

# Stephanie Alvarez Fernandez

Curriculum Vitae

## EDUCATION

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### PhD. Network and Information Technology

2016-2018

*Open University of Catalonia, Barcelona, Spain*

Research topic: Telecommunication and Data Communication Networks.

Thesis: A Metaheuristic and Simheuristic Approach for the  $p$ -hub Median Problem from a Telecommunication Perspective.

Keywords: Optimization, Metaheuristics, Simheuristics, Telecommunication Systems,  $p$ -Median Problem.

### MSc. Electrical Engineering

2014-2015

*University of Brasilia, Brasilia, Brazil*

Research topic: Telecommunication and Data Communication Networks.

Dissertation: An Immune-Inspired, Dependence Based Approach To Blind Inversion of Wiener Systems.

Keywords: Wiener Systems, Signal Processing, Information Theoretic Learning, Correntropy

### Technological Especialization in Project Management

2012

*Servicio Nacional de Aprendizaje (SENA), Barranquilla, Colombia*

Final Paper: Design of Methodology and Manual of Functions for the Network of Engineers in Gas Natural Fenosa Telecomunicaciones S.A.

Keywords: Network Operation Center, Fiber Optic Network, Network Management Protocols

### BSc. Electronic and Telecommunications Engineering

2006-2011

*Universidad Autónoma del Caribe, Barranquilla, Colombia*

Undergraduate Thesis: Design and Construction of a Multivariable Mixing Plant with an Interface to a High Demand System.

Keywords: Automatic Control Process, Sensors, High Complexity Systems

## WORK EXPERIENCE

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### Post-doctoral Researcher

2019-present

*Department of Electrical Engineering, University of Brasilia*

Researcher at the research group Digital Signal Processing (GPDS). Next to advise graduate and undergraduate students, my main focus is related to research about the application of metaheuristics and its integration with simulation techniques for solving communication network design problems. Therefore I am applying natural-inspired methodologies for solving hub location problems.

### Visiting Student Research

2017

*Department of Electrical Engineering, University of Bologna*

Researcher in the research group of Prof. Daniele Tarchi. During the internship period I studied the application of Operations Research methodologies to the solution of resource allocation algorithms in mobile cloud computing scenarios applied to smart cities, with an attention to the extension towards the fog computing approach.

### Fellow PhD

2016-2017

*Internet Interdisciplinary Institute, Open University of Catalonia*

Researcher at the research group Distributed Parallel and Collaborative Systems - Internet Computing and Systems Optimization (DPSC-ISCO). Development of metaheuristic solution methodologies for combinatorial optimization problems (e.g. hub location problems) and their combination with different simulation techniques to tackle problem settings under input uncertainty.

### Researcher Engineer

2013-2015

*research group LATITUDE, University of Brasília*

Development of a new SGS.AFD.SIGEPE people management system in the Ministry of Justice. I applied the software skills I have acquired during my Bachelor's Degree. Specifically, my team was in charge of using results of applied research and transfer of knowledge and technology, in order to obtain quality in the development of the SIGEPE, as well as verification of robustness and correction of modes and processes.

### IT Engineer

2012

*Gas Natural Fenosa Telecomunicaciones Colombia S.A.*

Engineer at the Network Operations Center (NOC). The main activities I developed were monitoring the performance and capacity of the fiber optic network and tools, looked for hardware, software and environmental alerts or malfunctions and worked to triage or troubleshoot the problem.

### Commercial Engineer

2011

*ACCESAR LTDA., Barranquilla*

Identify and conduct innovation projects with the client portfolio. Contracted to work with industrial and commercial clients who were seeking help and advice about business and IT problems.

## SKILLS

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<i>Languages</i>	Spanish (mother tongue) Portuguese (fluent) English (fluent)
<i>Software</i>	MATLAB, L <sup>A</sup> T <sub>E</sub> X, JAVA, C, R VISUAL BASIC

## SCHOLARSHIPS AND ORGANIZATION OF EVENTS

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<i>Scholarship</i>	Programa Erasmus+ 2014-2020 D' Educació, formació, joventut e esports de la Unió Europea.
<i>Organization</i>	12th Metaheuristics International Conference, Barcelona, Spain
<i>Organization</i>	1er Congreso y 4to Encuentro en Electrónica y en Telecomunicaciones, Barranquilla, Colombia

## **PUBLICATIONS**

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### *Peer-reviewed Journal Articles*

2019 **Fernandez, Stephanie Alvarez**; Ferone, Daniele; Juan, Angel A.; Tarchi, Daniele. A Simheuristic for the Stochastic Single-Allocation  $p$ -Hub Median Problem with Service Quality Thresholds. *Elsevier Computers & Industrial Engineering*, under review.

2018 **Fernandez, Stephanie Alvarez**; Juan, Angel A.; De Armas, Jesica; Silva, Daniel G.; Terren, Daniel R. Metaheuristics in Telecommunication Systems: Network Design, Routing, and Allocation Problems. *IEEE Systems Journal*, DOI: 10.1109/JSYST.2017.2788053.

2018 **Fernandez, Stephanie Alvarez**; Ferone, Daniele; Juan, Angel A.; Silva, Daniel G.; De Armas, Jesica. A 2-stage Biased-Randomized Iterated Local Search for the Uncapacitated Single Allocation  $p$ -Hub Median Problem. *Transactions on Emerging Telecommunications Technologies*, DOI: 10.1002/ett.3418.

### *Peer-reviewed Conference Articles*

2018 Nobrega, Gabriel L.; Tasso, Vinicius J.; Souza, Allan G.; **Fernandez, Stephanie Alvarez**; Silva, Daniel G.. Artificial Immune Systems for Solving the Uncapacitated Single-Allocation  $p$ -Hub Median Problem. In: *Proceedings of the XV Encontro Nacional de Inteligência Artificial e Computacional (ENIAC) 2018*, São Paulo.

2018 **Fernandez, Stephanie Alvarez**; Attux, R.; Fantinato, D. G.; Montalvão, J.; Silva, D. G.. Immune- Inspired Optimization with Autocorentropy Function for Blind Inversion of Wiener Systems. In: *Proceedings of the IEEE Congress on Evolutionary Computation, 2018*, Rio de Janeiro.

2017 **Fernandez, Stephanie Alvarez**; Terren, D.; De Armas, J.; Juan, A. A.; Silva, D.. A Simheuristic Algorithm for the Uncapacitated and Stochastic Hub Location Problem. In: *Proceedings of the 2017 Metaheuristics International Conference (MIC'17)*, Barcelona.

2016 **Fernandez, Stephanie Alvarez**; Attux, R.; Fantinato, D. G.; Montalvao, J.; Silva, D. G.. An Immune-Inspired, Dependence-Based Approach to Blind Inversion of Wiener Systems. In: *Proceedings of the European Symposium on Artificial Neural Networks, Computational Intelligence and Machine Learning, 2016*, Brugge.