



Future of AI and data production:
**Towards an inclusive and empowering
digital transformation of cities?**

Professor João Porto de Albuquerque

Professor and Director, Institute for Global Sustainable Development, University of Warwick

Co-Director, Warwick Institute for the Science of Cities

Turing Fellow, The Alan Turing Institute, UK

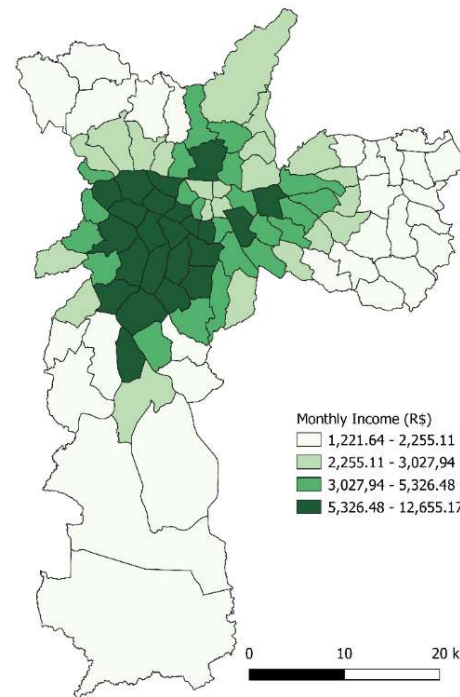
10th NIC.br Workshop on Survey Methodology, October 2020

Urban (data) science: towards smart cities?

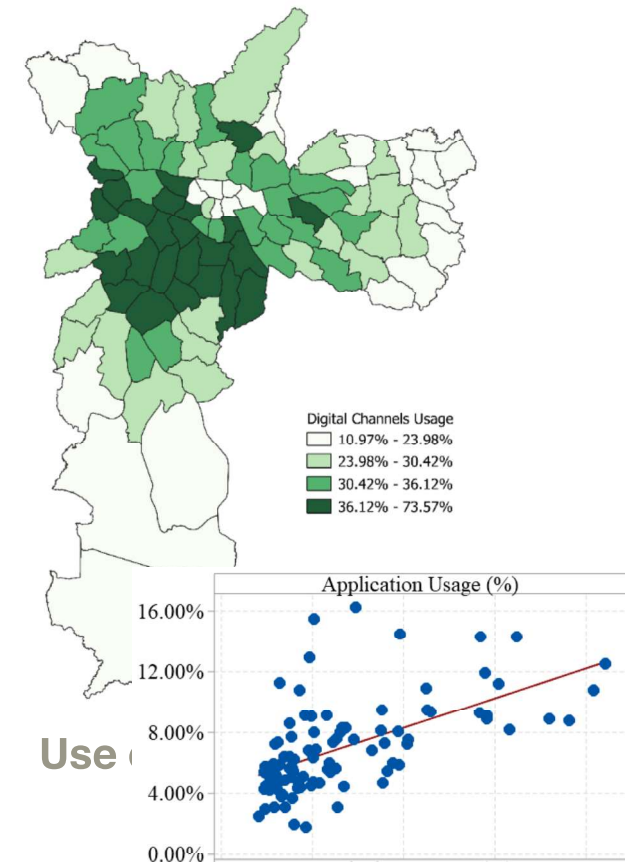
- ▶ New infrastructure for urban sensing :
 - Real-time, high spatiotemporal granularity
 - Focus on interactions, flows and networks: new **science of cities**
 - **Citizens as sensors**: potential for people to generate data in large scale
 - **AI/machine learning** to process this data



Key challenge: social and spatial inequalities are strongly associated to data inequalities



Monthly income



Macaya et al. 2020, *Digital-by-Default: Exclusion through Digital Public Service Channels* Conf-IRM Conference.

Janus-faced challenges of urban data

Information Overload

- High-volume data streams
- Unstructured data
- Variable **credibility** and **quality** of information



Information Dearth

- Lack of spatial and temporal **coverage**
- Low **integration** into decision-making processes and tools
- **Mismatch** between needs and offers

"Big
Data"

"No
Data"

How can we empower citizens/communities to generate data and cover the gaps needed to enable transformations to sustainability?



Albuquerque, J. P. de & Almeida, A. A. de, (2020). Modes of engagement: reframing 'sensing' and data generation in citizen science for empowering relationships. In: Davies, T. and Mah, A. (2020), *Toxic Truths: Environmental Justice and Citizen Science in a Post Truth Age*. Manchester, UK: Manchester University Press.

