

# Ricardo Camacho Castilla

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## PROFESSIONAL PROFILE

I am a civil and environmental engineer with a Master's in Civil Engineering for Risk Mitigation from Politecnico di Milano. Currently, I am a PhD Candidate at the University of Melbourne. My research focuses on the relationship between urban planning and disaster risk reduction, studying human settlement risk, sustainability, and dynamics before and after a disastrous event through spatial analysis and remote sensing. I am a researcher at the Centre for Disaster Management and Public Safety (CDMPS), the Centre for Spatial Data Infrastructures and Land Administration (CSDILA), and the Research Group in EO and AI. I am proactive and methodic, have strong analytic and leadership skills, and have excellent teamwork capabilities.

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## WORK EXPERIENCE

### Tutor, *The University of Melbourne, Parkville (AUS)* – (Jul 2022 – Present)

- Assisted the lecturer on the subject of Digital Infrastructure Systems Capstone (previously Integrated Spatial Systems) (GEOM30012), tutoring students, demonstrating laboratory equipment, and grading assignments.

### Instructor professor (Full-time Young Lecturer), *University of Los Andes, Bogota (COL)* – (Jan 2017 – Jan 2020)

- Leader of the Geomatics area in the Civil and Environmental Engineering Department.
- I supervised six undergraduate and four graduate research theses. Four of these were published in international congresses.
- Co-convened, alongside NASA and Water Youth Network, the international event Hack the Risk – Smart Solutions on Water Issues and Floods in April 2019.

### Researcher, *University of Los Andes, Bogota (COL)* – (Jan 2017 – Dec 2020)

- Developed a cellular automata-based land use cover change model for the city of Cali (Colombia) and its metropolitan region.
- Created 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.
- Studied the 2017 mudslides in Mocoa, Colombia and its consequences from past urban misguided developing in the city, resulting in one award, one publication in a peer reviewed journal, and multiple presentations.
- Developed local mass movement mitigation strategies with the town of Las Mesas' community settled in the skirts of an active volcano in southwest Colombia.
- 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.
- Six research articles were published in ISI Q1 journals. Oral and poster publications in over ten conferences and congresses.
- Member of the research group on Urban and Regional Sustainability (SUR).
- Member of the Research Portfolio on Historical Ecology and Social Memory (EHMS).
- Member of the DRR Working Group of the United Nations Major Group for Children and Youth (UNMGCY).

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## EDUCATION

### PhD in Engineering & IT

The University of Melbourne, Parkville (AUS) – (Dec 2020 – Present)

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

### MSc in Civil Engineering for Risk Mitigation

Politecnico di Milano, Lecco (ITA) – (Sep 2014 – Dec 2016)

Thesis: "Enhancing structured and organised 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

### Bachelor in Environmental Engineering

University of Los Andes, Bogota (COL) – (Aug 2010 – Oct 2014)

### Bachelor in Civil Engineering

University of Los Andes, Bogota (COL) – (Jan 2010 – Mar 2014)

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## EXTRACURRICULAR ACTIVITIES

- Cooking, woodworking, gardening, sailing.

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## SKILLS

- Languages:** Spanish: Native speaker – English: Full proficiency – Italian: A2 level.
- Computer skills:** MS Office, ArcGIS, QGIS, AutoCAD, Revit, Illustrator, Pix4D, AgiSoft, Python, R.

## PUBLICATIONS

- **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
- N. Pardo, R. Sulpizio, F. Lucchi, G. Giordano, S. Cronin, B. Pulgarin, M. Roverato, A. M. Correa, **R. Camacho**, and 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
- 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
- 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
- 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
- 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
- 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

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## POSTER AND ORAL PRESENTATIONS

- R. Camacho, A. Rajabifard, and J. Aryal, “Do disasters disrupt the spatial growth of informal settlements? The case of Mocoa, Colombia”, Oral at the *43<sup>rd</sup> EARSeL Symposium*, Manchester, UK. 17 - 20 Jun, 2024.
- 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.
- 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.
- 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.
- 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.
- 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.
- J.R. Escorcía, 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.
- 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.
- S. Rodriguez, D. Paez, and R. Camacho, “Analysis of the multipurpose cadastre use for risk and disaster management in Colombia”, Oral at the *26th FIG International Congress 2018*, Istanbul, Turkey. 06 - 11 May, 2018.
- R. Camacho, and D. Paez, “Agricultural Border Displacement as a Consequence of Climate Change. Case: Coffee in Colombia”, Oral at the *16th Annual World Bank Conference on Land and Poverty*, Washington DC, USA. 23 - 27 Mar, 2015.

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## 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 the 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. *Funded by Santo Domingo Foundation.*
- Sep 2014 - UniverLecco Gold Scholarship. Merit scholarship for international students. *Awarded by UniverLecco Foundation*