E. Arango
Integral Design & Management

Research profile

Postdoctoral Research Fellow at the Resilient Hydrotwin Project, Department of Materials, Mechanics, Management & Design (3MD), Faculty of Civil Engineering and Geosciences, TU Delft, The Netherlands.

Qualifications

Doctorate, Wildfire resilience assessment and management of road transport networks, University of Minho
Jan 2021 → 23 Jan 2025
Award Date: 23 Feb 2024

Numerical modeling of thin reinforced concrete walls designed for high seismic hazard zones: Bucaramanga case., Industrial University of Santander
Feb 2017 → Apr 2019
Award Date: 19 Apr 2019

Evaluation of the uncertainty generated by a monthly hydrological model in the simulation of the flow registered in the Calle Larga station, located in the Quindío River basin., University of Quindio
Aug 2011 → Aug 2016
Award Date: 16 Aug 2016

Employment

Integral Design &Management
Delft University of Technology
15 Aug 2024 → 14 Jun 2027

PhD
University of Minho
Guimarães, Portugal
1 Jan 2021 → 1 Jan 2025

Researcher of a European project
University of Minho
Guimarães, Portugal
1 Jan 2020 → 1 Dec 2020

lecture
University of Santander
Colombia
1 Jun 2019 → 1 Dec 2019

Researcher
Industrial University of Santander
Bucaramanga, Colombia
1 Feb 2019 → 1 Oct 2019

Budget Engineer and Supervision
Intecnova S.A.S
Colombia
1 Jul 2016 → 1 Feb 2017

Teaching assistant
University of Quindio
Colombia
1 Feb 2013 → 1 Jul 2016

Research outputs

Flood Emergency Mobility: Archetype-Based Modeling of Human Behavior
Arango, E. & Nogal, M., 2026, In: Proceedings of the International ISCRAM Conference. 23, 11 p.

Perspectives on the resilience of existing bridges to short- and long-term impacts of climate change
Shaban, N., Arango, E., Jiménez Rios, A., Rincon, L. F., Shang, Y., Habeeb, B., Martín-Pérez, B., Ferreira, T. M., Mendoza-Lugo, M. A., Ramírez Eudave, R., Bastidas-Arteaga, E., Sousa, H. S. & Nogal, M., 2026, In: Structure and Infrastructure Engineering.

Resilience assessment in post-wildfire recovery of road transport networks by dynamic thresholds and characteristic curves
Arango, E., Nogal, M., Yang, M., Sousa, H. S., Matos, J. C. & Stewart, M. G., 2025, In: Reliability Engineering and System Safety. 264, 18 p., 111365.

Wildfire preparedness: Optimal adaptation measures for strengthening road transport resilience
Arango, E., Nogal, M., Sousa, H. S., Matos, J. C. & Stewart, M. G., 2025, In: International Journal of Disaster Risk Reduction. 121, 21 p., 105371.

Enhancing infrastructure resilience in wildfire management to face extreme events: Insights from the Iberian Peninsula
Arango, E., Jiménez, P., Nogal, M., Sousa, H. S., Stewart, M. G. & Matos, J. C., 2024, In: Climate Risk Management. 44, 17 p., 100595.

Improving Societal Resilience Through a GIS-based Approach to Manage Road Transport Networks Under Wildfire Hazards
Arango, E., Nogal, M., Sousa, H. S., Matos, J. C. & Stewart, M. G., 2024, In: Transportation Engineering. 15, 7 p., 100219.

Towards Fire-Resilient Landscapes: Strategies For Reducing Exposure To Extreme Wildfires
Arango, E., Nogal, M., Dou, Y., Sousa, H., Matos, J. C. & Stewart, M. G., 2024, p. 101-102. 2 p.

Dynamic thresholds for the resilience assessment of road traffic networks to wildfires
Arango, E., Nogal, M., Yang, M., Sousa, H. S., Stewart, M. G. & Matos, J. C., 2023, In: Reliability Engineering and System Safety. 238, 17 p., 109407.