Research programme: building resilient cities and empowering communities through citizen-generated data



Urban resilience and informal communities in the global South

- **Flood resilience in Brazil: "Waterproofing Data"**: (PI: €1m ESRC/GCRF/Belmont Forum/Norface grant) with FGV and Cemaden (National Centre for Disaster Monitoring and Early-Warning)
- **Resilience and education: GRTA Waterproofing Data++** (PI: £370K UKRI GCRF): collaboration with FGV and Cemaden/Brazil
- **Landslides and community resilience in Brazil and Colombia: "URBE Latam"** (PI: £1m UKRI GCRF) : collaboration with BGS, Universidad de Antioquia, Colegio Mayor and UFRJ
- **Healthcare access in Bangladesh, Kenya, Pakistan, Nigeria: NIHR Global Health Unit on Improving Health in Slums** (Co-I: £6m NIHR grant)
- **Digital mapping for informal settlements in Ghana, Kenya and Nigeria: IDEAMAPS network** (Co-PI: £140K, UKRI GCRF "DIDA" network)
- **Waste and river pollution in Indonesia: Citarum river basin** in partnership with Monash University and Universitas Indonesia (PI, seed funding from Monash-Warwick Alliance)





URBE LATAM (Nov/2019-Oct/2022)

Understanding Risks and Building Enhanced Capabilities in Latin American cities

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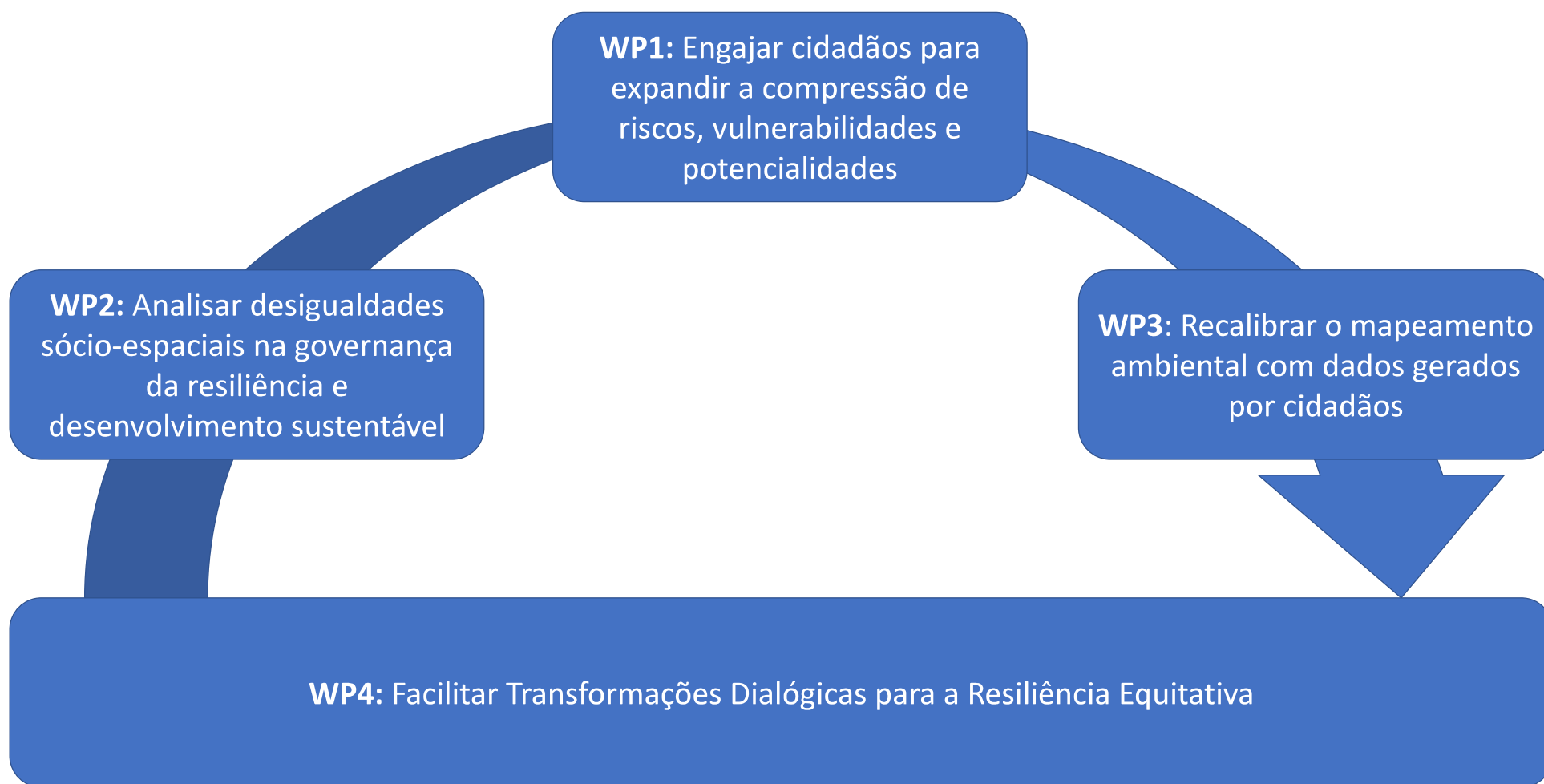


