



# Rosa Daniela Medina Durán

## *Curriculum Vitae*

### Education

- 2008–2011 **Ph.D. Control System Engineering and Operational Research**, *Department of Electronics, computer Sciences and Systems, University of Bologna, Bologna, Italy*, Thesis: The Cutting Stock Problem in the Wood Industry, Advisor Prof. Paolo Toth.
- 2006–2010 **MS of Industrial Engineering**, *University of Concepción, Concepción, Chile*, Thesis: A Parallel Genetic Algorithm for the Flexible Job Shop Problem, Advisor Prof. Lorena Pradenas.
- 2002–2008 **Industrial Engineering**, *University of Concepción, Concepción, Chile*, Thesis: Evolutionary Algorithms with Disjoint Graph for the Flexible Job Shop Problem, Advisor Prof. Lorena Pradenas.

### Publications

- Article E. Malaguti, R. Medina Durán, P. Toth. “*Approaches to Real World Two-Dimensional Cutting Problems*”, *Omega*, 47, 99-115, 2014
- Book Lorena Pradenas, Rosa Medina, Carlos Herrera, Javier Pereira. Libro de resúmenes X OPTIMA/VI RED-M, Editorial UDEC, Concepción, Chile, ISBN 9789562273732, (2013).
- Article F. Furini, E. Malaguti, R. Medina Durán, A. Persiani, P. Toth. “*A Column Generation Heuristic for the Two-Dimensional Two-Stage Guillotine Cutting Stock Problem with Multiple Stock Size*”, *European Journal of Operational Research*, 218 (1), 251-260, 2012.
- Article R. Medina Durán, L. Pradenas Rojas, V. Parada Daza. “*A Genetic Algorithm for the Flexible Job Shop Problem*”, *Ingeniare, Rev. chil. ing.* 19, January-April 2011.

### Research Projects

- 2014 “Algorithms for the ranking assignment problem with clusters”, Initiation into research 2014, principal investigator, FONDECYT 11140244

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- 2014 “El problema de priorización de asignaciones con grupos de igual costo”, Universidad de Concepción, principal investigator, VRID N°214.097.012-1.0
- 2014 “Energy-Efficient and Robust Approaches for the Scheduling of Production, Services, and Urban Transport”, ECOS-CONICYT, co-researcher, C13E04
- 2013 - 2014 “Solving Combinatorial Optimization Problems with Stable Set Constraints”, CONICYT, co-researcher, 13STIC-05

## Conferences

- November 2014 R. Medina Durán, C. Herrera López, R. Solis Stegmann, R. aliste Mieres “Combinatorial optimization applications in Chilean log transport”, MOSIM, 2014.
- September 2014 R. Medina, L. Pradenas, C. Greig, T. Mautor, B. Le Cun, M. Campelo, T. Fernandes, V. Parada “Asignación de enfermeras a turnos en un hospital público: modelo y heurística basada en conjuntos independientes de vértices”, SOBRAPO, 2014.
- July 2013 E. Malaguti, R. Medina Durán, P. Toth “A metaheuristic algorithm for a real world cutting problem”, EURO, 2013.
- October 2009 A. E. Fernandes Muritiba, F. Furini, R. Medina Durán, A. Persiani “Column generation approach for 2D 2-staged guillotine cutting stock problem”, OPTIMA, 2009.
- September 2009 E. Malaguti, R. Medina Durán, P. Toth “Constructive algorithms for wood panel cutting”, AIRO, 2009.

## Workshop

- October 2013 X OPTIMA/VI RED-M, University of Concepción, program director, organising committee.
- September 2013 II Colloquium in Operations Research, University of Concepción, coordinator.
- April 2009 Column generation and related topics for hard combinatorial problems, University of Pisa.
- June 2008 IPCO Summer School, Centro Congressi Bertinoro, University of Bologna.
- June 2008 Matheuristics, Centro Congressi Bertinoro, University of Bologna.
- February 2007 XII ELAVIO, Fluminense Federal University.

## Work Experience

- 2014 - today DIRECTOR OF UNDERGRADUATE STUDIES, Department of Industrial Engineering, Faculty of Engineering, University of Concepción.
- 2012 - today ASSISTANT PROFESSOR, Department of Industrial Engineering, Faculty of Engineering, University of Concepción.
- 2005 PROJECT ASSISTANT, ALFA Project “Support to the training of researchers of high level in the combinatorial optimization area”, University of Concepción, Chile

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## Industrial Collaborations

- 2013 Re-assignment of trucks for forest transportation, collaboration with Arauco S.A., Concepción, Chile.
- 2013 Industrial evaluation of a food processing plant location, Concepción, Chile.
- 2012 Simulation of forest transportation shifts, collaboration with Arauco S.A., Concepción, Chile.
- 2008-2010 Algorithms development for automatic wood cutting machines, collaboration with BIESSE Group, Pesaro, Italy.

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## Teaching

### Master

- Advisor
- Vallejos Donoso, J. A. *“Localización de Planta de un Material Aislante Basado en Residuos Madereros en la Octava Región, usando Programación Matemática Entera Mixta”*. Master in Industrial Engineering, University of Concepción, 2014.

### Undergraduate

- Advisor
- Cartes Rubilar, I. I. *“Estado del Arte y Modelamiento de Problema de Programación de Cirugías Electivas”*. Biomedical Engineering, University of Concepción, 2014.
  - Hernández Figueroa, S. A. *“Impacto y Calidad de Servicio de Telemedicina: Red Salud Talcahuano”*. Biomedical Engineering, University of Concepción, 2014.
  - Navarro Salgado, M. A. *“Trazabilidad mediante RFID en Unidad de Esterilización del Hospital las Higueras de Talcahuano”*. Biomedical Engineering, University of Concepción, 2014.

### Undergraduate

- Optimization I (2015-1)
- Business Management (2014-1, 2014-2)
- Optimization Methods II (2013-2)
- Management (2012-1, 2012-2, 2013-2)
- Strategic Management (2012-2, 2013-2)
- Introduction to Industrial Engineering (2012-1, 2013-1)
- Human Resources Management (2012-2)
- Project Evaluation (2012-2)

### Master

- Modern Algorithms for Production (2013-2, 2014-2)
- Deterministic Models in Operational Research (2012-1, 2013-1, 2014-1)
- Workshop on CPLEX (2012-1, 2013-1, 2014-1)

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## Personal Skills

Mother  
Tongue 

- Spanish

Other  
Languages 

- Italian
- English

## Technical Skills

Programming Languages C, C++, xml, metapost,  $\LaTeX$

Optimization Softwares CPLEX, GLPK

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