

**Nubia Velasco**

Associate Professor

Supply Chain Management & Technology Area

Joined the School in 2015

Academic Background

2006	Ph.D. Automatique et Informatique Appliquées - Université de Nantes - Nantes, France.
2000	M.Sc. Industrial Engineering - Universidad de los Andes – Bogotá, Colombia.
1996	B.Sc. Chemical Engineering - Universidad Nacional de Colombia- Bogotá, Colombia.

Teaching Experience

**COURSES TAUGHT IN RECENT YEARS**

**Graduate**

- Operation Management (Executive MBA. Torcuato Di Tella University)
- Stock Management Systems (École des Mines de Nantes)
- Warehousing and material handling (Universidad Tecnológica de Bolívar)
- Logistics (UASM)
- Distribution and Transport (UASM)
- Advanced Operations Management Systems (UASM)
- Topics on Operational Research (UASM)
- Applications in Operational Research (UASM)
- Strategic Sourcing (UASM)

**Undergraduate**

- Hospital Logistics (Universidad Tecnológica de Bolívar)
- Decision - making tools I (UASM)
- Decision - making tools II (UASM)

Academic Activities

- 2017 – to date Director. Doctoral Program in Management and Master of Science in Management. UASM, Bogotá, Colombia.
- 2015 – to date Associate professor, School of Management, Universidad de los Andes. Bogotá, Colombia.
- 2011 - 2015 Associate professor, Industrial Engineering Department, Universidad de los Andes. Bogotá, Colombia.
- 2006 - 2011 Assistant professor, Industrial Engineering Department, Universidad de los Andes. Bogotá, Colombia.
- 2002 - 2006 Teaching Assistant, École des Mines de Nantes. Nantes, France.
- 2000 - 2002 Instructor, Industrial Engineering Department, Universidad de los Andes. Bogotá, Colombia.

1998 - 2000      Research Assistant, Industrial Engineering Department, Universidad de los Andes. Bogotá, Colombia.

#### Other Professional Experience

2010 - 2012      Coordinator of ABET accreditation process for Industrial Engineering Department.  
2002              Coordinator (Interm). Master of Science in Industrial Engineering.

#### Publications

##### ARTICLES IN ACADEMIC JOURNALS

- 2019              Velasco N, Castaño F, Carvajal J. (2019) Content-Based Conference Scheduling Optimization. IEEE Latin America Transactions (ISSN 1548-0992). Forthcoming
- 2019              Bula, G., Murat Afsar, H., Gonzalez A., Prodhon, C., Velasco N. "Bi-objective vehicle routing problem for hazardous materials transportation". Journal of Cleaner Production. Volume 206. Pages 976-986.
- 2018              Gutiérrez, A., Dieulle, L., Labadie N., Velasco, N. A multi-population algorithm to solve the VRP with stochastic service and travel times. Computers & Industrial Engineering. Vol 125. Pp 144 – 156.
- 2018              Gutiérrez, A., Dieulle, L., Labadie N., Velasco, N. "A Hybrid metaheuristic algorithm for the vehicle routing problem with stochastic demands". Computers & Operations Research. Vol 99. Pp 135 - 147
- 2018              Castaño, F., Rossi, A., Sevaux M., Velasco N. An exact approach to extend network lifetime in a general class of wireless sensor networks. Information Sciences. Vol 433 – 434. Pp 274 – 291.
- 2017              Velasco N, Rebolledo C, Moreno J. (2017) Logistics practices in healthcare organizations in Bogotá. ACADEMIA, Forthcoming.
- 2017              Villamil M, Barrera O, Velasco N, Bernal O, Fajardo E, Carlos Javier Urango M, Buitrago L. (2017) Strategies for the quality assessment of the health care service providers in the treatment of Gastric Cancer in Colombia. BMC Health Services Research (ISSN 1472-6963) 17 (1), pp. 654 - 669.
- 2016              Fontecha J, Cano N, Velasco N, Muñoz F. (2016) Optimal sectioning of hydrocarbon transport pipeline by volume minimization, environmental and social vulnerability assessment. Journal of Loss Prevention in the Process Industries (ISSN 0950-4230) 44 (N/A), pp. 681 - 689.
- 2016              Velasco N, Castaño F, Bourreau E, Rossi A, Castaño F. (2016) Partial target coverage to extend the lifetime in wireless multi-role sensor networks . NETWORKS - An International Journal (ISSN 1097-0037) 68 (1), pp. 34 - 53.
- 2016              Velasco N, Bula G, Prodhon C, Afsar M, González F. (2016) Variable neighborhood search to solve the vehicle routing problem for hazardous materials transportation . Journal of Hazardous Materials (ISSN 0304-3894) 324 (NA), pp. 472 - 480.
- 2015              Guerrero W, Prodhon C, Velasco N, Amaya C. (2015) A relax-and-price heuristic for the inventory - location - routing problem. International Transactions in Operational Research (ISSN 0969-6016) 22 (1), pp. 129 - 148.
- 2015              Castaño F, Bourreau E, Velasco N, Rossi A, Sevaux M. (2015) Exact approaches for lifetime maximization in connectivity constrained wireless multi-role sensor networks. European Journal of Operational Research (ISSN 0377-2217) 241 (1), pp. 28 - 38.
- 2014              N. Velasco, Amaya C, Prodhon C, Guerrero W. (2014) A relax-and-price heuristic for the inventory – location - routing problem. International Transactions in Operational Research.

Article first published online: April 24, 2014. DOI: 10.1111/itor.12091.

