Martí Bosch

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GitHub: **github.com/martibosch** • Personal site: **martibosch.github.io**

EPFL ENAC IA CEAT, BP 3232, Station 16, 1015 Lausanne, Switzerland

marti.bosch@epfl.ch • +41 21 69 34435 • 28 years old

Education

Sep 2016-Dec 2020 (expected)
PhD in Civil and Environmental Engineering; **École Polytechnique Fédérale de Lausanne** (Lausanne, Switzerland)

Directors: Jérôme Chenal and Stéphane Joost

Sep 2015-Jul 2016
MSc in Informatics; **École Nationale Supérieure d'Informatique et Mathématiques Appliquées de Grenoble** (Grenoble, France)

Thesis title: A framework for measuring urban sprawl from crowd-sourced data. Directors: Serge Fenet, Peter Sturm

Sep 2010-Jul 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. Director: Pierre Genevès

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 and human well being. Directors: Jérôme Chenal, Stéphane Joost

Feb 2016-Jul 2016
Research Intern, **STEEP team**, INRIA Rhone-Alpes (Grenoble, France)

Evaluation of the literaure of urban sprawl, and creation of a framework to assess it using crowd-sourced data. Directors: Serge Fenet, Peter Sturm

Jun 2015-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. Director: Xavier Espinal

Feb 2014-Jul 2014
Research Intern, **Tyrex team**, INRIA Rhone-Alpes (Grenoble, France)

Exploration semantics-preserving refactoring possibilities for Cascading Style Sheets based on logical reasoning. Director: Pierre Genevès

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

Programming Languages   **Python:** expert proficiency in the scientific Python stack and geospatial libraries. Good command of performance-optimization tools like Cython, Numba, Dask and PyBind. Advanced proficiency in Flask and Django web frameworks.

C/C++: good command of object-oriented C++, templates and the standard library

Other: expert proficiency with the Emacs editor, LaTeX and git. Advanced proficiency in bash, Java, Matlab, R, SQL, HTML, CSS, JavaScript.

Languages

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

Publications

Submitted manuscripts   Bosch, M., Locatelli, M., Hamel, P., Jaligot, R., Chenal, J., & Joost, S. (2020): Evaluating urban greening scenarios for urban heat mitigation: a spatially-explicit approach. *Preprint available* at bioRxiv. **doi.org/10.1101/2020.11.09.373779**

Bosch, M., Locatelli, M., Hamel, P., Remme, R., Chenal, J., & Joost, S. (2020): A spatially-explicit approach to simulate urban heat islands in complex urban landscapes. *Under review* in Geoscientific Model Development. **doi.org/10.5194/gmd-2020-174**

Peer-reviewed journals   Bosch, M. (2020): DetecTree: Tree detection from aerial imagery in Python. Journal of Open Source Software, 5(50), 2172. **doi.org/10.21105/joss.02172**

Bosch, M., Jaligot, R., & Chenal, J. (2020). Spatiotemporal patterns of urbanization in three Swiss urban agglomerations: insights from landscape metrics, growth modes and fractal analysis. Landscape Ecology, 1-13. **doi.org/10.1007/s10980-020-00985-y**

Bosch, M. (2019). PyLandStats: An open-source Pythonic library to compute landscape metrics. PLoS One, 14(12). **doi.org/10.1371/journal.pone.0225734**

Bosch, M., Chenal, J., & Joost, S. (2019). Addressing urban sprawl from the complexity sciences. Urban Science, 3(2), 60. **doi.org/10.3390/urbansci3020060**

Bosch, M. (2019). swisslandstats-geopy: Python tools for the land statistics datasets from the Swiss Federal Statistical Office. Journal of Open Source Software, 4(41), 1511. **doi.org/10.21105/joss.01511**

Jaligot, R., Chenal, J., & Bosch, M. (2019). Assessing spatial temporal patterns of ecosystem services in Switzerland. Landscape Ecology, 34(6), 1379-1394. **doi.org/10.1007/s10980-019-00850-7**

Jaligot, R., Chenal, J., Bosch, M., & Hasler, S. (2019). Historical dynamics of ecosystem services and land management policies in Switzerland. Ecological indicators, 101, 81-90. **doi.org/10.1016/j.ecolind.2019.01.007**

Kemajou, A., Jaligot, R., Bosch, M., & Chenal, J. (2019). Assessing motorcycle taxi activity in Cameroon using GPS devices. Journal of transport geography, 79, 102472. **doi.org/10.1016/j.jtrangeo.2019.102472**

Conference proceedings	Gervasoni, L., Bosch, M., Fenet, S., & Sturm, P. (2017). Calculating spatial urban sprawl indices using open data. In 15th International Conference on Computers in Urban Planning and Urban Management. Gervasoni, L., Bosch, M., Fenet, S., & Sturm, P. (2016). A framework for evaluating urban land use mix from crowd-sourcing data. In 2016 IEEE International Conference on Big Data (Big Data) (pp. 2147-2156). IEEE. **doi.org/10.1109/BigData.2016.7840844** Bosch, M., Genevès, P., & Layaïda, N. (2015). Reasoning with style. In Twenty-Fourth International Joint Conference on Artificial Intelligence. Bosch, M., Genevès, P., & Layaïda, N. (2014). Automated refactoring for size reduction of CSS style sheets. In Proceedings of the 2014 ACM symposium on Document engineering (pp. 13-16). **doi.org/10.1145/2644866.2644885**

Talks

Conferences	Bosch, M. (2020). A reusable computational workflow to assess urban heat islands in Python. GeoPython Conference 2020 (online). Sep 21-22 Bosch, M. (2020). Analysis with PyLandStats of the evolution of the Swiss forests. Workshop in the Young Modellers in Ecology Workshop (online). May 26-28 Bosch, M. (2020). PyLandStats: computing landscape metrics in the Python ecosystem. Talk in the Young Modellers in Ecology Workshop (online). May 26-28 Bosch, M. (2020). DetecTree: a Python library for tree detection from aerial imagery. AI & Cities track, Applied Machine Learning Days. Lausanne. Jan 25-29 Bosch, M. (2019). Spatiotemporal Patterns of Urbanization in Three Swiss Urban Agglomerations: Insights from Landscape Metrics, Growth Modes and Fractal Analysis. Theoretical Geography VVOIP Debates, Debate 3.1 - Fractals and Multifractals. Online colloquium. Nov 15-16 Bosch, M. (2014). Automated refactoring for size reduction of CSS style sheets. ACM symposium on Document engineering. Fort Collins, Colorado. Sep 16-19

Service

Journal peer review	Geoscientific Model Development PLOS Computational Biology Journal of Open Source Software