

# Nicolás J. Hernández Banadik

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## CONTACT INFORMATION

Calle Madrid 126, Office 10.0.03      *Voice:* (0034) 91-624-9674  
Department of Statistics      *Mobile:* (0034) 685-69-86-79  
Universidad Carlos III de Madrid      *E-mail:* nihernan@est-econ.uc3m.es  
Getafe, Madrid 28903 Spain      *website:* <https://nicolashernandez.netlify.com>

## RESEARCH INTERESTS

Functional data analysis, Kernel learning methods, Data Mining, Machine Learning and Statistical Computing with applications in Health, Demography, Technology and Economics.

## EDUCATION

**Universidad Carlos III de Madrid**, Getafe, Madrid Spain

Ph.D. (cand.) in Statistics, (expected graduation date: July, 2019)

- Thesis: "Kernel learning methods for functional data with applications to prediction, classification and outlier detection"
- Advisor: Alberto Muñoz García.

Master of Science in Business and Quantitative Methods, July 2015

- Dissertation Topic: "Deep Bootstrap Predictions for Univariate, Multivariate and Functional Time Series."
- Advisor: Juan Romo Urroz

**Center for Economic Research (CINVE)**, Montevideo, Uruguay

Advanced Training Program in Quantitative Methods, June, 2012

**Universidad ORT Uruguay**, Montevideo, Uruguay

B.S. Economics, May, 2011 (GPA: 8.8/Top 5%)

**SHORT-TERM STAYS** **Laboratory ERIC** - University Lumire Lyon 2 % University Claude Bernard Lyon 1, Lyon, France.

Research project, Sep-Dec 2018.

- Topic: Development of new methodologies for prediction of functional time series as well as the construction of prediction bands.
- Sponsor: Ph.D. Julien Jacques.
- Participants Ph.D. Julien Jacques and Ph.D. Jairo Cugliari

## REFEREED JOURNAL PUBLICATIONS

Martos, G., **Hernández, N.**, Muñoz, A. & Moguerza, J. M. (2018). "Entropy Measures for Stochastic Processes with Applications in Functional Anomaly Detection". *Entropy*, 20(1), 33.

Muñoz, A., **Hernández, N.**, Moguerza, J. M. & Martos, G. (2018). "Combining entropy measures for anomaly detection". *Entropy*, 20(9), 698.

## PAPERS UNDER REVIEW

"Kernel depth measures for functional data with applications in functional outlier detection". With G. Martos (Universidad Torcuato Di Tella and CONICET) and A. Muñoz (Universidad Carlos III de Madrid). *Submitted to Technometrics - ASA*.

## PAPERS IN PROGRESS

"A novel approach to domain selection in functional data: Boosting classification performance". With G. Martos (Universidad Torcuato Di Tella and CONICET).

"Minimum entropy forecasts for functional time series". With J. Jacques and J. Cugliari (University Lumire Lyon 2 - Laboratory ERIC).

REFEREED  
CONFERENCE  
PAPERS  
  
CONFERENCE  
PRESENTATIONS  
AND POSTERS

**N. Hernández, A. Muñoz.** (2016). “Kernel Depth Measures for Functional Data with Application to Outlier Detection”. Lecture Notes in Computer Science, vol 9887, pp 235-242.

N. Hernández, G. Martos & A. Muñoz. “A novel approach to domain selection in functional”. CRoNoS Summer Course on Functional Data Analysis and Software (FDA 2018) , Iasi, Romania, August, 2018.

N. Hernández, G. Martos & A. Muñoz. “A novel approach to domain selection in functional”. 1st CRoNoS International Workshop on Multivariate Data Analysis and Software (MDA 2018) , Limassol, Cyprus, April 3-5, 2018.

N. Hernández, G. Martos & A. Muñoz. “Domain Selection For functional Data Classification”. 11th International Conference on Computational and Financial Econometrics (CFE 2017) , London, UK, December 16-18, 2017.

N. Hernández, A. Muñoz. “Kernel Depth Functions for Functional Data”. Internal Seminar, Department of Statistics, Universidad Carlos III de Madrid, Madrid, Spain, June, 2017.

N. Hernández, A. Muñoz. “Kernel Depth Function for Functional Data” (Poster). Statlearn’17 - 8th Statlearn workshop a conference of the French Society of Statistics (SFdS), Lyon, France, April 5-8, 2017.