- 2013 Mejía J, Rojas C, Avellaneda L, Urbina D, Arias B, Velasco N, Cortés M, Vives M, González A. (2013) *cysA*, *cysP*, and *rpoS* mutations increase the power density in *P. aeruginosa* microbial fuel cells: Performing enhancement based on metabolic flux analysis. *Advances in Bioscience and Biotechnology* (ISSN 2156-8456) 4 (1), pp. 103 - 111. 2012.
- 2013 Castano F, Velasco N, Sevaux M, Rossi A. (2013) On the use of multiple sinks to extend the lifetime in connected wireless sensor networks. *Electronic Notes in Discrete Mathematics* (ISSN 1571-0653) 41 (5), pp.77-84. 2013
- 2013 Guerrero W, Velasco N, Prodhon C, Amaya C. (2013) On the Generalized Elementary Shortest Path Problem A heuristic approach. *Electronic Notes in Discrete Mathematics* (ISSN 1571-0653) 41 (1), pp. 503 - 510. 2013.
- 2013 Castaño F, Velasco N, Rossi A, Sevaux M. (2013). A column generation approach to extend lifetime in wireless sensor networks with coverage and connectivity constraints. *Computers and Operations Research* (ISSN 0305-0548). Article first published online: November 2013.
- 2013 Villegas J, Prins C, Prodhon C, Medaglia A, Velasco N. (2013) A matheuristic for the truck and trailer routing problem. *European Journal of Operational Research* (ISSN 0377-2217) 230 (2), pp. 231 - 244. 2013.
- 2013 Guerrero W, Velasco N, Amaya C, Prodhon C. (2013) Hybrid heuristic for the inventory location-routing problem with deterministic demand. *International Journal of Production Economics* (ISSN 0925-5273) 146 (1), pp. 359 - 370. 2013.
- 2012 O-D. Barrera, N. Velasco, C-A. Amaya A network-based approach to the multi-activity combined timetabling and crew scheduling problem: Workforce scheduling for public health policy implementation. *Computers & Industrial Engineering*. December 2012, Pages 802 – 812. Available on-line 11-05-2012. <http://dx.doi.org/10.1016/j.cie.2012.05.002>.
- 2012 N. Velasco, P. Dejax, C. Guéret, C. Prins. A Non-Dominated Sorting Genetic Algorithm for a bi-objective Pick-up and Delivery Problem. *Engineering Optimization. Special Issue on "Multiobjective Metaheuristics for Multidisciplinary Engineering Applications"*. Vol. 44 Issue 3, pp. 305 - 325. <http://dx.doi.org/10.1080/0305215X.2011.639368>.
- 2011 Mendoza, J. E., Castanier, B., Guéret, C., Medaglia, A. L., Velasco, N. Constructive heuristics for the multi-compartment vehicle routing problem with stochastic demands. *Transportation Science*. Vol. 45. August 2011, pp. 346 – 363.
- 2011 J.G.Villegas, C. Prins, C. Prodhon, A. L. Medaglia, N. Velasco. A GRASP with evolutionary path relinking for the truck and trailer routing problem". *Computers & Operations Research*. Vol. 38 Issue 9, p.p 1319 - 1334, September 2011.
- 2011 Arjona P., Amaya C. A., Velasco N. Reducción de la congestión del departamento de urgencias: mejora del proceso de hospitalización. *Via Salud*. No 55, April 2011.
- 2010 Amaya C.A., Beaulieu M., Landry S., Rebolledo C. and Velasco N. Potenciando la contribución de la logística hospitalaria: tres casos, tres trayectorias. *Management International*. Vol. 14, No. 4. Summer 2010.
- 2010 J.G. Villegas, C. Prins, C. Prodhon, A. L. Medaglia, N. Velasco. GRASP/VND and multi-start evolutionary local search for the single truck and trailer routing problem with satellite depots" *Engineering Applications of Artificial Intelligence*. Vol. 23, Issue 5, August 2010, Pp. 780 - 794 DOI:10.1016/j.engappai.2010.01.013.
- 2010 J. E. Mendoza, B. Castanier, C. Guéret, A. L. Medaglia, N. Velasco. "A memetic algorithm for the multi-compartment vehicle routing problem with stochastic demands". *Computers & Operations Research*, Vol. 37, Issue 11, November 2010, Pages 1886 - 1898. DOI: 10.1016/j.cor.2009.06.15.
- 2009 Mendoza, J., Medaglia, A., Velasco, N. "An evolutionary-based decision support system for vehicle routing: the case of a public utility". *Decision Support Systems*, Vol. 46, Issue 3,

## CHAPTERS IN BOOKS

- 2014 C-A. Amaya, N. Velasco, S. Aguirre. Planning and Scheduling an Emergency Room Workforce Using Linear Programming. In: Linear Programming: Theory, Algorithms and Applications. Editors: Yaromir Truma 2014 - 2nd Quarter.
- 2012 Velasco, N., Barrera, D., Amaya, C. A. Logística Hospitalaria: Qué es y Cómo ha evolucionado. Libro Blanco en Salud, Universidad de los Andes. In: La salud en Colombia: Logros, Retos y Recomendaciones. Eds.: O. Bernal and C. Gutiérrez. Ediciones Uniandes 2012.
- 2012 Guaracao, P., Barrera, D., Velasco, N. and Amaya, C.A. Optimizing Resources Involved in the Reception of an Emergency Call Center. In: Production Systems and Supply Chain Management in Emerging Countries: Best Practices. Springer. Editors: N. Velasco, G. Mejía. 2012.
- 2012 Guerrero, W., Velasco, N. Amaya, C.A. Multi-Objective Optimization for Interfacility Patient Transfer. In: Production Systems and Supply Chain Management in Emerging Countries: Best Practices. Springer. Editors: N. Velasco, G. Mejía. 2012.
- 2010 Amaya C.A., Velasco N., Guerrero W. Logística Hospitalaria: Aplicaciones recientes en la Universidad de los Andes. In: Sistemas avanzados de gestión. Organizaciones inteligentes. Universidad de San Buenaventura, Seccional Cali. Editors: Montoya-Serrano A., Mejía-Giraldo A., Bravo-Castillo M.2010.
- 2009 Lozano, L., Medaglia A. L., Velasco, N. Generation of Pop-Rock Chord Sequences Using Genetic Algorithms and Variable Neighborhood Search. In: Lecture Notes in Computer Science, Applications of Evolutionary Computing. Volume 5484/2009. DOI: 10.1007/978-3-642-01129-0.
- 2008 Velasco, N.M., Castagliola, P., Dejax, P., Gueret, C and Prins, C. "A memetic algorithm for a pick-up and delivery problem by helicopter". In: Bio-inspired algorithms for the Vehicle Routing Problem, Studies in Computational Intelligence. Berlin: Springer, 2008.