CPCD

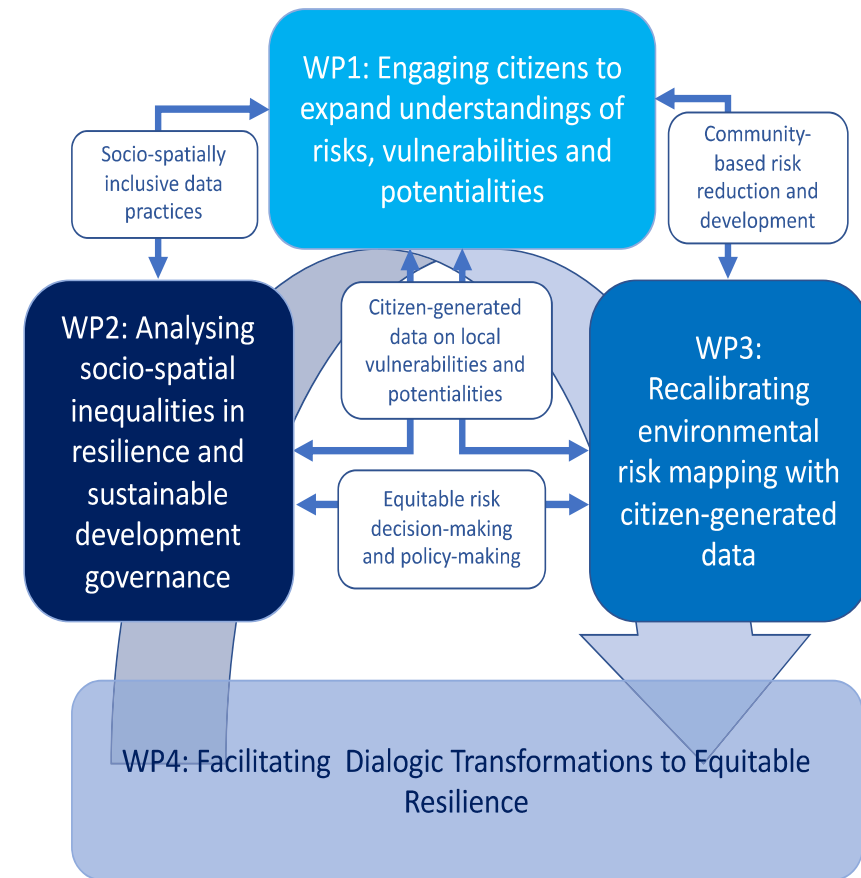
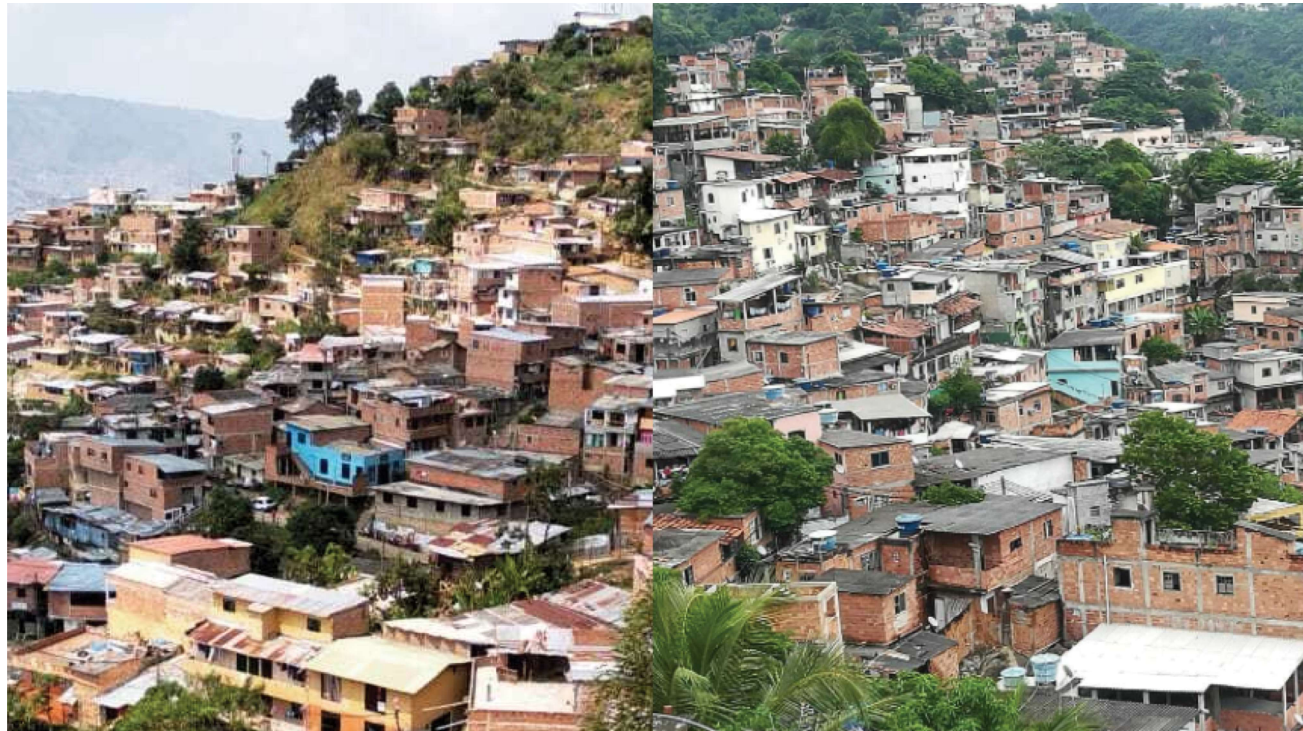
