

Juste Raimbault

90 Tottenham Court Road
London W1T 4TJ, UK
☎ +33648136295
✉ juste.raimbault@polytechnique.edu
ORCID : 0000-0003-0768-9480

Positions

Since January 2019 **Research Fellow**, CASA, UCL, London, UK.
Coupling land-use transport interaction models with microsimulation models

March 2018-August 2019 **Post-doctoral Researcher**, Complex Systems Institute - UPS CNRS 3611 ISC-PIF, Paris, France.
Postdoc project: *Extending methods to explore spatial simulation models*

Journal papers

- Raimbault J., Broere J., Somveille M., Serna J.M., Strombom E. Moore C., Sugar L., Zhu B. (2019). A spatial agent based model for simulating and optimizing networked eco-industrial systems. *Resources Conservation and Recycling*. In Press.
- Raimbault, J. & Bergeaud, A. (2018). An Empirical Analysis of the Spatial Variability of Fuel Prices in the United States. *Transportation Research Part A*. In Press.
- Raimbault, J. (2019). Second-order Control of Complex Systems with Correlated Synthetic Data. *Complex Adaptive Systems Modeling*. In Press.
- Raimbault, J. (2019). Multi-dimensional Urban Network Percolation. *Journal of Interdisciplinary Methodologies and Issues in Science*. In Press.
- Raimbault J., Cottineau C., Le Texier M., Le Nechet F. & Reuillon R. (2019). Space Matters: extending sensitivity analysis to initial spatial conditions in geosimulation models. *Journal of Artificial Societies and Social Simulation*, 22(4), 10.
- Banos A., Chasset P.-O., Commenges A. Cottineau C., Pumain D. & Raimbault J. (2019). Empowering open science with reflexive and spatialised indicators. *Environment and Planning B: Urban Analytics and City Science*, 2399808319870816.
- Raimbault, J. (2019). Exploration of an interdisciplinary scientific landscape. *Scientometrics*, 119(2), 617-641.
- Raimbault, J. (2018). Calibration of a density-based model of urban morphogenesis. *PloS one*, 13(9), e0203516.
- Raimbault, J. (2018). Indirect evidence of network effects in a system of cities. *Environment and Planning B: Urban Analytics and City Science*, 2399808318774335.
- Bergeaud, A., Potiron, Y., & Raimbault, J. (2017). Classifying patents based on their semantic content. *PloS one*, 12(4), e0176310.

Book chapters

- Raimbault, J. (2019). An urban morphogenesis model capturing interactions between networks and territories. In *The Mathematics of Urban Morphology (pp. 383-409)*. Birkhauser, Cham.
- Raimbault, J. (2019). Models for the co-evolution of cities and networks, *forthcoming in Handbook on Cities and Networks*, Rozenblat C., Neal Z., eds. arXiv:1804.09430
- Raimbault, J. (2018). Unveiling co-evolutionary patterns in systems of cities : systematic exploration of the SimpopNet model, *forthcoming in Theories and models of urbanization*. Pumain D., ed. Springer Lecture Notes in Morphogenesis. arXiv:1809.00861
- Raimbault, J. (2018). Relating complexities for the reflexive study of complex systems, *forthcoming in Theories and models of urbanization*. Pumain D., ed. Springer Lecture Notes in Morphogenesis.
- Raimbault, J. (2018). Mutations of transportation networks in China, *Medium Project e-book*. Aveline N., ed.

Conference papers

- Raimbault, J. & Perret, J. (2019). Generating urban morphologies at large scales. *The 2019 Conference on Artificial Life 2019 NO. 31*, 179-186.
- Raimbault, J. (2017). An applied knowledge framework to study complex systems, *Complex Systems Design & Management* (pp.31-45). arXiv:1706.09244
- Raimbault, J. (2017). Identification de causalités dans des données spatio-temporelles, Sageo 2017 Proceedings. arXiv:1709.08684 (English translation)
- Raimbault, J. (2017). A Discrepancy-Based Framework to Compare Robustness Between Multi-attribute Evaluations. In *Complex Systems Design & Management* (pp. 141-154), Springer.
- Raimbault, J. (2017). Investigating the empirical existence of static user equilibrium. *Transportation Research Procedia*, 22, 450-458.
- Raimbault, J. (2017). Models coupling urban growth and transportation network growth: An algorithmic systematic review approach. *Plurimondi*, (17), *ECTQG 2015 Proceedings*. arXiv:1605.08888
- Raimbault, J. (2014). User-Based Solutions for Increasing Level of Service in Bike-Sharing Transportation Systems. In *Complex Systems Design & Management* (pp. 31-44), Springer. **Best Student Paper Award at CSDM 2014.**
- Raimbault, J., Banos, A. & Doursat, R. (2014) A Hybrid Network/Grid Model of Urban Morphogenesis and Optimization. *Proceedings of the 4th International Conference on Complex Systems and Applications (ICCSA 2014)*, June 23-26, 2014, Université de Normandie, Le Havre, France; M. A. Aziz-Alaoui, C. Bertelle, X. Z. Liu, D. Olivier, eds.: pp. 51-60.