## CONFERENCE PRESENTATIONS

- 2019 Gutierrez A, Castaño F, Amaya C, Velasco N. (2019) The Technician Routing and Scheduling Problem in Congested Urban Areas. POMS 30th Annual Conference Production and Operations Management Society Washington, USA.
- 2018 Torres A. F., Labadi N., Montoya J. R. , Velasco N., A Cluster-First Route-Second approach for the Shared Customer Collaboration Vehicle Routing Problem. ROEADEF 2018, Angers - France.
- 2018 Castaño F., Guitierrez A. F., Amaya C. A. Uso de Datos Abiertos para Pronosticar y Modelar los Tiempos de Desplazamiento en la Ciudad de Bogotá. XI Simposio Internacional de Ingeniería Industrial- III Simposio Internacional en Ingeniería Industrial. Bogota, Colombia
- 2017 Bula G., Afsar M. ,Gonzalez F., Prodhon C., Velasco N.Bi-objective Fleet Size and Mix Vehicle Routing Problem for Hazardous Materials Transportation. ROADEF 2017, Troyes, France
- 2017 Gutierrez A. F., Dieullie L., Labadi N, VelascoN. Wind farm maintenance scheduling model and solution approach .IEOM Conference 2017. Bogotá, Colombia.
- 2016 Velasco N, Castaño F. (2016) A Branch and Price approach to solve personnel planning in the context of Home Health Care Delivery. POMS 27<sup>th</sup> Annual Conference (ISBN 1-945072-01-6) Orlando, FL, United States.
- 2016 Velasco N, Gutiérrez A, Labadi N, Dieullie L. (2016) A Multi Population Memetic Algorithm

- for the Vehicle Routing Problem with Time Windows and Stochastic Travel and Service Times (I). IFAC MIM2016 IFAC-PapersOnline (ISSN 2405-8963) Troyes, France.
- 2016 Velasco N, Labadi N, Dieullie L, Gutierrez A. (2016) An approximate column generation for the vehicle routing problem with hard time windows and stochastic travel and service times . CLAIO 2016 Santiago, Chile.
- 2016 Velasco N, Castaño F, Rossi A. (2016) An exact approach based on column generation to extend network lifetime in a general class of wireless sensor networks. CLAIO 2016 Santiago, Chile.
- 2016 Velasco N, Gil R, Torres C. (2016) Asignación de médicos internos en el Hospital Universitario Clínica San Rafael de Bogotá. ICPR -Americas Valparaiso, Chile.
- 2016 Velasco N, Zarta A. (2016) Bassline Composition for Alternative Rock using SP and SDS algorithms, a multi-objective approach. Chile.
- 2016 Velasco N, Gonzalo, Aranguiz R, Mejia C. (2016) Estrategias para localización de mercados móviles en ciudades en países de economías emergentes. ICPR –Americas. Valparaiso, Chile.
- 2016 Velasco N, Prodhon C, Afsar M, Bula G, Gonzalez F. (2016) Total Risk Routing Minimization for the Fleet Size and Mix Problem for Hazardous Materials Distribution . VeRoLog Nantes, France.
- 2015 W.-J. Guerrero, N. Velasco, C. Prodhon. Métodos exactos y heurísticos para el problema de camino más corto generalizado. Congreso de la Asociación Colombiana de Investigación de Operaciones – ASOCIO. Bogotá, July 15 – 16. 2015.
- 2015 C. Saavedra, F. Castaño, N. Velasco. Una herramienta para la planeación y programación de cirugías en ambientes con limitada disponibilidad de especialistas. Congreso de la Asociación Colombiana de Investigación de Operaciones – ASOCIO. Bogotá, July 15 – 16. 2015.
- 2014 Velasco N, Guerrero W, Vargas L (2014). Lower Bound estimation for a multi-depot multi-period IRP. Institute of Industrial Engineering (IIE), Annual Conference IERC Research Sessions of the IIE Annual Conference, (ISBN 978-0-98337624-3-0). Montreal, Canada, June 2014.
- 2014 Velasco N, Guerrero W, Fajardo E (2014). A Pairing Matching Model for CKD Patients in Colombia. Institute of Industrial Engineering (IIE), Annual Conference IERC Research Sessions of the IIE Annual Conference, (ISBN 978-0-98337624-3-0). Montreal, Canada, June 2014
- 2011 Guerrero, W. J., Velasco, N., Amaya, C.A., Prodhon, C. The Inventory Location Routing Problem with Deterministic Demand. Production and Operations Management Society POMS Conference, Reno, NV, United States. 2011.
- 2010 Villegas, J. G., Medaglia, A. L., Prins, C., Prodhon, C. Velasco, N. Solving the Truck and Trailer Routing Problem with a Route-first, Cluster-second Framework. -INFORMS Joint International Meeting. Buenos Aires, Argentina. June 2010.
- 2010 Velasco, N., Amaya, C. A., Barrera, D. Improving the Health Care Services using Simulation. ALIO-INFORMS Joint International Meeting. Buenos Aires, Argentina. June 2010.
- 2010 Velasco, N., Amaya, C.A., Barrera, D., Figueroa, D., Staff Routing and Scheduling for a School Healthcare Program in Ciudad Bolivar. ALIO-INFORMS Joint International Meeting. Buenos Aires, Argentina. June 2010.
- 2010 Mendoza, J. E., Medaglia, A. L., Castanier, B., Gueret, C., Velasco, N. Constructive Heuristics for the Multi-compartment Vehicle Routing Problem with Stochastic Demands. ALIO-INFORMS Joint International Meeting. Buenos Aires, Argentina. June 2010.
- 2010 W. Guerrero, N. Velasco, C. Amaya, C. Gueret, T. Yeung. Centralized Distribution System of Infusion Solutions on a Network of Health Care Units. European Conference on

Operational Research. Lisbon, Portugal. July 11 - 14 2010.

