

Ricardo CAMACHO

PhD Candidate, MSc., Civil & Environmental Engineer   

PERSONAL DATA

AFFILIATION: Centre for Spatial Data and Land Administration [\[CSDILA\]](#), The University of Melbourne
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EDUCATION

- SEP 2025
(EXP.) | **PhD in Engineering & IT**, THE UNIVERSITY OF MELBOURNE, Parkville, Australia
Thesis: *"Spatial dynamics of the informal urban growth in disaster-prone cities: impact on resilience and sustainability practices"*
Advisor: Assoc.Prof. Jagannath ARYAL | PROF. ABBAS RAJABIFARD
- DEC 2016 | **Master of Science in**, POLITECNICO DI MILANO, Lecco, Italy
Civil Engineering for Risk Mitigation |
Thesis: *"Enhancing structured and organized post disaster damage loss data according to the SFDRR. Case: June 2013 flooding in Vall d'Aran and the Pyrenees"*
Advisor: Prof. Scira MENONI | Dr. Ouejdane MEJRI [\[EN\]](#)
- OCT 2014 | **Bachelor in Environmental Engineering**, UNIVERSITY OF LOS ANDES, Bogotá, Colombia
Major: Land Administration and Agriculture |
Advisor: Dr. Daniel PÁEZ |
- MAR 2014 | **Bachelor in Civil Engineering**, UNIVERSITY OF LOS ANDES, Bogotá, Colombia
Major: Structural Engineering |
Advisor: Prof. Luis E. YAMÍN |

ACADEMIC AND PROFESSIONAL EXPERIENCE

- AUG 2024
DEC 2024 | **Research Assistant** at THE UNIVERSITY OF MELBOURNE, Parkville (AU)
 - Assisted the Traditional Owners of the Angkamuthi Country on Cape York Peninsula, Queensland, with understanding the baseline condition of their Country and how it has changed over the last 25 years due to fire impacts.
 - Generated a series of map outputs to communicate fire patterns spatially and temporally, and fire impacts on local land cover types, along with a StoryMap to easily share and communicate the project.
- JUL 2022
DEC 2023 | **Tutor** at THE UNIVERSITY OF MELBOURNE, Parkville (AU)
 - Assisted lecturer on the subjects **Integrated Spatial Systems** and **Digital Infrastructure Systems**, tutoring students, demonstrating laboratory equipment, and grading assignments.
- JAN 2017
DEC 2023 | **Researcher** at UNIVERSITY OF LOS ANDES, Bogota (CO)
 - Developed a Cellular Automata-based Land Use Cover Change model for the city of Cali (Colombia) and its metropolitan region.
 - Developed a population density model for the City of Bogota, adding a third dimension to a Land Use Cover Change Model using a Machine Learning based approach.
 - Analysed the density of invasive species, forest regeneration, and macrophytes growth using multispectral imagery, UAVs, and analysis of historical documents and data, in three different National Natural Parks of Colombia.
 - Studied the 2017 mudslides in Mocoa, Colombia and its consequences from past urban misguided development in the city, resulting in one award, one publication in a peer-reviewed journal, and multiple presentations.
- JAN 2017
JAN 2020 | **Instructor professor (Full-time Lecturer)** at UNIVERSITY OF LOS ANDES, Bogota (CO)
 - Lectured the course **Geomatics** for the Civil and Environmental Engineering programs, where I introduced UAVs and LiDAR technologies into the curriculum, and created new fieldwork as a surveying/GIS integration by obtaining and processing geo-morphological information in a river basin.
 - Lectured the course **Statics** for the Civil Engineering program, where I implemented of a flipped classroom methodology with innovative resources for advocating students' autonomy in the learning process.

