

# Mariano Gastón Beiró Villani

*Curriculum Vitae*

## PERSONAL INFORMATION

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<i>Family name</i>	Beiró Villani
<i>Given name</i>	Mariano Gastón
<i>Date of birth</i>	22nd March 1984
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## CURRENT POSITIONS

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National Scientific and Technical Research Council  
(CONICET), Argentina

06/2017-curr.

*Research Associate (permanent position).*

School of Engineering, University of Buenos Aires, Argentina

07/2017-curr.

*Lecturer.*

Currently in charge of the assignment “Database Management Systems” (*undergraduate*).

## ACADEMIC DEGREES

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Doctor in Engineering, University of Buenos Aires

2009-2013

*University of Buenos Aires*

Doctoral dissertation: “Combinatorial models of Complex Systems: Methods and Algorithms”.  
Grade: 10/10, *summa cum laude*. Advisor: Dr. José Ignacio Alvarez-Hamelin.

Engineer in Informatics

2002-2008

*University of Buenos Aires, School of Engineering*

Grade: 9.30/10, (*with honors*).

Undergraduate dissertation: “Visualization of Complex Systems”. Grade: 10/10. Advisor: Dr. José Ignacio Alvarez-Hamelin.

## PUBLICATIONS

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### PUBLICATIONS IN JOURNALS WITH PEER REVIEW

#### Predicting demographics, moral foundations, and human values from digital behaviours

K. Kalimeri, M. G. Beiró, M. Delfino, R. Raleigh C. Cattuto

*Computers in Human Behavior, Volume 92, 428–445.*

<https://doi.org/10.1016/j.chb.2018.11.024>.

2019

#### Analysis of the Bitcoin blockchain: socio-economic factors behind the adoption

F. Parino, M. G. Beiró, L. Gauvin

*EPJ Data Science, 7:38.*

<https://doi.org/10.1140/epjds/s13688-018-0170-8>.

2018

#### Shopping mall attraction and social mixing at a city scale

M. G. Beiró, L. Bravo, D. Caro, C. Cattuto, L. Ferres, E. Graells-Garrido

*EPJ Data Science, 7:28.*

<http://dx.doi.org/10.1140/epjds/s13688-018-0157-5>.

2018

#### Predicting human mobility through the assimilation of social media traces into mobility models

M. G. Beiró, A. Panisson, M. Tizzoni, C. Cattuto

*EPJ Data Science, 5:30.*

<http://dx.doi.org/10.1140/epjds/s13688-016-0092-2>.

2016

#### Router-level community structure of the Internet Autonomous Systems

M. G. Beiró, S. P. Grynberg, J. I. Alvarez-Hamelin

*EPJ Data Science, 4:12.*

<http://dx.doi.org/10.1140/epjds/s13688-015-0048-y>.

2015

#### Deciphering the global organization of clustering in real complex networks

P. Colomer de Simón, M. A. Serrano, M. G. Beiró, J. I. Alvarez-Hamelin, M. Boguñá

*Scientific Reports, Volume 3, Article Number 2517.*

<http://dx.doi.org/10.1038/srep02517>.

2013

#### Obtaining communities with a fitness growth process

M. G. Beiró, J. R. Busch, S. P. Grynberg, J. I. Alvarez-Hamelin

*Physica A, Volume 392, Issue 9, 2278-2293*

<http://dx.doi.org/10.1016/j.physa.2013.01.031>.

2013

#### Understanding edge-connectivity in the Internet through core-decomposition

J. I. Alvarez-Hamelin, M. G. Beiró, J. R. Busch

*Internet Mathematics, Volume 7, Issue 1, 45–66.*

<http://dx.doi.org/10.1080/15427951.2011.560786>.

2011

#### A low complexity visualisation tool that helps to perform complex systems analysis

M. G. Beiró, J. I. Alvarez-Hamelin, J. R. Busch

*New Journal of Physics, Volume 10, Number 12, 125003*

<http://dx.doi.org/10.1088/1367-2630/10/12/125003>.