- 2010 Romero, J. C., Amaya, C. A., Velasco, N., Barrera, D. Measuring the efficiency for a public health policy implementation. Institute of Industrial Engineering (IIE), Annual Conference IERC Research Sessions of the IIE Annual Conference 2010 Cancun - Mexico, June 2010.
- 2009 J. Mejía, F. Racines, M. Vives-Flores, N. Velasco, M. T. Cortés, A. González. Genome scale modeling of *Pseudomonas aeruginosa* in a microbial air-cathode single chamber microbial fuel cell. 2009 AIChE Annual Meeting.
- 2009 A. Trillos, F. Ramírez, D. Londoño, J. Walteros, N. Velasco. Optimization of a Stop Strategy of an Elevator Group: A Case Study in a University Building. Institute of Industrial Engineering (IIE), Annual Conference IERC Research Sessions of the IIE Annual Conference 2009 Miami, FL, United States, June 2009.
- 2009 N. Velasco, C. A. Amaya, A. Jiménez, C. Serrano. Optimization Model to Minimize the Makespan in a Hospital Gastroenterology Service. Institute of Industrial Engineering (IIE), Annual Conference IERC Research Sessions of the IIE Annual Conference 2009. Miami, FL, United States. June 2009.
- 2009 N. Restrepo, M. P. Zubieta, C. A. Amaya, N. Velasco. Study of Services Production Lines in a Hospital. Institute of Industrial Engineering (IIE), Annual Conference IERC Research Sessions of the IIE Annual Conference 2009 Miami, FL, United States. June 2009.
- 2008 Guerrero, J., González, O., Amaya, A., Torres, F., Velasco, N. Allocation Problem: Case of a warehouse in a public hospital. Institute of Industrial Engineering (IIE), Annual Conference IERC Research Sessions of the IIE Annual Conference 2008. Vancouver, BC, Canada, May 2008.
- 2008 Gutiérrez, S., Flórez, D., Amaya, C. A., Velasco, N. Optimización del servicio de lavandería en un hospital público de Bogotá D.C. XIII Escuela Lationamericana de Verano en Investigación de Operaciones, 2008. Lima – Peru, February 2008.
- 2008 Villegas, J., Medaglia, A., Prins, C., Prodhon, C., Velasco, N. A Split-Based Framework for the Vehicle Routing Problem. Institute of Industrial Engineering (IIE), Annual Conference IERC Research Sessions of the IIE Annual Conference 2008. Vancouver; BC, Canada, May 2008.
- 2008 Flórez, D., Gutiérrez, S., Amaya, A., Velasco, N. "Optimization of the Laundry Service in a Public Hospital in Bogotá, D.C. Institute of Industrial Engineering (IIE), Annual Conference IERC Research Sessions of the IIE Annual Conference 2008 Vancouver, BC, Canada, May 2008.
- 2007 Mendoza Giménez, J. E, Medaglia, A. L., Velasco, N. Design and implementation of a decision support system for vehicle routing in a public utility. Institute of Industrial Engineering (IIE), Annual Conference IERC Research Sessions of the IIE Annual Conference 2007. Nashville, TN, United States, May 2007.
- 2007 Mendoza Giménez, J. E, Medaglia, Andrés L., Velasco, N. Diseño de un sistema de soporte a la decisión para el ruteo de vehículos en una empresa de servicios públicos. XII Escuela Lationamericana de Verano en Investigación de Operaciones, 2007. Petropolis – Brazil, February 2007.
- 2004 Velasco, N., Dejax, P., Gueret, C. Vehicle Routing Optimization for the Pick-up and Delivery: Application to the transport of personnel on oil platforms. European Conference on Operational Research EUROXX Rhodes, Greece, July 2004.

## CONFERENCE PROCEEDINGS

- 2019 Castaño F, Gutierrez A, Amaya C, Velasco N. (2019) Using open access data to model a technician routing and scheduling problem in a congested urban setting. ICPR 2019 - International Conference on Productions Research Procedia Manufacturing (ISSN 2351-

9789) Chicago, USA.

- 2019 Castaño F, Velasco N. Planificación de las rotaciones de los estudiantes de medicina en una institución de salud mediante Variable Neighborhood Search. International Conference on Production Research Americas 2018 Proceedings of the International Conference on Production Research, Americas Region (ISSN 2619-1865) Bogota, Colombia.
- 2016 Velasco N, Prodhon C, Bula G, Afsar M, Gonzalez F. (2016) Mixed Integer Linear Programming Model for Vehicle Routing Problem for Hazardous Materials Transportation (I) . IFAC MIM2016 IFAC-PapersOnline (ISSN 2405-8963) Troyes, France.
- 2016 Velasco N, Fontecha J, Cano N, Muñoz F. (2016) Shortest Path Algorithm for Optimal Sectioning of Hydrocarbon Transport Pipeline (I) . IFAC MIM2016 IFAC-PapersOnline (ISSN 2405-8963) Troyes, France.
- 2015 A. Gutiérrez, L. Dieulle, N. Labadi, N. Velasco. A Memetic algorithm for the vehicle routing problem with stochastic demands. Proceedings International Conference on Computer and Industrial Engineering – CIE45. Metz – France. October 28 – 30, 2015. ISSN of 2164-8670 (CD-ROM) ISSN 2164-8689 (Online).
- 2015 N. Velasco, R. Barros. A role playing game for improving linear programming concepts: the case of an emergency ambulance system. Proceedings of International Joint Conference on the Learner in Engineering Education (IJCLEE'2015)- Active Learning in Engineering Education Workshop (ALE). Mondragon University, 6 - 10 July 2015. Published by: Aalborg University Press. ISBN: 978-87-7112-303-6.
- 2014 J-P. Moreno, N. Velasco, C. Rebolledo. Logistics practices in healthcare organizations: analysis of seven cases in Bogotá. Proceedings ICPR Americas International conference on production research. Lima, Peru. August 2014.
- 2013 Guerrero W, Prodhon C, Velasco N, Amaya C. (2013) A Relax-and-Price Algorithm for the Inventory-Location-Routing Problem. TRISTAN VIII Conference San Pedro, Chile.
- 2013 Guerrero W, Velasco N, Prodhon C, Amaya C. (2013) Conference Paper: On the Generalized Elementary Shortest Path Problem: A heuristic approach. International Network Optimization Conference. Santa Cruz de Tenerife, Spain.
- 2013 Amaya C, Ducuara W, Velasco N. (2013) Nurse scheduling using a modified methodology via auctions and optimization. Proceedings ICPR 22nd International conference on production research. Foz do Iguaçu, Brazil.
- 2013 Velasco N, Victoria J. (2013) Routes optimization for hazardous material transportation in Bogotá - Colombia. EURO 2013 Rome, Italy.
- 2013 Velasco N, Bernal O, Forero J, Barrera O, Uruena R, Azuero F, Sanchez R, García J, Juan F, Jiménez J, Fajardo S, Cardona J. (2013) The judicialization of Health in Colombia.
- 2013 Guerrero, W.J., Velasco, N. Prodhon, C., Amaya, C.A. (2013) Heuristic algorithm for the Generalized Elementary Shortest Path Problem. Conférence de la Société Française de Recherche Opérationnelle et Aide à la Décision. Troyes, France. February 13 - 15, 2013.
- 2013 F. Castaño, A. Rossi, M. Sevaux, N. Velasco. A hybrid CG-GRASP heuristic to extend the lifetime in wireless sensor networks with partial coverage and connectivity constraints. Conférence de la Société Française de Recherche Opérationnelle et Aide à la Décision. Troyes, France. February 13 - 15, 2013.
- 2012 M. Gutiérrez, C. Wills, N. Velasco. Inventory Location Routing Problem: A Column Generation Approach. 3<sup>rd</sup> International Conference on Industrial Engineering & Operation Management. Istanbul, Turkey. July 2012.
- 2012 Guerrero, W., Prodhon, C., Velasco, N., Amaya, C-A. Intégration d'une gestion de stocks lors de la résolution coopérative du problème de Localisation-Routage. Roadef 2012. Angers, France.
- 2012 Castaño, F., Velasco, N., Sevaux, M, Rossi, A. Diversification and stabilization strategies to

accelerate the convergence of the minimum coverage breach problem under bandwidth constraints in wireless sensor networks. RoadeF 2012 Congrès de la Société Française de Recherche Opérationnelle et D'aide à la Décision, Angers, France.

