, USA. (4h)
2019	Introduction to Python. DataCamp, USA. (4h)
2019	Statistical Modeling in R (Part 1). DataCamp, USA. (4h)
2019	Intermediate R. DataCamp, USA. (6h)
2019	Introduction to R. DataCamp, USA. (4h)
2018	Machine Learning Toolbox. DataCamp, USA. (4h)
2016	Longitudinal and Incomplete Data – USP (30h)
2015	Short curse on Regression Models – Coursera, MOOC, USA (36h)
2015	Short curse on Dimensionality Reduction – USP
2015	Additive Generalized Models with P-splines – RBras
2015	Exploring interactive graphical interfaces in R – RBras
2015	Exploring the Flexibility of Linear Mixed Models – RBras

2015	Special Topics in Multivariate Analysis – RBras
2014	Generalized Additive Models with P-splines – USP
2013	Short curse on Statistics: Making Sense of Data – Coursera, MOOC, USA
2013	Short curse on Mathematical Biostatistics Boot Camp – Coursera, MOOC, USA
2013	Introduction to Categorical Data Analysis – USP
2013	Structural Equations Models – USP
2013	Some Important Topics of Asymptotic Theory – USP

## **Event participation**

2021	Software Licensing Workshop
2020	$71^{st}$ Annual Meeting of European Federation of Animal Science ( EAAP)
2020	Why R? 2020 conference organized remotely
2019	The Inaugural Young-ISA Meeting – Maynooth, Co. Kildare, Ireland
2019	$34^{\it th}$ meeting of the International Workshop on Statistical Modelling (IWSM) – Guimarães, Portugal.
2016	NUIG Statistics MiniSymposium. Longitudinal Concordance correlation function based on variance components: an application in fruit color analysis.
2015	$30^{th}$ meeting of the International Workshop on Statistical Modelling (IWSM) – Linz, Vienna.
2015	60 <sup>th</sup> meeting of the Brazilian Region International Biometric Society (RBras) e 16° "Simpósio de Estatística Aplicada à Experimentação Agronômica" – Presidente Prudente, SP, Brazil
2015	How to Write for and Get Published in Scientific Journals – Piracicaba, SP, Brazil
2014	II Workshop on Longitudinal and Incomplete Data – Piracicaba, SP, Brazil
2014	I Workshop on Experimental Statistics e IV "Encontro dos Alunos do PPG em Agronomia" – Piracicaba, SP, Brazil
2013	$58^{th}$ meeting of the Brazilian Region International Biometric Society e $15^{\circ}$ "Simpósio de Estatística Aplicada à Esperimentação Agronômica" – São Paulo, SP, Brazil
2012	57 <sup>th</sup> meeting of the Brazilian Region International Biometric Society – Piracicaba, SP, Brazil
2011	$19^{\it th}$ meeting of the USP International Symposium of Undergraduate Research – Piracicaba, SP, Brazil
2010	$18^{th}$ meeting of the USP International Symposium of Undergraduate Research – Piracicaba, SP, Brazil

# >>> Teaching Experience

2018	LCE0602 Experimental Statistics, University of São Paulo, Piracicaba, Brazil, <i>Agricultural Engineering programme</i> , August-December.
2018	LCE0220 Calculus II, University of São Paulo, Piracicaba, Brazil, <i>Agricultural Engineering programme</i> , August - December.
2018	LCE0120 Calculus I, University of São Paulo, Piracicaba, Brazil, <i>Agricultural Engineering programme</i> , August - December.
2018	LCE0120 Calculus I, University of São Paulo, Piracicaba, Brazil, <i>Agricultural Engineering programme</i> , February - June.
2018	LCE0220 Calculus II, University of São Paulo, Piracicaba, Brazil, <i>Agricultural Engineering programme</i> , February - June.
2018	LCE0130 Differential and Integral Calculus, University of São Paulo, Piracicaba, Brazil, <i>Food Science programme</i> , February - June.
2017	LCE0602 Experimental Statistics, University of São Paulo, Piracicaba, Brazil, <i>Agricultural Engineering programme</i> , August - December.
2017	LCE0120 Calculus II, University of São Paulo, Piracicaba, Brazil, <i>Agricultural Engineering programme</i> , August - December.
	Taught Short Courses
2018	I Workshop on Introduction to Experimental Design, University of São Paulo, Piracicaba, Brazil
	Teaching Assistance
2016	LCE0120 - Calculus I, University of São Paulo, Piracicaba, Brazil, taught by Dr. Silvio Sandoval Zocchi for undergraduate students of the Agricultural Engineering programme, 120h

2016	LCE0120 - Calculus I, University of São Paulo, Piracicaba, Brazil, taught by Dr. Silvio Sandoval Zocchi for undergraduate students of the Agricultural Engineering programme, 120h
2015	LLCE0220 Calculus II, University of São Paulo, Piracicaba, Brazil, taught by Prof. Idemauro Antonio Rodrigues de Lara for undergraduate students of the Agricultural Engineering programme, August-December, 120h
2015	LLCE0211 Statistics, University of São Paulo, Piracicaba, Brazil, taught by Dr. Silvio Sandoval Zocchi for undergraduate students of the Agricultural Engineering programme, February-June, 120h
2013	LLCE0220 Calculus II, University of São Paulo, Piracicaba, Brazil, taught by Prof. Idemauro Antonio Rodrigues de Lara for undergraduate students of the Agricultural Engineering programme, August-December, 120h
2013	LLCE0166 Calculus and Mathematics Applied to Food Sciences, University of São Paulo, Piracicaba, Brazil, taught by Dr. Silvio Sandoval Zocchi for undergraduate students of the Food Sciences programme, February-June, 120h