Effectiveness Assessment of Adaptation Measures to Build Wildfire Resilience of Road Networks
Arango, E., Nogal, M., Yang, M., Sousa, H. S., Stewart, M. G. & Matos, J. C., 2023. 8 p.

GIS-based methodology for prioritization of preparedness interventions on road transport under wildfire events.
Arango, E., Nogal, M., Sousa, H. S., Matos, J. C. & Stewart, M. G., 2023, In: International Journal of Disaster Risk Reduction. 99, 22 p., 104126.

Policies towards the resilience of road-based transport networks to wildfire events: The Iberian case
Arango, E., Nogal, M., Jiménez, P., Sousa, H. S., Stewart, M. G. & Matos, J. C., 2023, In: Transportation Research Procedia. 71, p. 61-68 8 p.

Flood risk assessment for road infrastructures using bayesian networks: Case study of santarem - portugal
Arango, E., Santamaria, M., Nogal, M., Sousa, H. S. & Matos, J. C., 2022, *International Probabilistic Workshop 2022, IPW 2022*. Sykora, M., Lenner, R. & de Koker, N. (eds.). Czech Sustainable Building Society Czech Technical University in Prague Klokner Institute of Czech Technical University in Prague IISBE, CIB, UNEP, p. 33-46 14 p. (Acta Polytechnica

CTU Proceedings; vol. 36).

Reliability-Based Bayesian Updating Using Visual Inspections of Existing Bridges
Arango, E., Santamaria, M., Sousa, H. S. & Matos, J. C., 2022, *Proceedings of the 1st Conference of the European Association on Quality Control of Bridges and Structures - EUROSTRUCT 2021: EUROSTRUCT 2021.* Pellegrino, C., Faleschini, F., Zanini, M. A., Matos, J. C., Casas, J. R. & Strauss, A. (eds.). Springer, p. 157–165 9 p. (Lecture Notes in Civil Engineering; vol. 200 LNCE).

Risk Assessment of Road Infrastructures as Key for Adaptability Measures Selection
Arango, E., Sousa, H. S. & Matos, J. C., 2021, *18th International Probabilistic Workshop, IPW 2020: IPW 2020.* Matos, J. C., Lourenço, P. B., Oliveira, D. V., Branco, J., Proske, D., Silva, R. A. & Sousa, H. S. (eds.). Springer, p. 673-687 15 p. (Lecture Notes in Civil Engineering; vol. 153 LNCE).

Propuesta de modelamiento numérico de muros delgados de concreto reforzado diseñados para zona de amenaza sísmica alta
Arango, E., Mina, W. V. & Jaimes, A. V., 2018, *La Ingeniería Estructural: puente para el desarrollo e integración de América y el mundo.* 10 p.

Activities

Effectiveness assessment of adaptation to build resilient road network to wildfires.
Arango, E. (Speaker)
12 Jul 2023

Strengthening Infrastructure Resilience in Cross-Border Wildfire Management
Arango, E. (Speaker)
12 Jul 2023

IABSE TG5.8. - Sub IV: resilience of existing bridges to short- and long-term impact of climate change (External organisation)
Arango, E. (Chair)
2022

Structural Engineering (IABSE) (External organisation)
Arango, E. (Member)
2019 → …

Prizes

Best Climate Change Governance paper 2024
Arango, E. (Recipient), 18 Mar 2025

Best Young Presenter Award at the 18th International Probabilistic Workshop
Arango, E. (Recipient), 2021

Grant award for doctoral research
Arango, E. (Recipient), 2020

Grant award for master research
Arango, E. (Recipient), 2017

Grant award for research into a European project
Arango, E. (Recipient), 2020

Jose Maria Sarriegi Scientific Outreach Award (VII Edition)
Arango, E. (Recipient) & Nogal Macho, M. (Recipient), 26 Nov 2025