- 2012 Castaño, F., Velasco, N. Sevaux, M. , Rossi, A. A matheuristic approach for maximum lifetime coverage in wireless sensor networks under connectivity constraints. Euro mini conference XXVIII on variable neighborhood search. Montenegro 2012.
- 2012 Guerrero, W., Prodhon, C., Velasco, N. Amaya, C-A. Hybrid Heuristic for the Inventory-Location-Routing Problem with Deterministic Demand. Odysseus 2012. 5<sup>th</sup> International Workshop on Freight Transportation and Logistics. Myconos, Greece.
- 2011 Guerrero, W. J., Velasco, N., Amaya, C.A., Prodhon, C. A Matheuristic for the Inventory Location Routing Problem. Metaheuristics International Conference. Udine, Italy. August 2011.
- 2011 D. Barrera, N. Velasco, C.A. Amaya. A Mathematical Programming Approach to the Multi-Activity Combined Timetabling & Crew Scheduling Problem. 21<sup>st</sup> International Conference on Production Research- ICPR 21. August.
- 2011 Guerrero, W. J., Velasco, N., Amaya, C.A., Prodhon, C. A Matheuristic for the Inventory Location Routing Problem. Metaheuristics International Conference. Udine, Italy. August 2011.
- 2011 N. Velasco, D. Barrera, C. A. Amaya. Workforce Scheduling for a Public Health Program. INFORMS Healthcare – June 2011. <http://meetings2.informs.org/healthcare2011/images/pdfs/Tuesday.pdf>
- 2011 Villegas, J. G., Prins, C., Prodhon, C., Medaglia, A., Velasco, N. Heuristic column generation for the truck and trailer routing problem. International Conference on Industrial Engineering and Systems Management. Metz, France.
- 2011 N. Velasco, C. A. Amaya, F. Castaño, S. Rojas. A Decision Support Tool to Generate the Monthly Schedule for Consulting Rooms in a Public Hospital. Society for Health Systems, Conference and Expo. February 2011. <http://www.xcdsystem.com/shs/cdrom/prof112.html>
- 2010 J. Ardila Evan, D. Barrera, C. Amaya, N. Velasco. Inventory policy for the auxiliary pharmacies of a hospital. 5<sup>th</sup> International Conference on Production Research. ICPR Americas 2010.
- 2010 S. Céspedes, S. Santa, A. Correa, C. Amaya, N. Velasco. Localización y relocalización de ambulancias en la ciudad de Bogotá. 5<sup>th</sup> International Conference on Production Research. ICPR Americas 2010.
- 2010 J. G. Villegas, C. Prins, C. Prodhon, A. L. Medaglia, and N. Velasco. GRASP/VND with path relinking for the truck and trailer routing problem. In TRISTAN VII. Troms, Norway, June 20 - 25 2010.
- 2009 Barrera, D., Vargas, C., Zubieta, P., Amaya, C.A., Velasco, N. Uso de Balanceo de Líneas para el Estudio de Procesos Administrativos en Centros de Salud. SIB y SIPAIM 2009. November 2009. ISSN 978-958-695-478-5.
- 2009 S. Aguirre, C. A. Amaya, N. Velasco. Planning and scheduling an emergency room workforce. 20<sup>th</sup> International conference on production research (ICPR). ISRC: CN-E16-09-0006-0/A.H. China. August 2009.
- 2009 Mejía, J., Racines, F., Vives-Flores, M., Velasco, N., Cortés, M. T., González, A. Modelamiento a escala genómica de pseudomonas aeruginosa en una celda de combustible microbiana de cámara única. XXV Congreso Colombiano de Ingeniería Química. 2009. ISSN 1692-925X.
- 2009 Gutiérrez E.V., Guéret C., Péton O., Velasco N., Amaya C. Combined routing and staff scheduling model for home health care. 35<sup>th</sup> International Conference on Operational Research Applied to Health Services. Leuven, Belgium. July 2009.