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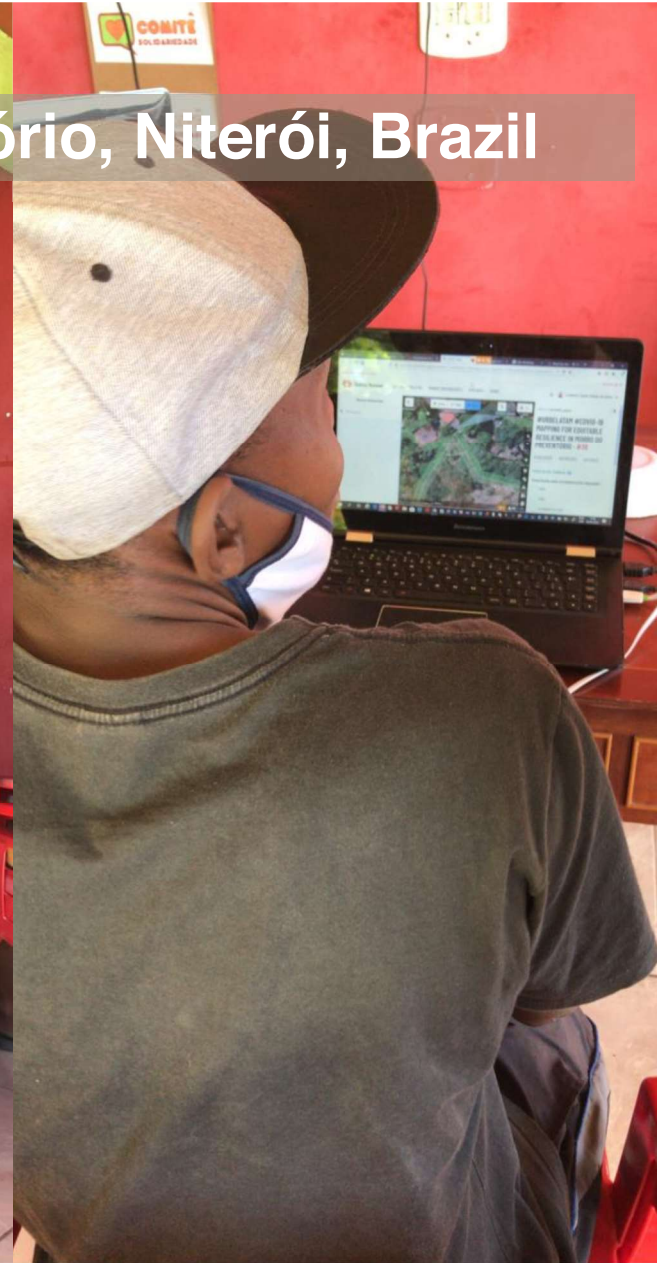
URBE LATAM: Visão geral do projeto