N. Hernández, A. Muñoz. “Kernel Depth Functions for Functional Data with Application to Outlier Detection”. 25th International Conference on Artificial Neural Networks, Barcelona, Spain, September 6-9, 2016.

“Deep Bootstrap Predictions for Univariate, Multivariate and Functional Time Series”. Internal Seminar, Department of Statistics, Universidad Carlos III de Madrid, Madrid, Spain, July 14, 2015.

ACADEMIC  
EXPERIENCE

**Universidad Carlos III de Madrid, Madrid Spain**

*Statistics. Engineering Program for International Students.* **2016 - present**  
UC3M International School  
Lecturer

*Quantitative Methods in Management. MBA.* **2015 - present**  
Lecturer

*Prediction Techniques. Bs in Statistics; International Studies.* **2015 - Present**  
Lecturer

*Time Series Econometrics. Bs. in Statistics; Finance and Accounting.* **2014 - present**  
Lecturer

*Statistics. Bachelor in Business Administration.* **2015**  
Assistant Professor

**Universidad ORT Uruguay, Montevideo, Uruguay**

*Mathematics. Bachelor in Business Administration.* **2012**  
Lecturer

	<i>Principles of Economics. Bachelor in Economics</i>	<b>2011 - 2013</b>
	Assistant Professor	
	<i>Mathematical Economics. Bachelor in Economics</i>	<b>2009 - 2013</b>
	Assistant Professor	
PROFESSIONAL EXPERIENCE	<b>Department of Economics, CPA-Ferrere Consultants</b> , Montevideo, Uruguay. <i>Senior Research Analyst</i>	<b>Jan, 2010 - August, 2013</b>
	<b>Uruguay Chamber of Industry</b> , Montevideo, Uruguay <i>Research Assistant</i>	<b>Aug, 2009 - Dec, 2009</b>
	<b>National Agency for Research and Innovation (ANII)</b> , Montevideo, Uruguay <i>Research Assistant</i>	<b>Sep, 2008 - May, 2009</b>
HONORS AND AWARDS	Doctoral stay grant (PPI). Universidad Carlos III de Madrid, 2018. Scholarship to attend the <i>CRoNoS Summer Course on Functional Data Analysis and Software</i> (Romania, 2018). Scholarship to attend the <i>CRoNoS Spring Course on Multivariate Data Analysis and Software</i> (Cyprus, 2018). Scholarship for Doctoral studies (PIF). Universidad Carlos III de Madrid, 2015 - present. Scholarship for postgraduate studies. Universidad Carlos III de Madrid, 2013-2015.	
SERVICES	Reviewer of the Neurocomputing journal. Reviewer of the proceedings at the conference: European Symposium on Artificial Neural Networks, Computational Intelligence and Machine Learning.	
LANGUAGES	<i>Spanish</i> <i>English</i>	<b>Mothertongue</b> <b>Advanced (Working proficiency)</b>

COMPUTER SKILLS	<ul style="list-style-type: none"> <li>• R, Eviews, SPSS (Advanced).</li> <li>• Matlab, Stata (Intermediate).</li> <li>• Applications: <math>\text{\LaTeX}</math>, Microsoft Office</li> <li>• Operating Systems: Linux, Windows.</li> </ul>
OTHER SKILLS	Ability to work under pressure, adaptability, creative thinking, self-motivated.
ACADEMIC REFERENCES	<p>Alberto Muñoz García. Associate Professor. Department of Statistics. Universidad Carlos III de Madrid (Ph.D. Advisor)  <i>E-mail:</i> alberto.munoz@uc3m.es</p> <p>Julien Jacques. Full Professor. Université de Lyon - Lumière. Head of the Data Mining &amp; Decision team of ERIC laboratory.  <i>E-mail:</i> : julien.jacques@univ-lyon2.fr</p> <p>Gabriel Martos Venturini . Research Associate. Department of Mathematics and Statistics, Universidad Torcuato Di Tella and CONICET.  <i>E-mail:</i> gabriel.martos@ic.fcen.uba.ar</p>
PROFESSIONAL REFERENCES	<p>Gabriel Oddone. Partner. CPA-Ferrere Consultants. Uruguay.  <i>E-mail:</i> goddone@cpaferrere.com</p> <p>Alfonso Capurro. Senior Manager. CPA-Ferrere Consultants. Uruguay.  <i>E-mail:</i> acapurro@cpaferrere.com</p>