Communications

- A multi-scalar model for systems of cities, *Conference on Complex Systems 2019, Singapore, Oct. 2019*.
- A multi-dimensional percolation approach to characterize sustainable mega-city regions, *MARAMI 2018, Avignon, Oct. 2018*.
- A systematic comparison of interaction models for systems of cities, *Conference on Complex Systems 2018, Thessaloniki, Sept. 2018*.
- Extracting knowledge from simulation models: trends and perspectives from the viewpoint of quantitative geography, *Conference on Complex Systems 2018, Thessaloniki, Sept. 2018*.
- Multi-modeling the morphogenesis of transportation networks. In *Artificial Life Conference Proceedings* (pp. 382-383). *Tokyo, July 2018*.
- Modeling Urban Morphogenesis: towards an integration of territories and networks, *GoPro 2017, Lyon, Dec. 2017*.
- Complexity, Complexities and Complex Knowledge, *Geodiversity International Workshop, Paris, October 2017*.
- Modeling the Co-evolution of Urban Form and Transportation Networks, *Conference on Complex Systems 2017, Cancun, Sept. 2017*.
- Raimbault J. & Baffi S. (2017). Structural Segregation: Assessing the impact of South African Apartheid on Underlying Dynamics of Interactions between Networks and Territories, *ECTQG 2017, York, Sept. 2017*
- Invisible Bridges ? Scientific landscapes around similar objects studied from Economics and Geography perspectives, *ECTQG 2017, York, Sept. 2017*
- Raimbault, J. & Bergeaud, A. (2017). The Cost of Transportation: Spatial Analysis of Fuel Prices in the US, *EWGT 2017, Budapest, Sept. 2017*
- Cottineau C., Raimbault J., Le Texier M., Le Néchet F. & Reuillon R. (2017). Initial spatial conditions in simulation models: the missing leg of sensitivity analyses?, *Geocomputation 2017, Leeds, Sept. 2017*
- A macro-scale model of co-evolution for cities and transportation networks, *Medium International Conference, Guangzhou, June 2017*
- Losavio C. & Raimbault J. (2017). Agent-based Modeling of Migrant Workers Residential Dynamics within a Mega-city Region: the Case of Pearl River Delta, China, *Urban China Development International Conference, London, May 2017*
- Co-construire Modèles, Etudes Empiriques et Théories en Géographie Théorique et Quantitative: le cas des Interactions entre Réseaux et Territoires. *Treizièmes Rencontres de ThéoQuant, Besançon, May 2017*
- Un Cadre de Connaissances pour une Géographie Intégrée. *Journée des jeunes chercheurs de l'Institut de Géographie de Paris, Paris, April 2017*

Towards a Theory of Co-evolutive Networked Territorial Systems: Insights from Transportation Governance Modeling in Pearl River Delta, China. *Medium Seminar-Urban Sustainable Development in Zhuhai, Guangzhou, December 2016*

Models of growth for system of cities : Back to the simple, *Conference on Complex Systems 2016, Amsterdam, Sep 2016*.

Raimbault J., Bergeaud A. and Potiron Y. (2016). Investigating Patterns of Technological Innovation. *Conference on Complex Systems 2016, Amsterdam, Sep 2016*.

For a Cautious Use of Big Data and Computation. *Royal Geographical Society - Annual Conference 2016 - Session : Geocomputation, the Next 20 Years (1), London, Aug 2016*.

Indirect Bibliometrics by Complex Network Analysis. *20e Anniversaire de Cyberge, Paris, May 2016*.

Raimbault, J. & Serra, H. (2016). Game-based Tools as Media to Transmit Freshwater Ecology Concepts, *poster corner at SETAC 2016, Nantes, May 2016*.

Raimbault, J. (2016). Génération de données Synthétiques corrélées, *Actes des Journées de Rochebrune, January 2016*.

Le Nechet, F. & Raimbault, J. (2015). Modeling the emergence of metropolitan transport authority in a polycentric urban region, *ECTQG 2015, Bari, Sept. 2015*.

Hybrid Modeling of a Bike-Sharing Transportation System, *poster at ICCSS 2015, Helsinki, June 2015*.

Raimbault, J. & Gonzales, J. (2015). Application de la Morphogénèse de Réseaux Biologiques à la Conception Optimale d'Infrastructures de Transport, *poster presented at Rencontres du Labex Dynamite, Paris, May 2015*.

