

Dr J Rafael Verduzco Torres

Lecturer (Assistant Professor) in Urban Analytics | University of Glasgow

My work centres on the use of digital footprint data and innovative methods to address urban transport research questions with a quantitative emphasis. My research interests include: Public transport systems, Accessibility, Spatial data analysis, Hedonic modelling, R Programming.

Contact details

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Education

2023- 2026 **PGCert in Academic Practice (PGCAP)**
University of Glasgow (United Kingdom)
2018- 2022 **PhD in Urban Studies**
University of Glasgow (United Kingdom)
Supervision team: Dr David McArthur, Dr Jinhyun Hong, and Dr David Waite.
2013- 2015 **Master of Architecture**
Universidad de Colima (Mexico)
2013-2014 **Master of Science in Urban Management and Development**
Erasmus University Rotterdam (Netherlands)
2005-2010 **Bachelor of Architecture**
Universidad de Colima (Mexico)

Teaching experience

University of Glasgow

Position: **Lecturer in Urban Analytics** – Division of Urban Studies & Social Policy
Jan/23 to Present

- STATISTICAL METHODS FOR TRANSPORT PLANNING (URBAN5103). Convenor and lecturer. Designed a 20-credit course following an active learning and employability strategy, including the development of an open-access online workbook.
- TRANSPORT PLANNING LAB (URBAN5102) – Postgraduate level. Convenor. Responsible for the planning, organisation, and delivery of teaching for a group of 40 students. I teach the use of open tools applied to transport modelling.
- TRANSPORT PLANNING METHODS (URBAN5103) - Postgraduate level. Convenor Responsible for the planning, organisation, and delivery of teaching for a group of 40 students.
- Researching Public Policy (URBAN5135) - Postgraduate level. Contributor. Design and lecturer of the quantitative research component of the course is equivalent to approximately 30%.
- Urban Analytics Group Project (URBAN5124) Postgraduate level. Contributor. Offered a research project focused on real-time bus location data in England.
- MSc Dissertation: Urban Studies (URBAN5080P). Supervisor and marker.

Position: **Graduate Teaching Assistant (GTA)** - School of Social and Political Sciences
Sep/19 to Sep/22

- **QUANTITATIVE DATA ANALYSIS** - Level 5 (SCQF level 11). Delivered both in-person and online tutorials in groups of 20-25 students
- **UG QUANTITATIVE METHODS IN THE SOCIAL SCIENCES** - Level 4 (SCQF level 10). Designed and produced materials for practical sessions in descriptive and inferential statistics in R. The workbook has been in use for four years, benefiting more than 500 SPSS students.
- **UG QUALITATIVE METHODS IN THE SOCIAL SCIENCES** - Level 4 (SCQF level 10). Participated as a second marker, delivering timely, constructive, and detailed feedback.

Research experience

University of Glasgow

Position: **Lecturer in Urban Analytics** – Division of Urban Studies & Social Policy
Jan/24 to Present

My research delivers nationally scaled, open-access urban analytics resources and rigorous empirical studies that directly shape UK transport planning and policy. Public authorities—including Glasgow City Council and the London Borough of Hounslow—use my accessibility datasets to inform strategy, service design, and negotiations with TfL. My analyses also influenced public debate on Glasgow night-bus cuts and underpin national advocacy, such as Green Alliance’s Next Stop, Better Rail (2025).

Position: **Research Associate in Urban Transport Analytics** - Urban Big Data Centre
Nov/22 to Dec/23

My work focused on the applications of digital footprint data and innovative methods to address urban mobility and transport questions. I published and presented in peer-reviewed journals and conferences on accessibility and public health. I conducted a study of urban poverty and night-time economy across 24 British cities, presenting findings at an international workshop. I utilised mobile phone location data for Glasgow traffic volume studies, addressing challenges related to digital footprint data.