2008

## PRESENTATIONS IN CONFERENCES WITH PEER REVIEW

### Human Values and Attitudes towards Vaccination in Social Media

K. Kalimeri, M. G. Beiró, A. Urbinati, A. Bonanomi, A. Rosina, C. Cattuto  
*Data Science for Social Good Workshop (WDSGG2019), Companion Proceedings of the 2019 World Wide Web Conference (WWW'19 Companion), San Francisco, USA.* **2019**

### Topic-based study of a Twitter political network

T. Mussi Reyero, J. I. Alvarez-Hamelin, M. G. Beiró  
*International School and Conference on Network Science (NetSciX'19), Santiago, Chile.* **2019**

### Analysis of the Bitcoin blockchain: Socio-economic factors behind the adoption

F. Parino, M. G. Beiró and L. Gauvin  
*Conference on Complex Systems (CCS'18), Tesalónica, Grecia.* **2018**

### Removing Time Dependencies in Semantic Analysis in the New York Times Corpus

C. Selmo, M. G. Beiró, J. F. Martínez, J. I. Alvarez-Hamelin  
*Understanding Opinion and Language Dynamics Using Massive Data (OpLaDyn Satellite), Conference on Complex Systems (CCS'18), Tesalónica, Grecia.* **2018**

### Automatic Prediction of Youth Unemployment via Social Media Data

K. Kalimeri, M. G. Beiró, A. Bonanomi, A. Rosina and C. Cattuto  
*Complex Systems for the Most Vulnerable (CS4V18 Satellite), Conference on Complex Systems (CCS'18), Tesalónica, Grecia.* **2018**

### Characterization of the adopters of the Bitcoin

F. Parino, M. G. Beiró, L. Gauvin  
*BIFI International Conference 2018 (BIFI18), Zaragoza, España.* **2018**

### The Role of Shopping Malls in Social Inequality

M. G. Beiró, C. Cattuto, L. Bravo, D. Caro, L. Ferres and E. Graells-Garrido  
*1st European Symposium on Societal Challenges in Computational Social Sciences Londres, Reino Unido.* **2017**

### Predicting Demographics, Moral Foundations, and Human Values from Digital Behaviors

K. Kalimeri, M. G. Beiró, R. Raleigh and C. Cattuto  
*1st European Symposium on Societal Challenges in Computational Social Sciences Londres, Reino Unido.* **2017**

### Characterization of the adopters of the Bitcoin

F. Parino, M. G. Beiró, L. Gauvin  
*Conference on Complex Systems (CCS'17), Cancún, México.* **2017**

### What do our digital records reveal about us? Automatic Prediction of Demographic and Psychometric Attributes from Digital Data

K. Kalimeri, M. G. Beiró, R. Raleigh, C. Cattuto  
*International Conference on Computational Social Science (IC2S2 2017) Colonia, Alemania.* **2017**

### **Traditional versus Facebook-based Surveys: Evaluation of Biases in Self-reported Psychometric Information**

K. Kalimeri, M. G. Beiró, A. Bonanomi, A. Rosina, C. Cattuto  
*Social Media and Demographic Research Workshop (SMDR17)*  
Montreal, Canadá.

2017

### **Improving human mobility prediction with geo-tagged pictures**

M. G. Beiró, A. Panisson, M. Tizzoni, C. Cattuto  
*NetMob 2017, Milán, Italia.*

2017

### **Inference of human mobility networks through the assimilation of social media traces into mobility models**

M. G. Beiró, A. Panisson, C. Cattuto  
*Conference on Complex Systems (CCS'15), Tempe, Arizona (US).*

2015

### **Deciphering the global organization of clustering in real complex networks**

P. Colomer de Simón, M. A. Serrano, M. G. Beiró, J. I. Alvarez-Hamelin, M. Boguñá  
*European Conference on Complex Systems (ECCS'13), Barcelona, España.*

2013

### **Visualizing communities in dynamic networks**

M. G. Beiró, J. R. Busch, J. I. Alvarez-Hamelin  
*LAWDN – Latin-American Workshop on Dynamic Networks, Buenos Aires, Argentina, inria-00531761.*

