

DIEGO MUÑOZ-CARPINTERO

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Departamento de Ingeniería Eléctrica, Universidad de Chile
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EDUCATION

University of Oxford, D.Phil in Engineering Science	September 2014
Universidad de Chile, M.Sc in Electrical Engineering	January 2010
Universidad de Chile, Professional degree in Electrical Engineering	January 2010
Universidad de Chile, B.Sc in Electrical Engineering	January 2009

RESEARCH EXPERIENCE

Postdoctoral Researcher March 2017-Present
Project title: "Robust and Stochastic MPC: closing the gap between theory and applications".

Departamento de Ingeniería Eléctrica, Universidad de Chile. FONDECYT Postdoctoral Project Number 3170040, Principal Researcher.

Research Fellow March 2015-June 2016
Project title: "Control and optimization for energy efficiency and thermal comfort in smart buildings".

School of Electrical and Electronic Engineering, Nanyang Technological University.

D.Phil Studies October 2010-September 2014
Thesis title: "Strategies in Robust and Stochastic Model Predictive Control".

Department of Engineering Science, University of Oxford. Supervisors: Prof. Basil Kouvaritakis and Prof. Mark Cannon.

M.Sc Studies July 2008 - January 2010
Thesis title: "Design and Evaluation of Evolutionary Algorithms for Non-linear Hybrid Predictive Control Strategies".

Departamento de Ingeniería Eléctrica, Universidad de Chile. Supervisors: Prof. Doris Sáez and Prof. Cristián Cortés.

Research Assistant July 2006 - July 2010
Project title: "Intelligent Control for Dynamic Transportation Systems".

Departamento de Ingeniería Eléctrica, Universidad de Chile.

Research Assistant November 2009 - July 2010
Project title: "Crime hotspots modelling".

Departamento de Ingeniería Matemática, Universidad de Chile.

PROFESSIONAL EXPERIENCE

Software Engineer October 2014 - March 2015, July 2016 - March 2017
Entrepreneurship in image processing services.

Development of software based solutions for document digitalization.

TEACHING EXPERIENCE

Tutor

- Tutor of Mathematics - for 1st year engineering students. St Edmund Hall, University of Oxford (2012-2014).

Lab Demonstrator

- Lab demonstrator of Control Engineering Coursework Module - for 2nd year engineering students. Department of Engineering Science, University of Oxford (2012-2013).
- Engineering Practical Work: Instrumentation and Control Laboratory. Department of Engineering Science, University of Oxford (2013-2014).

Teaching assistant - undergraduate level

- Mechanics. Department of Physics, Universidad de Chile (2005).
- Control Systems. Department of Electrical Engineering, Universidad de Chile (2006-2008).

Teaching assistant - postgraduate level

- System Identification. Department of Electrical Engineering, Universidad de Chile (2009-2010).
- Intelligent Control Systems. Department of Electrical Engineering, Universidad de Chile (2009-2010).
- Intelligent Control for Transportation Dynamic Problems. Department of Electrical Engineering, Universidad de Chile (2009-2010).
- Optimal Control, System Identification and Estimation. Department of Electrical Engineering, Universidad de Chile (2010).

AWARDS

FONDECYT Postdoctoral Grant (2017)

Full financial support to undertake postdoctoral research at Universidad de Chile. Best evaluated project in the Study Group "Engineering 2".

CONICYT - Bicentennial Becas-Chile Scholarship (2010)

Full financial support to undertake doctorate studies in the United Kingdom.

CONICYT - Master's Scholarship (2009)

Full financial support to undertake master's studies in Chile.

Distinguished student (2003-2007)

Recognition awarded by the School of Engineering and Sciences for achieving outstanding performance while pursuing B.Sc and Professional Degree studies, University of Chile.

ADDITIONAL SKILLS

Languages

English (Fluent). Spanish (Native speaker).

Computing Skills

Programming: Matlab, Simulink, C++, C, Java, Python.

Various: L^AT_EX, OpenOffice, Ms Office.

PUBLICATIONS

Journal

- [1] D. Muñoz-Carpintero, M. Cannon, B. Kouvaritakis, Striped Parameterized Tube Model Predictive Control, *Automatica*, 67, 303-309, 2016.
- [2] D. Muñoz-Carpintero, M. Cannon, B. Kouvaritakis, Recursively feasible robust MPC for linear systems with additive and multiplicative uncertainty using optimized polytopic dynamics, *Systems & Control Letters*, 81, 34-41, 2015.
- [3] D. Muñoz-Carpintero, D. Sáez, C. E. Cortés, A. Núñez, A methodology based on evolutionary algorithms to solve a dynamic pickup and delivery problem under a hybrid predictive control approach, *Transportation Science*, 49(2), 239-253, 2015.
- [4] B. Kouvaritakis, M. Cannon, D. Muñoz-Carpintero, Efficient prediction strategies for disturbance compensation in stochastic MPC, *International Journal of Systems Science*, 44(7), 1344-1353, 2013.
- [5] C. E. Cortés, D. Sáez, A. Núñez, D. Muñoz-Carpintero, Hybrid adaptive predictive control for a dynamic pickup and delivery problem, *Transportation Science*, 43(1), 27-42, 2009.

Conference

- [1] D. Muñoz-Carpintero, B. Kouvaritakis, M. Cannon, Striped Parameterized Tube Model Predictive Control, in *The 10th IFAC World Congress*, 2014.
- [2] Q. Cheng, D. Muñoz-Carpintero, M. Cannon, B. Kouvaritakis, Efficient robust output feedback MPC, in *IEEE 32nd Chinese Control Conference (CCC)*, 4149-4154, 2013.
- [3] D. Muñoz-Carpintero, M. Cannon, B. Kouvaritakis, Recursively feasible robust MPC for linear systems with additive and multiplicative uncertainty using optimized polytopic dynamics, in *IEEE 52nd Annual Conference on Decision and Control (CDC)*, 1101-1106, 2013.
- [4] S. V. Rakovic, D. Muñoz-Carpintero, M. Cannon, B. Kouvaritakis, Offline tube design for efficient implementation of Parameterized Tube Model Predictive Control, in *IEEE 51st Annual Conference on Decision and Control (CDC)*, 5176-5181, 2012.
- [5] D. Muñoz-Carpintero, M. Cannon, B. Kouvaritakis, On prediction strategies in stochastic MPC, in *IEEE 9th international Conference on Control and Automation (ICCA)*, 249-254, 2011.
- [6] D. Muñoz-Carpintero, A. Núñez, D. Sáez, C. E. Cortés, Evolutionary algorithms and fuzzy clustering for control of a dynamic vehicle routing problem oriented to user policy, in *IEEE Congress on Evolutionary Computation (CEC)*, 2010.
- [7] D. A. Muñoz-Carpintero, D. Sáez, I. Skrjanc, Hybrid predictive control design with mixed inputs based on PSO and its application for control of a Batch Reactor, in *IEEE Congress on Evolutionary Computation (CEC)*, 2010.