Working Papers

Raimbault, J. & Le Nechet, F. (2018). Closing the loop: Introducing Endogenous Transport Provision in a LUTI Model. *Under review for Journal of Transport Geography*.

Raimbault, J. (2018). Co-evolution and morphogenetic systems. [arxiv:1803.11457](https://arxiv.org/abs/1803.11457)

Raimbault, J. (2018). Reconciling complexities: for a stronger integration of approaches to socio-technical systems. [arxiv:1805.10195](https://arxiv.org/abs/1805.10195)

Education

- Feb. **PhD in Geography**, Géographie-cités (UMR 8504 CNRS) / LVMT (UMR-T 9403 IFSTTAR).
- 2015–Feb. Characterizing and Modeling the Co-evolution of Transportation Networks and Territories, *under the supervision*
- 2018 *of HDR A. BANOS and MCF F. LE NECHET*.
- June 2016 **SFI Complex Systems Summer School**, Santa Fe Institute, Santa Fe, USA.
- 2012–2014 **MSc Complex Systems Science**, Ecole Polytechnique ParisTech, Palaiseau, France.
Agent-based modeling, Evidence-based methods from Therapeutic Evaluation, Theoretical Analysis of Physical Complex Systems, Epistemology, Complex Networks, Datamining, Signal Processing
Memoire: Complex Network Analysis for Real-time Trend Detection in a Financial System
- 2013–2014 **MSc Urbanism, Environment, Transportation**, Ecole Nationale des Ponts et Chaussées ParisTech, Marne-la-Vallée, France.
Analysis of Territorial Systems, Management and design of Transportation Systems, Urbanism, History of Urbanism, Urban Economics, Environmental Planning and Design
Memoires: Interdisciplinary approaches of modeling and simulations in urban planning and architecture (M1) ; Discrete Choice Models for Bike-sharing Transportation Systems (M2)
- 2010–2012 **BSc**, Ecole Polytechnique ParisTech, Palaiseau, France.
Multidisciplinary scientific formation (mathematics, computer science, applied mathematics, physics, mechanics, biology, economics)
Research internship in Machine Learning and Artificial Intelligence: Design and implementation of a matching algorithm

Grants and Awards

MEDIUM mobility grant, Young Researcher mobility grant for China, MEDIUM project.

PhD grant, *allocation doctorale AMX* for three years from Graduate School, Ecole Polytechnique.

Best Student Paper Award at Conference CSD&M, Paris, December 2014.

Teaching

- March 2018 **Seminar big data in transportation studies**, Ecole des Ponts et Chaussées, Champs-sur-Marne.

Spring 2017 **Teaching Assistant**, *Université Paris 7*, Paris, France.
Teaching Assistant: *Statistics and Cartography, Spatial Analysis and Professionalization for Geographers*.

Feb. 2016 **Seminar Geography and Big Data**, *Université Paris 1 Sorbonne*, Paris, France.

Fall 2015 **Teaching Assistant**, *Université Paris 7*, Paris, France.
Teaching Assistant: *Introduction to Geography and Introduction to GIS*.

Reviewing

since 2019 Reviewing for *Scientific Reports, Sustainability, International Journal of Geographical Information*

since 2018 Reviewing for *Ecological Modeling, Entropy*

since 2015 Reviewing for *PLoS ONE*

since 2015 Reviewing for *Cybergeo, European Journal of Geography*

Scientific Activity

2018 Participation in the CNRS experimental project “*Incubator for scientific mediation*”

Sept. 2018 CCS 2018. Satellite organisation: *New methods and epistemologies to explore simulation models*

Sept. 2017 ECTQG 2017. Session organisation: *Bridges between Economics and Geography: Lessons from Modeling Perspectives*

June 2017 Medium Conference 2017. Session organisation: *Spatio-temporal Behavior in Complex Urban Systems*

June 2014 EMCSS Seminar organisation: Comparing Top-down and Bottom-up approaches to Urban Systems

Computer skills

OS	Unix (OSX, Ubuntu, CentOS)	Scripts	Shell, AppleScript
Programming	JAVA, Python, Scala, C/C++, OCaml	Typography	L ^A T _E X, API OO.org, ScalaTex
Web	php, XHTML, CSS, AJAX	Database	MySQL, MongoDB, PostgreSQL
Scientific	R, NetLogo, Gama, OpenMole, Scilab, Matlab, Gephi	GIS	QGIS, PostGIS, TransCAD, Ocad

Languages

French , <i>Native</i>	English , <i>Fluent</i>
German , <i>Fluent, European Baccalaureate</i>	Mandarin , <i>Notions, level HSK3</i>