2010

### **SnailVis: a paradigm to visualize complex networks**

M. G. Beiró, J. R. Busch, J. I. Alvarez-Hamelin  
*39º Jornadas Argentinas de Informática e Investigación Operativa, Argentine Symposium on Technology (JAIIO-AST '10), Mar del Plata, Argentina, p. 1682-1693.*

2010

## **PREVIOUS POSITIONS**

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### **University of Buenos Aires**

2009-2017

*Lecturer and Teaching Assistant*

Lecturer at *Distributed Operating Systems* (graduate) at School of Engineering (2011-2012), Teaching Assistant at *Computer Organization II* (undergrad.) at School of Exact and Natural Sciences (2017) and *Introduction to Distributed Systems* (undergrad.) at School of Engineering (2009-2014 and 2017).

### **ISI Foundation, Turin, Italy**

2014-2017

*Postdoctoral researcher*

Researcher in the *Computational Social Science* group. Research lines: Machine Learning for human mobility models, semantic exploration of large cities, prediction of demographic and psychometric attributes.

### **Institut rhônalpin des Systèmes Complexes, Lyon, France**

2011

*Research internship*

Research internship of 4 months at IXXI (*Institut rhônalpin des Systèmes Complexes*), ENS-Lyon (France) working on the MOSAR project on the analysis of data from face-to-face contacts in hospitals.

*C++ Developer*

Stage at the *Buenos Aires Adaptive System for Traffic Control (SACTBA)* from Buenos Aires City Government, as a C++ developer for the communication protocols between server and traffic light controllers and the visual interface for the monitoring station.

## **SOFTWARE PRODUCTION**

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### **LaNet-vi 3.0.1**

Visualization software developed in collaboration with Indiana University. LaNet-vi visualizes large-scale networks based on the  $k$ -core and  $k$ -dense decomposition, capturing modular and hierarchical network structures. License: Academic Free License (AFL). URL: <http://sourceforge.net/projects/lanet-vi/>

*With: J. I. Alvarez-Hamelin, L. Dall'Asta, A. Barrat, A. Vespignani.*

### **DeltaCom**

Multi-resolution algorithm for community finding, based on modularity optimization. License: Academic Free License. URL: <http://sourceforge.net/projects/deltacom/>

*With: J. I. Alvarez-Hamelin, J. R. Busch*

### **CommUGP**

Low-complexity algorithm for detection of local communities. License: New BSD License. URL: <https://code.google.com/p/commugp/>

*With: J. I. Alvarez-Hamelin, J. R. Busch.*

### **I am here**

Real-time visualization of the user position in the Autonomous Systems network of the Internet. Based on the LaNet-vi visualization software. License: Creative Commons. URL: [http://lanet-vi.fi.uba.ar/i\\_am\\_here\\_/buscar.py](http://lanet-vi.fi.uba.ar/i_am_here_/buscar.py)

*With: J. I. Alvarez-Hamelin, D. Anunziata, A. Barrat, L. Dall'Asta, A. Vespignani.*

### **SnailVis**

Open tool for visualization of community structure. URL: <http://cnet.fi.uba.ar/mariano.beiro/snailvis.tar.gz>

*With: J. I. Alvarez-Hamelin, J. R. Busch.*

### **Data Communications Scilab Toolbox**

Educational toolbox for the analysis of digital communications. Supports encodings such as AMI, HDB3, Manchester, QAM and PSK, and offers time-domain and frequency-domain visualizations, noise simulation and BER (Bit Error Rate) analysis. License: Academic Free License (AFL). URL: <http://sourceforge.net/projects/data-comm/>

*With: J. I. Alvarez-Hamelin and students from School of Engineering (UBA).*

## **OTHER KNOWLEDGE**

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### **LANGUAGES**

<i>Spanish</i>	Mother tongue.
<i>English</i>	Full professional competence.
<i>Italian</i>	Full professional competence.
<i>French</i>	Basic competence. A2 certificate from ENS Lyon, France.