PUBLICATIONS

1. **R. Camacho**, Aryal, J. & Rajabifard, A. "How do disasters disrupt the spatial growth of informal settlements? A multi-temporal remote sensing approach – The case study of Mocoa, Colombia." *Habitat International* (2025). DOI: [10.1016/j.habitatint.2024.103272](https://doi.org/10.1016/j.habitatint.2024.103272)
2. **R. Camacho**, J. Aryal, and A. Rajabifard, "Disaster-induced disruption of policies for informal urban settlements.", *Cities* (2024). DOI: [10.1016/j.cities.2024.105098](https://doi.org/10.1016/j.cities.2024.105098)
3. N. Pardo, R. Sulpizio, F. Lucchi, G. Giordano, S. Cronin, B. Pulgarin, M. Roverato, A. M. Correa, and **R. Camacho**, M. Cabrera, "Late Holocene volcanic stratigraphy and eruption chronology of the dacitic Young Doña Juana volcano, Colombia.", *GSA Bulletin* (2023). DOI: [10.1130/B36557.1](https://doi.org/10.1130/B36557.1)
4. S. Salazar, **R. Camacho**, S. Villota, N. Pardo, A. Velasquez, M. Cabrera, and B. Pulgarin, "Geomorphology on a tropical volcanic setting: interplay of fluvial, gravitational, structural, and volcanic processes in the Doña Juana Volcanic Complex, Colombia.", *Journal of Maps*, (2022). DOI: [10.1080/17445647.2022.2101948](https://doi.org/10.1080/17445647.2022.2101948)
5. L.A. Guzman, **R. Camacho**, D.A. Rodriguez, and C. Beltrán, "Modeling population density guided by land use cover change model: a case study of Bogotá", *Population and Environment*, (2022). DOI: [10.1007/s11111-022-00400-5](https://doi.org/10.1007/s11111-022-00400-5)
6. N. Pardo, C. Gonzalez, M. Espinosa, M. Cabrera, S. Salazar, S. Archila, N. Palacios, D. Prieto, **R. Camacho**, and L. Parra, "Worlding resilience in the Doña Juana Volcano, Northern Andes (Colombia): a transdisciplinary view ", *Natural Hazards*, (2021). DOI: [10.1007/s11069-021-04662-4](https://doi.org/10.1007/s11069-021-04662-4)
7. L. Navarro, **R. Camacho**, J. Gallego, and J.F. Saldarriaga, "Assessment of the potential risk of leaching pesticides in agricultural soils: Study case Tibasosa, Boyaca, Colombia", *Heliyon*, (2021). DOI: [10.1016/j.heliyon.2021.e08301](https://doi.org/10.1016/j.heliyon.2021.e08301)
8. L.F. Prada-Sarmiento, M. Cabrera, **R. Camacho**, N. Estrada, and A. Ramos, "The Mocoa Event on March 31 (2017). Analysis of a series of mass movements in a tropical environment of the Andean-Amazonian Piedmont.", *Landslides*, (2019). DOI: [10.1007/s10346-019-01263-y](https://doi.org/10.1007/s10346-019-01263-y)

POSTER AND ORAL PRESENTATIONS

1. **R. Camacho**, A. Rajabifard, and J. Aryal, "Do disasters disrupt the spatial growth of informal settlements? The case of Mocoa, Colombia", *Oral* at the *43rd EARSeL Symposium, Manchester, UK*. 17 - 20 Jun, 2024.
2. **R. Camacho**, A. Rajabifard, and J. Aryal, "Spatial growth patterns of informal settlements in disaster environments: The case of Mocoa, Colombia", *Oral* at the *LOCATE23, Adelaide, Australia*. 10 - 12 May, 2023.
3. **R. Camacho**, A. Rajabifard, and J. Aryal, "Disaster induced disruption of Informal Urban Settlements and spatial growth patterns: Three case studies in Latin-America", *Oral* at the *International Symposium on Rebuilding Communities after Displacement, Online*. 13 - 14 Dic, 2021.
4. L.A. Guzman, **R. Camacho**, C. Beltran, and A. Rodriguez, "The 3D component of a land-use change model for Bogotá: A random forest-based population density model," *Oral* at the *XXI PANAM 2021, Online*. 11 - 13 Aug, 2021.
5. N. Pardo, M. Cabrera, C. Gonzalez, M. Espinosa, **R. Camacho**, N. Palacios, S. Salazar, L. Parra, and S. Archila, "A transdisciplinary approach to mass-movements mitigation strategies in volcanic habitats: an approach from complex systems ," *Oral* at the *EGU General Assembly 2020, Online*. 4 - 8 May, 2020.
6. M. Cabrera, L.F. Prada-Sarmiento, **R. Camacho**, N. Estrada, and A. Ramos, "The Mocoa 2017 Event. A case-study of mass movements in the Andean-Amazonian Piedmont." *Poster* at the *AGU Fall Meeting 2019, San Francisco, USA*. 9 - 13 Dec, 2019.
7. J.R. Escorcia, **R. Camacho**, and J. Wills, "Historical analysis of road infrastructure accessibility in Colombia," *Oral* at the *FIG Working Week 2019, Hanoi, Vietnam*. 22 - 29 Apr, 2019.
8. L. Cardenas, C. Salcedo, and **R. Camacho**, "Comparison of two methodologies to estimate flood footprints based in GIS using hydrological data," *Oral* at the *International Perspectives on Water and the Environment - IPWE2018, Cartagena, Colombia*. 04 - 07 Dec, 2018.