- 2009 J. E. Mendoza, B. Castanier, C. Guéret, A. L. Medaglia, N. Velasco. A simulation-based MOEA for the multi-compartment vehicle routing problem with stochastic demands (MC-VRPS). Metaheuristic International Conference, MIC 2009, Hamburg – Germany, July 2009.
- 2009 J. G. Villegas, A. Medaglia, C. Prins, C. Prodhon, N. Velasco. GRASP/ELS hybrids for a truck and trailer routing problem. Metaheuristic International Conference, MIC 2009, Hamburg – Germany, July 2009.
- 2009 C. Vargas, D. Barrera, C. A. Amaya, N. Velasco. Improving billing process at a private clinic. 20<sup>th</sup> International conference on production research (ICPR). ISRC: CN-E16-09- 0006-0/A.H. China. August 2009.
- 2009 Aguirre, S., Velasco, N., Amaya, C. A. Planeación y Programación del Personal del Servicio de Urgencias en un Centro Médico. SIB and SIPAIM 2009. November 2009. 978-958-695-478-5.
- 2008 Hernández, P., Amaya, C., Velasco, N. Modelo de coordinación de inventarios en la cadena de abastecimiento de un hospital público. Conferencia Latino – americana de Investigación de Operaciones (CLAIO) Cartagena, Colombia, September 2008. ISBN: 978 958 825283-4.
- 2008 Mendoza, J. E., Castanier, B., Guéret, C., Medaglia, A., Velasco, N. JCW: An Object-Oriented Framework for the Rapid Development of Vehicle Routing Heuristics Based On Savings. Conferencia Latino – americana de Investigación de Operaciones (CLAIO) Cartagena, Colombia, September 2008. ISBN: 978 958 825283-4.
- 2008 Mendoza, J. E., Castanier, B., Guéret, C., Medaglia, A., Velasco, N. Construction Heuristics for the Multi-Compartment Vehicle Routing Problem with Stochastic Demands. Conferencia Latino – americana de Investigación de Operaciones (CLAIO) Cartagena, Colombia, September 2008. ISBN: 978 958 825283-4.
- 2008 Villegas, J., Medaglia, A., Prins, C., Prodhon, C., Velasco, N. A Split-Based Framework for the Vehicle Routing Problem Conferencia Latino – americana de Investigación de Operaciones (CLAIO) Cartagena, Colombia, September 2008. ISBN: 978 958 825283-4.
- 2008 Torres, F., Rojas, G., Tascón, J., Velasco, N. and Bravo, G. Un Enfoque Heurístico para el Problema de Asignación Balanceada y Secuenciación de Tareas de Mantenimiento con Múltiples Ventanas de Tiempo. Caso de Aplicación en un Campus Universitario. Conferencia Latino – americana de Investigación de Operaciones (CLAIO) Cartagena, Colombia, September 2008. ISBN: 978 958 825283-4.
- 2008 Guerrero, W., Amaya, C., Velasco, N. Aplicaciones en ingeniería para el diseño de propuestas de mejoramiento del sistema de referencia de pacientes entre hospitales de Bogotá. Conferencia Latino – americana de Investigación de Operaciones (CLAIO) Cartagena, Colombia, September 2008. ISBN: 978 958 825283-4.
- 2008 Olaya, L., Jiménez, A., Amaya, C., Velasco, N. Simulación del flujo de pacientes en el laboratorio clínico de un hospital. Conferencia Latino – americana de Investigación de Operaciones (CLAIO) Cartagena, Colombia, September 2008. ISBN: 978 958 825283-4.
- 2008 Serrano, C., Jiménez, A., Amaya, C., Velasco, N. Optimización del flujo de pacientes en la sala de endoscopias de un hospital. Conferencia Latino – americana de Investigación de Operaciones (CLAIO) Cartagena, Colombia, September 2008. ISBN: 978 958 825283-4.
- 2008 Aguirre, S., Amaya, C., Velasco, N. Optimización del flujo de pacientes en un centro médico de la ciudad de Bogotá. Conferencia Latino – americana de Investigación de Operaciones (CLAIO) Cartagena, Colombia, September 2008. ISBN: 978 958 825283-4.
- 2008 Venegas, F., Amaya, C. A., Velasco, N. Simulación de Eventos Discretos del Departamento de Emergencias en un Hospital. Conferencia Latino – americana de Investigación de Operaciones (CLAIO) Cartagena, Colombia, September 2008. ISBN: 978 958 825283-4.
- 2008 Guerrero, J., González, O., Amaya, C.A., Torres, F. and Velasco, N. Asignación de Medicamentos: Un Problema al Interior de la Bodega de un Hospital Público. Conferencia Latino – americana de Investigación de Operaciones (CLAIO) Cartagena, Colombia,

September 2008. ISBN: 978 958 825283-4.

- 2008 Flórez, D., Gutiérrez, S., Amaya, A., Velasco, N. Optimization of the Laundry Service in a Public Hospital in Bogotá, D.C. Proceedings of the 2008 IEEE Systems and Information Engineering Design Symposium, pp. 106-111, University of Virginia Charlottesville, VA, United States. May 2008. ISBN: 1-4244-2366-8.
- 2008 J. E. Mendoza, B. Castanier, C. Guéret, A. L. Medaglia, N. Velasco. A genetic algorithm for the multi-compartment vehicle routing problem with stochastic demands <http://webhost.ua.ac.be/eume/workshops/eume08/papers/paper34.pdf> EU/MEeting 2008: Metaheuristics for Logistics and Vehicle Routing. Troyes, France. 2008.
- 2008 Floréz, D., Aguirre, S., Amaya, C., Velasco, N. Optimización de la ruta de recolección de ropa sucia en un hospital público de Bogotá (Colombia): un caso de ruteo de vehículos con entregas fraccionadas. Conferencia Latino – americana de Investigación de Operaciones (CLAIO) Cartagena, Colombia, September 2008. ISBN: 978 958 825283-4.
- 2007 Mendoza Gimenez, J. E, Medaglia, A. L., Velasco, N. Vehicle routing in a public utility: a decision support system with hybrid techniques. Metaheuristic International Conference, MIC 2007. Montreal, QC, Canada, July 2007.
- 2006 Velasco, N., Cambazard, H., Dejax, P., Gueret, C. Aplicación de la técnica de generación de columnas a la resolución de un problema de recolección y entrega con helicóptero. Conferencia Latinoamericana de Investigación de Operaciones, CLAIO 2006. Montevideo – Uruguay, November 2006.
- 2006 Velasco, N., Dejax, P., Gueret, C., Prins, C. Un algorithme génétique pour le pick-up and delivery problem bi-objective. Conférence Francophone de Modélisation et Simulation Modélisation, Optimisation et Simulation des Systèmes, MOSIM 2006. Rabat – Morocco, April 2006.
- 2005 Velasco, N., Dejax, P., Gueret, C., Prins, C. A memetic algorithm for a pickup and delivery problem by helicopter. Metaheuristic International Conference, MIC 2005 Viena – Austria, August 2005.
- 2005 Prud'homme, C., Dejax, P., Gueret, C., Velasco, N. Heuristiques pour un problème de tournées d'hélicoptères de type pickup and delivery. Conférence scientifique conjointe en Recherche Opérationnelle et Aide à la Décision, ROADeF 2005. Tours – France, February 2005.
- 2005 Velasco, N., Dejax, P., Gueret, C. Une approche par génération de colonnes pour un problème de tournées d'hélicoptères. Conférence scientifique conjointe en Recherche Opérationnelle et Aide à la Décision, ROADeF 2005. Tours – France, February 2005.

