

# Martí Bosch

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Urban sprawl, Python and complexity

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## Education

- 2016-2020 (expected)**      **PhD in Civil and Environmental Engineering; École Polytechnique Fédérale de Lausanne** (Lausanne, Switzerland)
- 2015-2016**      **MSc in Informatics; École Nationale Supérieure d'Informatique et Mathématiques Appliquées de Grenoble** (Grenoble, France)  
*Specialization: Artificial Intelligence and the Web*  
*Thesis title: A framework for measuring urban sprawl from crowd-sourced data*
- 2010-2014**      **BSc in Industrial Technology Engineering; Escola Tècnica Superior d'Enginyeria Industrial de Barcelona** (Barcelona, Spain)  
*Thesis title: Automated refactoring for size reduction of CSS style sheets*

## Experience

- Current (since Sep 2016)**      **Doctoral Assistant; Urban and regional planning community (CEAT), EPFL** (Lausanne, Switzerland)  
Assessment of the impacts of urban patterns on the environment, transportation and human well being
- Feb-Jul 2016**      **Research Intern, STEEP team, INRIA Rhone-Alpes** (Grenoble, France)  
Evaluation of the literature of urban sprawl, and creation of a framework to assess it using crowd-sourced data
- Jun-Sep 2015**      **Summer Student, IT department, CERN** (Geneva, Switzerland)  
Development of the DataTV project, aimed to display a network with the real-time data throughput of CERN's experiments
- Feb-Jul 2014**      **Research Intern, Tyrex team, INRIA Rhone-Alpes** (Grenoble, France)  
Exploration semantics-preserving refactoring possibilities for Cascading Style Sheets based on logical reasoning

## Technical Experience

- PhD Courses**      **Scientific programming for Engineers** - Lecturer: Gillaume Anciaux  
**Topics in Computational Social Science** - Lecturer: Robert West  
**Optimization and simulation** - Lecturer: Michel Bierlaire

## Summer School on Reproducibility in Computational Sciences

### Python avancé pour le calcul scientifique

<b>Programming Languages</b>	<p><b>Python:</b> expert proficiency in the PyData stack and geospatial libraries. Good command of performance-optimization tools like Cython, Numba, Dask and Py-Bind. Advanced proficiency in Flask and Django web frameworks.</p> <p><b>C/C++:</b> good command of object-oriented C++, templates and the standard library</p> <p><b>Other:</b> expert proficiency with the Emacs editor, LaTeX and git. Advanced proficiency in bash, Java, Matlab, R, SQL, HTML, CSS, JavaScript.</p>
<b>Open Source</b>	<p><b>PyLandStats:</b> open-source Pythonic library to compute landscape metrics within the PyData stack (NumPy, pandas, matplotlib...)</p> <p><b>PySTREAM:</b> Python implementation of the STREAM hydrological rainfall-runoff model</p>

## Publications

- R. Jaligot, J. Chenal, M. Bosch, S. Hasler. *Historical dynamics of ecosystem services and land management policies in Switzerland*. **Ecological Indicators** 2019 101, 81-90
- L. Gervasoni, M. Bosch, S. Fenet, P. Sturm. *Calculating spatial urban sprawl indices using open data*. **15th International Conference on Computers in Urban Planning and Urban Management** 2017
- L. Gervasoni, M. Bosch, S. Fenet, P. Sturm. *A framework for evaluating urban land use mix from crowd-sourcing data*. **IEEE International Conference on Big Data** 2016
- M. Bosch, P. Genevès. N. Layaïda. *Reasoning with Style*. **International Joint Conference on Artificial Intelligence** 2015
- M. Bosch, P. Genevès. N. Layaïda. *Automated refactoring for size reduction of CSS style sheets*. **Proceedings of the 2014 ACM symposium on Document engineering** 2014

## Languages

- Catalan (mothertongue), Spanish (native)
- English, French (full professional proficiency, C1)
- Italian (limited working proficiency, B1)
- German (elementary proficiency, A1)

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