## **Lectured workshops and invited talks**

2020	Global Short-Term Forecasting of Covid-19 Cases. Webinar Series of the Young-ISA, Ireland
2020	Global Short-Term Forecasting of Covid-19 Cases. Workshop on Applied Statistics: Prediction models for COVID-19, Artificial Intelligence and Postgraduate Research during pandemic time. University of São Paulo, Brazil
2020	Estimating NBA athlete performance using hierarchical models, National University of Ireland Galway, Ireland, 21 April 2020
2019	Modelling athletes menstrual cycle length using state space models. NUI Galway, Ireland

2019	$\begin{tabular}{ll} Modelling menstrual cycle length using state space models. The Inaugural Young-ISA Meeting \\ - Maynooth, Ireland \end{tabular}$
2016	Longitudinal concondance correlation function based on variance components: an application in fruit color – NUI Galway

>>> Profess	ional Websites and Apps	
Blog	https://prof-thiagooliveira.netlify.app	Link
Github	https://github.com/Prof-ThiagoOliveira	Link
ІссАрр	https://prof-thiagooliveira.shinyapps.io/lccApp	Link
>>> Fellows	hip	
2020	TRAIN@Ed Fellow	TRAIN@Ed
	<ul> <li>Marie Skłodowska Curie Actions Experienced Researcher schemes / Principal Gregor Gorjanc</li> <li>Quantifying the Drives of Genetic Change in Plant Breeding</li> <li>Project Funding: £70,000</li> </ul>	l Investigator:
2020-2020	Science Foundation Ireland	SFI
	<ul> <li>Postdoctoral Researcher in Biostatistics / Coordinator: Prof. Carl Scarrott</li> <li>Project: Early Detection of Secondary Waves of Covid-19 Infections</li> <li>Project Funding: €32,618</li> </ul>	
2020-2020	Science Foundation Ireland	SFI
	<ul> <li>Postdoctoral Researcher in Biostatistics / Coordinator: Prof. John Newell</li> <li>Project: Aspire Academy research collaboration project</li> <li>Project Funding: €20,000</li> </ul>	
2019-2019	Science Foundation Ireland	SFI
	<ul> <li>Postdoctoral Researcher in Biostatistics / Coordinator: Prof. John Newell</li> <li>Project: Development of statistical model with application in athlete performant</li> <li>Project Funding: €12,417,097</li> </ul>	ce
2018-2019	Coordination of Improvement of Higher Education Personnel	CAPES
	<ul> <li>Postdoctoral Researcher / Coordinator: Prof<sup>a</sup>. Clarice G. B. Demétrio</li> <li>Project: Estimation of Longitudinal Concordance Correlation Function: The Ico</li> <li>Grants awarded: approximately £7,000</li> </ul>	c package
2014-2017	National Council for Scientific and Technological Development	CNPq
	▶ PhD / Advisor: Prof. Silvio Sandoval Zocchi	

- ▶ PhD / Advisor: Prof. Silvio Sandoval Zocchi
- ▶ Project: Estimating the longitudinal concordance correlation through fixed effects and variance components of polynomial mixed-effects regression model
- **▶** Grants awarded: approximately £26,543

2012-2013	Coordination of Improvement of Higher Education Personnel	CAPES
	<ul> <li>Master / Advisor: Prof. Silvio Sandoval Zocchi</li> <li>Project: Mixed effects models applied to hue peel color of papaya (Ca"Sunrise Solo" measured over time using an scanner and a colorimeter</li> <li>Grants awarded: approximately £15,082</li> </ul>	arica papaya L.) cv.
2011	São Paulo Research Foundation	FAPESP
	<ul> <li>Scientific initiation / Advisor: Prof. Silvio Sandoval Zocchi</li> <li>Process number: 2010/16955-1</li> <li>Grants awarded: approximately £3,000</li> </ul>	

## >>> Media and Impact

	Blog posts
Post	Moral, R.A.; Oliveira, T.P.; Parnell, A. How hard is it to predict COVID-19 cases? 2020. URL: https://www.hamilton.ie/covid19/posts/2020-10-01-how-hard-to-predict-cases/
Post	<b>Oliveira, T.P.</b> Expressions in C++. 2020. URL: https://prof-thiagooliveira.netlify.app/post/expressions/
Post	<b>Oliveira, T.P.</b> Signed and Unsigned Binary Numbers. 2020. URL: https://prof-thiagooliveira.netlify.app/post/signed-and-unsigned-binary-numbers/
Post	<b>Oliveira, T.P.</b> The seven steps of a programer. 2020. URL: https://prof-thiagooliveira.netlify.app/post/the-seven-steps-of-a-programer/

## **References**

Dr. Gregor	Gorjanc	University of Edinburgh
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Prof. John	Hinde	NUIGalway
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Dr. Rafael	de Andrade Moral	Maynooth University
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