Position: **Postgraduate Researcher** - Urban Big Data Centre - Department of Urban Studies
Nov/21 to Apr/22

Quantified the impact of bus and rail infrastructure on property prices, demonstrating autonomy in identifying project objectives from assessment of the literature, research design, analysis of outputs, to drafting documents. Implemented up-to-date statistical modelling and data analytics, ranging from spatial interaction models to multimodal transport routing and spatial multilevel models in a Bayesian setting (i.e. INLA).

Position: **Research Assistant** - Urban Big Data Centre
Nov/21 to Apr/22

Designed and developed a set of public transport accessibility indicators for the whole Great Britain at the LSOA level. Modelled 95+ million public transport routes at the national level. The project resulted in three published products, namely: an open-access dataset (UBDC data hub), a technical note, and an open-source code repository.

Position: **Research Assistant** - School of Social and Political Sciences
Jun/21 to Aug/21

Conducted a literature review for the COVID-19 pandemic’s impact on young people’s economy. Quickly adapted my research skills in a new area.

Position: **Research Assistant** - School of Education
May/21 to Dec/21

Processed, analysed, reported, and documented data collected from an online survey among graduate students. Elicited requirements from a cross-national and interdisciplinary research team. Drafted the results section of the final report.

Non-academic experience

Mobility and Transport Department – State Government of Colima (Mexico)

Position: **Transport Project and Planning Coordinator (Principal-level)**
Jan/18 to Sep/18 Coordinated the development of public transport infrastructure projects. Led the estimation of various bus and taxi fare models. Advised the Department of Public Works on the design of road projects, focusing on sustainable modes. Led a team of one mid-level analyst, three junior analysts, and two interns.

Position: **Transport Planner (Senior-level)**
May/16 to Dec/17 Developed urban and regional analyses, field studies, and technical reports to inform decision-making. Used a wide range of data sources, e.g., travel survey, population census, economic census, and operational and finance transport records. Led a team of three junior analysts and two interns.

Mobility and Transport Institute of Jalisco – State Government of Jalisco (Mexico)

Position: **Researcher in Mobility & Transport**
May/15 to Apr/16 Developed a research project drawing on the Space Syntax methodology focused on pedestrian mobility and land use in Guadalajara, Mexico. Supported and developed a Bus Rapid Transit (BRT) project and the geometric design of various urban roads.

Leadership and management appointments

University of Glasgow

Position: **English for Academic Study (EAS) Project Coordinator** – Division of Urban Studies & Social Policy
Jan/26 to Present

Position: **Programme Director PGT Urban Transport** – Division of Urban Studies & Social
From Aug/26

Awards and funding

- 2025 UK Fare bus calculator prototype (Scalable Software tool) – Annual Research Fund 2 (ARF2) by the School of Social and Political Science, University of Glasgow (£2,110).
- 2025 The impacts of congestion on bus travel in Glasgow. Commissioned research. First Bus Glasgow via Grayling Co. (£5,028)
- 2025 3-month SGSSS placement to be based at the UASG/UBDC, working on the development of a dashboard (£10,870)
- 2025 3.25-year PhD student under the Scottish Graduate School of Social Sciences (SGSSS) Supervisor-led Competition. The project: “Public transport and social welfare: The impact of bus connectivity on employment outcomes for low-income populations” (£101,670)
- 2024 Best 2nd Paper (Poster category) in 2024 Association of Geographic Information Laboratories in Europe (AGILE) Conference (Glasgow)
- 2021 2020/21 GTA Rewarding & Contribution round as a member of the Social and Public Policy UG Team (University of Glasgow).
- 2018 Conacyt-Sener Doctoral scholarship (National Research Board, Government of Mexico).
- 2015 Conacyt postgraduate master scholarship – Programa Nacional de Posgrados de Calidad (National Research Board, Government of Mexico).
- 2013 Human Resource Development Trust (FIDERH) awarded for postgraduate master’s studies in the Netherlands – (Central Bank of Mexico, Banxico).