## TECHNICAL REPORTS

- 2012 F. Castaño, A. Rossi, M. Sevaux, N. Velasco. A metaheuristic based column generation approach to extend the lifetime in connected wireless sensor networks with coverage constraints. 2012
- 2012 Guerrero, W.J., Velasco, N. Prodhon, C., Amaya, C.A. A relax - price algorithm for vehicle routing. 2012.
- 2009 Veloza, A.L.; Jiménez, A.M.; Amaya, C.A.; Velasco, N. Implementación de reglas de despacho para la programación de cirugías en un hospital de Bogotá. Universidad de los Andes. Tech. Rep. March 2009, H 2008 7- 1 - 2 - 2 - 2 - 2 – 2. <http://hdl.handle.net/1992/1100>.
- 2009 Velasco, N.; Rúgeles, J.; Amaya, C.A.; Barrera, D. Diseño del proceso de distribución de medicamentos por dosis unitaria en un hospital de Bogotá siguiendo el esquema de estudio del trabajo. Universidad de los Andes. Tech. Rep. October 30 2009, H 2008 19. <http://hdl.handle.net/1992/1117>.
- 2009 Forero, C.; Jiménez, A.M.; Amaya, C.A.; Velasco, N. Optimización del proceso de

- esterilización de paquetes quirúrgicos en un hospital privado. Universidad de los Andes. Tech. Rep. March 17 2009, H 2008 8 - 1 - 2 - 2 – 2. <http://hdl.handle.net/1992/1101>.
- 2009 Silva, A.M.; Jiménez, A.M.; Amaya, C.A.; Velasco, N. Simulación del proceso de entrega de ropa limpia en un hospital de Bogotá. Universidad de los Andes. Tech. Rep. March 17 2009, H 2008 6 - 2 – 2. <http://hdl.handle.net/1992/1099>
- 2009 Lamprea, J., Aguirre, S., Amaya, C.A., Velasco, N. Diseño de una metodología de costeo para la unidad de urgencias de una institución médica. Universidad de los Andes. Tech. Rep. March 17 2009, H 2008 13 – 1. <http://hdl.handle.net/1992/1104>
- 2009 Aguirre, S.; Amaya, C.A.; Velasco, N. Planeación y Programación del Personal del Servicio de Urgencias en un Centro Médico. Universidad de los Andes. Tech. Rep. May 15 2009. <http://hdl.handle.net/1992/1107>
- 2009 Guerrero, W.J., Velasco, N., Amaya, C.A., Yeung, T.G., Guéret, C. Centralized Distribution System of Infusion Solutions on a Network of Health Care Units. Universidad de los Andes. Tech. Rep. October 15 2009, PYLO 2009 - 1 – 2. <http://hdl.handle.net/1992/1109>.
- 2009 Serrano, C.; Jiménez, A.M.; Amaya, C.A.; Velasco, N. Optimization model to minimize the makespan in a hospital's gastroenterology service. Universidad de los Andes. Tech. Rep. March 17 2009, H 2008 9 - 1 - 2 - 2 – 2. <http://hdl.handle.net/1992/1102>.
- 2009 Huertas, J. A.; Velasco, N.; Amaya, C.A.; Barrera, D. Evaluación del despacho de ambulancias del Centro Regulador de Urgencias y Emergencias de Bogotá (C.R.U.E.). Universidad de los Andes. Tech. Rep. November 6. 2009. <http://hdl.handle.net/1992/1122>.
- 2009 Zubieta, M.P., Barrera, D., Amaya, C.A., Velasco, N. Propuesta metodológica para el cálculo de capacidades en un centro de salud. Universidad de los Andes. Tech. Rep. March 17. 2009, H 2008 11 - 1 - 2 - 2 – 2. <http://hdl.handle.net/1992/1103>.
- 2009 Ardila, J.; Barrera, D.; Velasco, N.; Amaya, C.A. Selección e implementación de una política de inventarios para las farmacias auxiliares de un hospital público en Bogotá. Universidad de los Andes. Tech. Rep. October 30. 2009, H 2008 15 - 1 - 2 - 2 – 2. <http://hdl.handle.net/1992/1113>.
- 2009 Céspedes, S.M.; Velasco, N.; Amaya, C.A. Localización y relocalización de ambulancias del centro regulador de urgencias y emergencias de Bogotá. Universidad de los Andes. Tech. Rep. November 6. 2009. <http://hdl.handle.net/1992/1121>.
- 2009 Velasco, N.; Bobadilla, J.; Amaya, C.A.; Aguirre, S. Planeación de Gestión de Inventarios a través del análisis de procesos en la Farmacia Quirúrgica de una clínica. Universidad de los Andes. Tech. Rep. October 30. 2009, H 2008 16. <http://hdl.handle.net/1992/1114>
- 2009 Velasco, N.; Cruz, M.A.; Amaya, C.A.; Aguirre, S. Estudio Analítico Para el Control de Inventarios de la Farmacia de Urgencias de una Clínica de la Ciudad. Universidad de los Andes. Tech. Rep. October 30. 2009, H 2008 17. <http://hdl.handle.net/1992/1115>.
- 2009 Ardila, S.; Velasco, N.; Jiménez, A.M.; Amaya, C.A. Revisión de procesos para la asignación de camas a pacientes provenientes de urgencias en un hospital privado de Bogotá. Universidad de los Andes. Tech. Rep. October 30. 2009. <http://hdl.handle.net/1992/1120>.
- 2009 Jiménez, A.M.; Velasco, N.; Amaya, C.A. Estrategias de programación de salas de cirugía: Un caso de aplicación en un hospital de Bogotá. Universidad de los Andes. Tech. Rep. November 19. 2009. <http://hdl.handle.net/1992/1123>.
- 2008 Guerrero, J., Jiménez, A., Amaya, C. A., Velasco, N. Optimización de los recursos en los hospitales: revisión de la literatura sobre logística hospitalaria. Universidad de los Andes. Tech. Rep. January 21. 2008. <http://hdl.handle.net/1992/1058>.
- 2008 Venegas, F., Amaya, C. A., Velasco, N. Simulación de la sala de urgencias en el hospital El Tunal para caracterizar los problemas de flujo en los procesos. Universidad de los Andes. Tech. Rep. January 21. 2008. <http://hdl.handle.net/1992/1059>.
- 2008 Aguirre, S., Amaya, C. A., Velasco, N. Estudio logística hospitalaria en el hospital el Tunal.

