

## Xavier Dupuis

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Born on 6 September 1986 in Besançon, France

### EDUCATION AND POSITIONS

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#### Université de Bourgogne - Dijon, France (since September 2016)

**Maître de conférences** (associate professor) at Institut de Mathématiques de Bourgogne in the team SPOC (Statistics, Probability, Optimization, Control).

Research interests: Optimization methods, inverse problems with sparsity, machine learning

#### LUISS University - Rome, Italy (January 2015 - August 2016)

**Postdoctoral research fellow** in the Department of Economics and Finance.

Research interests: Infinite dimensional optimal control, dynamic programming

Collaborations: F. Gozzi

#### Inria Paris - Rocquencourt, France (December 2013 - December 2014)

**Postdoctoral research fellow** in the team Mokaplan.

Research interests: Variational problems in economics, numerical methods

Collaborations: J.-D. Benamou, G. Carlier

#### Ecole Polytechnique, France (2010 - 2013)

**PhD in Applied Mathematics**, 2013.

**PhD thesis** in the team Commands (Inria Saclay) at CMAP (Ecole Polytechnique).

Title: Optimal control of differential equations with – or without – memory

Jury: J.F. Bonnans (supervisor)    U. Boscain (examiner)    J.-B. Caillaud (president)

          P. Cannarsa (referee)        J.-M. Coron (referee)    F. Crauste (examiner)

Defense: 13 November 2013, Ecole Polytechnique

#### Imperial College London, UK (2009 - 2010)

**MSc in Mathematics** as Erasmus student during the academic year 2009-2010.

**Master (M2) thesis** in the group DynamIC of the Department of Mathematics.

#### Ecole Normale Supérieure de Lyon, France (2006 - 2010)

**Master's degree in Mathematics** (Master MAIM, ENS Lyon and Université Lyon 1), 2010.

**Agrégation de Mathématiques**, 2009.

**Bachelor's degree in Mathematics** (Université de Lyon 1), 2007.

**Admission as student - civil servant** in Mathematics, 2006.

## PUBLICATIONS

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### Preprints

- X. Dupuis, S. Vaiter. *The Geometry of Sparse Analysis Regularization*. Submitted, <arXiv:1907.01769>, 2019.

### Articles in journals

- G. Carlier, X. Dupuis. *An iterated projection approach to variational problems under generalized convexity constraints*. Appl. Math. Optim., 76(3), 565-592, 2017.
- J.F. Bonnans, X. Dupuis, L. Pfeiffer. *Second-order necessary conditions in Pontryagin form for optimal control problems*. SIAM J. Control Optim., 52(6):3887-3916, 2014.
- J.F. Bonnans, X. Dupuis, L. Pfeiffer. *Second-order sufficient conditions for strong solutions to optimal control problems*. ESAIM Control Optim. Calc. Var., 20(3):704-724, 2014.
- X. Dupuis. *Optimal control of leukemic cell population dynamics*. Math. Model. Nat. Phenom., 9(1):4-26, 2014.
- J.F. Bonnans, C. de la Vega, X. Dupuis. *First and second order optimality conditions for optimal control problems of state constrained integral equations*. J. Optim. Theory Appl., 159(1):1-40, 2013.

### Jupyter Notebooks

- J-D. Benamou, X. Dupuis. *Semi-discrete principal-agent problem*. <<https://mathmarx.paris.inria.fr:8080>>, 2016.

## TEACHING

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### Optimization (M1, M2), Numerical Analysis (L3, M1), Topology (L3), ...

Associate Professor (192h/year of lectures and tutorials) at Université de Bourgogne, since 2016.

### Mathematical Methods for Economics and Finance

Teaching Assistant for the course of Prof. F. Gozzi at LUISS University (Italy), 2015-2016.

### Numerical Analysis and Optimization

Teaching Assistant for the course MAP431 at Ecole Polytechnique (France), 2010-2013.

### Colles of Mathematics

Tutor for the weakly oral examinations in Mathematics in MPSI (1<sup>st</sup> year of preparatory classes CPGE) at Lycée du Parc (Lyon, France), 2007-2009.

## SKILLS

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### Languages

French (native language), English (fluent), Italian (basic), German (notions)

### Computer

Python and Jupyter Notebook, Matlab/Scilab, R, Git