SCHOLARSHIPS AND AWARDS

NOV 2022	Dejar Huella recognition. Best Impactful Project Awarded by Universidad de Los Andes.
SEP 2021	Biennial Javeriana Award in Research Awarded by Pontificia Universidad Javeriana.
DEC 2020	Partial fee remission Graduate Research Scholarship Awarded by The University of Melbourne.
JAN 2020	Beneficiary of the Call of Proposals 860 of 2019 to undertake doctoral studies abroad Awarded by Ministry of Science, Technology and Innovation of Colombia.
JUN 2019	Innovative Professor Award Awarded by Universidad de Los Andes.
OCT 2018	80% Scholarship in Technical formation in Woodworking at Escuela de Artes y Oficios Santo Domingo Funded by Santo Domingo Foundation.
SEP 2014	UniverLecco Gold Scholarship Merit scholarship for international students based on previous academic performance and qualifications.

RESEARCH AND EXPERIMENTAL SKILLS

Laboratory:	Terrestrial LiDAR, UAVs, GNSS, Total Station, and Level.
Data analysis:	Photogrammetric analysis, multi spectral image analysis, LiDAR data processing.
Numerical:	Cellular automaton method, Random Forests regression models.

COMPUTER SKILLS

Good Knowledge:	MATLAB, AutoCAD, Revit, ArcGIS, QGIS, R, PIX4D, Metronamica, and MS Office.
Basic Knowledge:	Python, CLOUDCOMPARE, ILLUSTRATOR, AGISOFT, LaTeX , and ENVI.

MEMBERSHIPS AND ACADEMIC ACTIVITIES

AUG 2020 – Present	Researcher at the Centre for Spatial Data Infrastructures and Land Administration (CSDILA) The University of Melbourne, Australia
AUG 2020 – Present	Researcher at the Centre for Disaster Management and Public Safety (CDMPS) The University of Melbourne, Australia
JAN 2018 – Present	Member of the Research Portfolio on Historical Ecology and Social Memory (EHMS) Universidad de los Andes, Colombia
JAN 2017 – Dec 2020	Member of the research group on Urban and Regional Sustainability (SUR) Universidad de los Andes, Colombia
JUN 2017 – Dec 2020	Member of the DRR Working Group of the United Nations Major Group for Children and Youth (UNMGCY).
APR 2019	Co-convener at the HACK THE RISK - SMART SOLUTIONS ON WATER ISSUES AND FLOODS, Bogotá (CO) Co-organizer Event organized by University of Los Andes, NASA , and Water Youth Network (WYN).

LANGUAGES

SPANISH:	Native speaker	ITALIAN:	Fair (A2)
ENGLISH:	Full proficiency		

REVIEWER AT:

Habitat International
Geo-Spatial Information Science

EXTRACURRICULAR ACTIVITIES

Cooking, Woodworking, Literature, Sailing, Travelling and Foreign Cultures.

ACADEMIC REFERENCES

Dr. Jagannath Aryal

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Dr. Luis A. Camacho

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