- Universidad de los Andes. Tech. Rep. January 21. 2008. <http://hdl.handle.net/1992/1057>.
- 2008 Olaya, L. M., Jiménez, A., Amaya, C. A., Velasco, N. Estudio de simulación en el laboratorio clínico de un hospital privado. Universidad de los Andes. Tech. Rep. August 28. 2008. <http://hdl.handle.net/1992/1081>.
- 2008 Guerrero, W., Amaya, C. A., Velasco, N. Modelos de optimización para el manejo eficiente de pacientes en el sistema integral de referencia y contra-referencia en situaciones normales y de excepción. Universidad de los Andes. Tech. Rep. January 21. 2008. <http://hdl.handle.net/1992/1060>.
- 2008 Hernández, P. C., Amaya, C. A., Velasco, N. Modelo para el manejo eficiente de Inventarios en la Cadena de Abastecimiento de Medicamentos del Hospital El Tunal. Universidad de los Andes. Tech. Rep. January 21. 2008 <http://hdl.handle.net/1992/1062>.
- 2008 Flórez, D., Aguirre, S., Amaya, C. A., Velasco, N. Optimización del servicio de lavandería en un hospital público de la ciudad de Bogotá D.C. Universidad de los Andes. Tech. Rep. January 21. 2008. <http://hdl.handle.net/1992/1064>.
- 2008 Flórez, D., Aguirre, S., Amaya, C. A., Velasco, N. Estudio de las rutas de los servicios básicos del Hospital El Tunal E.S.E. Universidad de los Andes. Tech. Rep. January 21. 2008. <http://hdl.handle.net/1992/1063>.
- 2008 Guerrero, J., Amaya, C. A., Velasco, N. Área de Farmacia Medicamentos: Hospital El Tunal. Universidad de los Andes. Tech. Rep. January 21. 2008. <http://hdl.handle.net/1992/1061>.
- 2008 Lamar, M.; Velasco, N.; Amaya, C.A.; Barrera, D. Optimización del sistema de entrega de linos en un hospital público por medio de un problema de ruteo de inventarios. Universidad de los Andes. Tech. Rep. October 30. 2009, H 2008 18. <http://hdl.handle.net/1992/1116>.
- 2008 Aguirre, S., Amaya, C. A.; Velasco, N. Logística Hospitalaria. Universidad de los Andes. Tech. Rep. January 21. 2008. <http://hdl.handle.net/1992/1056>.
- 2008 González, C.A.; Velasco, N.; Amaya, C.A. Análisis de un sistema de distribución de medicamentos en servicios de hospitalización: Una aplicación de simulación y de programación lineal. Universidad de los Andes. Tech. Rep. October 30. 2009, H 2008 20. <http://hdl.handle.net/1992/1118>.
- 2008 Mendoza, J. E., Castanier, B., Gueret, C., Medaglia, A. L., Velasco, N. An instance generator for vehicle routing problem with stochastic demands. Tech. Rep 08/01/AUTO, École des Mines de Nantes. April 2008.
- 2008 Vargas, C.; Barrera, D.; Velasco, N.; Amaya, C.A. Caracterización y análisis del proceso de facturación de una clínica. Universidad de los Andes. Tech. Rep. October 30. 2009, H 2008 10. <http://hdl.handle.net/1992/1112>.
- 2008 Mendoza, J. E., Castanier, B., Gueret, C., Medaglia, A. L., Velasco, N. Approximating the expected cost of recourse on a multi-compartment vehicle routing problem with stochastic demands. Tech. Rep 08/03/AUTO, École des Mines de Nantes. September 2008.
- 2008 Guerrero, W., Amaya, C. A., Velasco, N. Modelo de Programación Multi-Objetivo en el Sistema de Remisión de Pacientes entre Hospitales de Bogotá. Universidad de los Andes. Tech. Rep. August 26. 2008. <http://hdl.handle.net/1992/1077>.
- 2008 Hernández, P. C., Amaya, C. A., Velasco, N. Modelo de coordinación de inventarios en la cadena de abastecimiento de medicamentos de un hospital público. Universidad de los Andes. Tech. Rep. August 26. 2008. <http://hdl.handle.net/1992/1080>.
- 2008 Venegas, F., Amaya, C. A., Velasco, N. Simulación de eventos discretos del departamento de emergencias en un hospital. Universidad de los Andes. Tech. Rep. August 26. 2008. <http://hdl.handle.net/1992/1079>.
- 2008 Arjona, P., Amaya, C. A., Velasco, N. Optimización del flujo de Bombas de Infusión en Un Hospital Privado de la ciudad de Bogotá. Universidad de los Andes. Tech. Rep. August 26. 2008. <http://hdl.handle.net/1992/1078>.

- 2008 Restrepo, N.; Velasco, N.; Amaya, C.A. Planeación de personal para las diversas áreas que componen un centro médico: Un caso de aplicación. Universidad de los Andes. Tech. Rep. October 30. 2009, 2008 - 1 - 2 – 2. <http://hdl.handle.net/1992/1119>.
- 2007 Mendoza, J. E., Medaglia, A. L., Velasco, N. Route Plotter: A spreadsheet based visualization and analysis tool for vehicle routing. Universidad de los Andes. Tech. Rep. September 19. 2007. <http://hdl.handle.net/1992/1051>.
- 2007 Medaglia, A. L., Mendoza, J. E., Velasco, N., Villegas, J. G. JCW: a framework for rapid development of vehicle routing prototypes based on savings heuristics. Universidad de los Andes. Tech. Rep. September 19. 2007. <http://hdl.handle.net/1992/1052>.
- 2007 Mendoza, J. E., Medaglia, A.L., Velasco, N. An evolutionary based decision support system for vehicle routing: the case of a public utility. Universidad de los Andes. Tech. Rep. September 13. 2007. <http://hdl.handle.net/1992/1050>.
- 2005 Velasco, N.M., Dejax, P., Gueret, C. and Prins, C. “A non-dominated sorting genetic algorithm for a bi-objective pick-up and delivery problem”, École des Mines de Nantes, Rapport technique N° 05/10/AUTO, December 2005.
- 2005 Velasco, N.M., Dejax, P., Gueret, C. and Prins, C. “A memetic algorithm for a pickup and delivery problem by helicopter”, École des Mines de Nantes, Rapport technique N° 05/9/AUTO, October 2005.
- 2004 Prud’homme, C., Dejax, P., Gueret, C. and Velasco, N. “Heuristiques pour un problème de tournées d’hélicoptères de type Pick-up and Delivery”, École des Mines de Nantes, Rapport de recherche 04/5/ AUTO, 2004.

Scholarships and Academic Distinctions	
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|-------------|---|
| 2018        | Outstanding mention to the Project: Impact of the use of technological tools in the hospitalization rooms and the decentralization of the nursing position in the care of hospitalized patients in the Fundación Santafé de Bogotá – 2018. Project submitted to the Joint Call (FSFB – Uniandes) 2018 |
| 2017        | Best track paper award in IEOM (Industrial Engineering and Operations Management): Wind farm maintenance scheduling model and solution approach.  |
| 2012        | Sabbatical Semester, Engineering School, Universidad de los Andes.  |
| 2012        | Invited Professor at Université de Technologie de Troyes. Troyes – France.  |
| 2008        | Outstanding Assistant professor Distinction, Engineering School, Universidad de los Andes.  |
| 2003 - 2006 | Boursier de Mines Scholarship, École de Mines de Nantes.  |
| 2002 - 2003 | Academic Development Program” Scholarship, Universidad de los Andes.  |