URBE Latam: engaging multiple stakeholders for equitable resilience



Mapping in Preventório, Niterói, Brazil



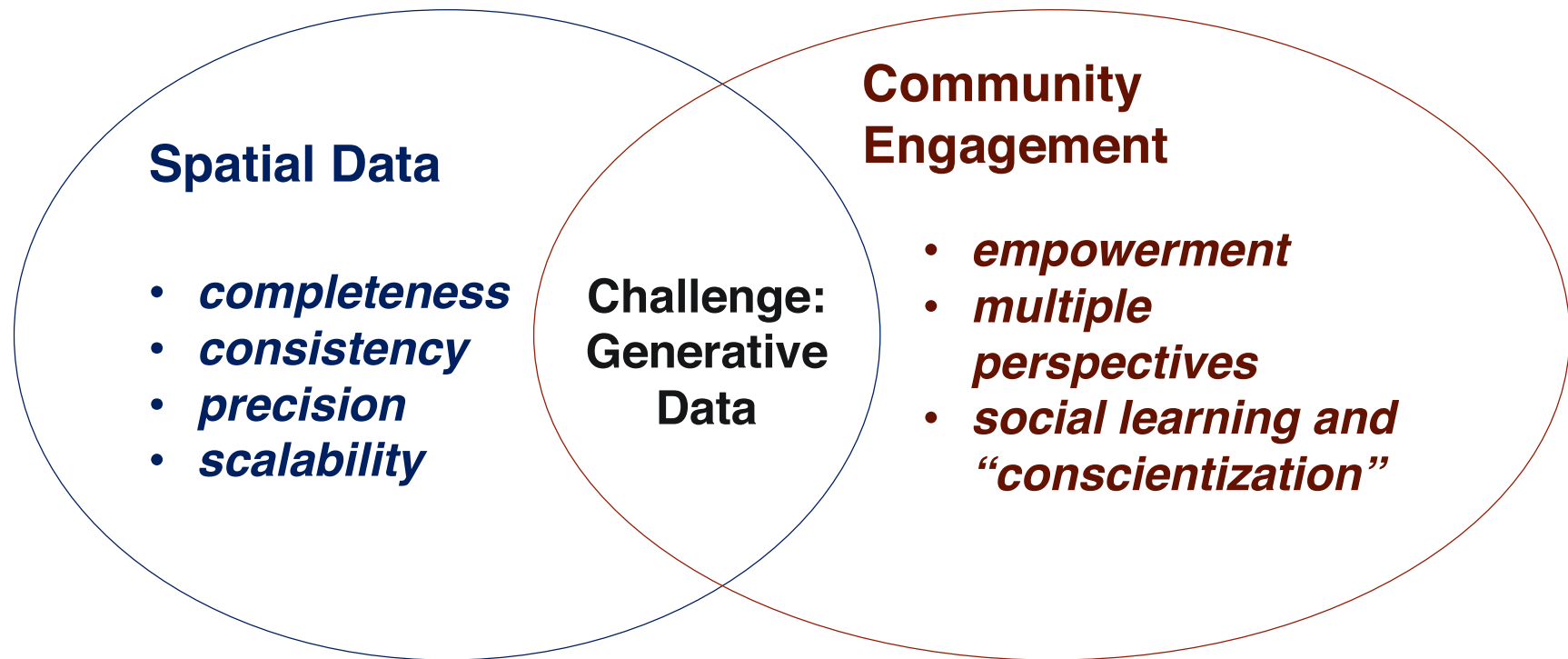
Mapping in El Pacifico, Medellín, Colombia



Afectaciones de vivienda en El Pacifico, 18 de septiembre de 2020.
Municipio de Medellín, Antioquia, Colombia.



Mapping for resilience: a transdisciplinary problem space



Key Takeaways:: reflections on AI and the future of data production

- AI starts with the **framing of the problem and data**: we need transdisciplinary research methods that connect multiple disciplines to real-world challenges and perspectives
- Research on how to make urban areas “smart” has to address **existing spatial and social inequalities**
 - Towards a *territorially-sensitive* digital transformation of cities
- Data generation can be an opportunity for **social learning and empowerment** of citizens, whilst also generating data to **inform public policy**
 - Co-production and co-design



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Thank you / Obrigado



Professor João Porto de Albuquerque

Email: j.porto@warwick.ac.uk

Web: <http://warwick.ac.uk/jpdealbuquerque>

Twitter: [j_p_albuquerque](https://twitter.com/j_p_albuquerque)

Researchgate: https://www.researchgate.net/profile/Joao_De_Albuquerque2