Scholarly service & peer recognition

Organising committee member

- [International conference] “2024 Geographic Information Science for a Sustainable Future” Association of Geographic Information Laboratories in Europe (AGILE) Conference (Glasgow). Attracting over 200 delegates.
- [Conference workshop] “Mobile Phone App Data for Public Good: Opportunities and Challenges”, at the Digital Footprints Conference 2024 (Leeds).

Journal reviewer

Environment and Planning B, Journal of Transport Geography, Communications Medicine (Nature Portfolio), Annals of GIS, Journal of Geographical Systems, and International Journal of Urban Sciences.

Grant reviewer

Scottish Graduate School of Social Sciences (SGSSS) Student-Led Competition (2025-26).

Research outputs

Journal articles (Peer reviewed)

- **Verduzco Torres, J. R.** & McArthur, D. P. (Accepted for publication). Assessing Public Transport Infrastructure: The Role of Employment Matching in Spatial Accessibility Measures. *Special Issue in Urban Analytics for Better Cities, Journal of Geographical Systems*.
- **Verduzco-Torres, J.R.** and Raturi, V. (2026). A methodological evaluation of app location data extraction and processing for traffic flow applications. *Annals of GIS*, <https://doi.org/10.1080/19475683.2026.2613161>
- Georgiou, M., Bailey, N., Nizi, A, and **Verduzco-Torres, J.R.** (2025). The housing market value of public transport accessibility to employment in post-pandemic England. *Environment and Planning B: Urban Analytics and City Science*. <https://doi.org/10.1177/23998083261418330>
- Verduzco Torres, J. R.** & McArthur, D. P. (2024). Public transport accessibility indicators to urban and regional services in Great Britain. *Scientific Data*, 11, 53. <https://doi.org/10.1038/s41597-023-02890-w>
- Chen, H., Cao, Y., Feng, L., Zhao, Q., & **Verduzco Torres, J. R.** (2023). Understanding the spatial heterogeneity of COVID-19 vaccination uptake in England. *BMC Public Health*, 23(1), 895. <https://doi.org/10.1186/s12889-023-15801-w>
- Verduzco Torres, J. R.**, Hong, J., & McArthur, D. P. (2022). How do psychological, habitual and built environment factors influence cycling in a city with a well-connected cycling infrastructure? *International Journal of Urban Sciences*, 1–21. <https://doi.org/10.1080/12265934.2021.1930111>
- Verduzco Torres, J. R.**, McArthur, D. P., & Hong, J. (In draft). The effect of the modifiable areal unit problem (MAUP) in the study of capitalizations of the main public transport network (MPTN) on residential land value in the context of land value capture. *Journal of Transport and Land Use*.

Research reports and working papers

- Verduzco-Torres, J. R.**, McArthur, D. (2024). Great Britain Accessibility Indicators 2023: Data descriptor. Available at *OSF*: <https://doi.org/10.31235/osf.io/qb9j4>
- Verduzco-Torres, J. R.**, McArthur, D. (2023) Written Evidence for the Future of Transport Data UK Parliament Inquiry. UK Parliament. <https://committees.parliament.uk/writtenevidence/123357/html/>
- Verduzco Torres, J.R**, Wong, M. (2022) Understanding the COVID-19 impact on young people and precarity drawing on a new multidimensional analytical framework. Available at SSRN: <http://dx.doi.org/10.2139/ssrn.4225802>
- Verduzco Torres J.R.**, McArthur D.P. (2022) Public transport accessibility indicators for Great Britain. Technical note. Available at *Zenodo*: <https://doi.org/10.5281/zenodo.6759240>.

Conference or workshop items

Georgiou, M., Bailey, B., N., A. and **Verduzco-Torres, J.R.** (2025). The Housing Market Value of Public Transport Accessibility to Employment in Post-Pandemic England. NECTAR Cluster 6 (Accessibility) and Cluster 8 (Information and Communication Technologies) Joint Meeting - The Future of Accessibility: Integrating Digital Connectivity with (Physical) Proximity, Lisbon, Portugal, 18-19 June 2025.

Verduzco-Torres, J.R. (2025). Exploring the potential of a national bus GPS archive for transport planning applications in England. In: Digital Footprints Conference 2025, Leeds, UK, 14-15 May 2025, p. 24. (doi: 10.23889/ijpds.v10i5.3357)

Verduzco-Torres, J. R. and Sinclair, M. (2024) Exploring Accessibility to Urban Green Spaces: A Novel Approach using Spatial Interaction Models and Mobile App Data. Mobile Tartu 2024: International Conference & PhD School, Tartu, Estonia, 11-14 Jun 2024.

Verduzco-Torres, J. R. (2024) 'AccessUK', an Open-source Tool for Integrating Spatial Accessibility Measures with R. 27th AGILE Conference on Geographic Information Science Geographic Information Science for a Sustainable Future, Glasgow, UK, 4-7 June 2024. Awarded 2nd best paper (Poster category).

Verduzco-Torres, J. R., Bailey, N. & McArthur, D. (2023) Towards Just Neighbourhoods: Leveraging Geospatial Data Science to Understand Night-Time Public Transport Variability in British Cities. *Open Tools for Equitable and Sustainable Accessibility and Mobility Analysis (OTESAMA '23) Workshop*, Leeds, UK, 12 September 2023.

Verduzco-Torres, J. R., Raturi, V. (2023) Can Smartphone Location Data at the Point Level be Used to Estimate Traffic Volumes?: A Methodological Evaluation. *12th International Conference on Geographic Information Science (GIScience 2023)*, Leeds, UK, 14-19 Sept 2023.

Keynote, invited talks and public seminars

2026 AccessUK: An R Toolkit for Easy and Extensible Accessibility Analysis in Great Britain. *EdinbR: The Edinburgh R User Group* (Edinburgh, UK).

2025 Introducing a national dataset of accessibility indicators: An overview of past and future work. *Public Health Sustainable Transport Partnership – Data and Evidence Group, Public Health Scotland* (Glasgow, UK).

2025 Aplicaciones y desafíos de la analítica urbana en el estudio de la movilidad y el transporte. Tecnológico Nacional de México (Colima, Mexico – Online)

2024 Keynote speaker at the Association of Geographic Information Laboratories in Europe (AGILE) PhD Winter School (Castellon, Spain).

2025 Verduzco-Torres, J.R. and McArthur, D. An Overview of an Open-access Accessibility Dataset Series in Great Britain. *Rethinking Accessibility: Insights from Data Science*, Exeter, England, 23- May 2025 (Online).

2023, Can app location data help us to predict traffic flows?. *Simposio de Analitica Urbana*. Turing Institute-Universidad Distrital Francisco José de Caldas. Bogota, Colombia (Online).

2022, Public transport accessibility in Great Britain: An open dataset. *Urban Big Data Centre - Public Research Seminar*. Glasgow, UK (Hybrid). URL: <https://www.ubdc.ac.uk/media/2409/accessibility-indicators-for-great-britain-presentation-280622.pdf>

2022, Revisiting the value of public transport: An empirical study drawing on big data and open-source software. *Chaire Anthropolis, HCU - IRT SystemX - Paris, France* (Online). URL: https://www.chaire-anthropolis.fr/wp-content/uploads/2022/03/anthropolis_seminar_22032022.pdf.

2022, Revisiting the value of public transport: An empirical study drawing on big data and open-source software. *Urban Studies Seminar – University of Glasgow – Glasgow Scotland* (Online).

2021, Taking the carbon out of transport: how might data help us?. Joint presentation McArthur DP. *SGSSS 10 Year Celebration, Scottish Graduate School of Social Science - Edinburgh, UK* (Online). URL: <https://www.youtube.com/watch?v=z7Axi6wJonY>

2020, A Reflection of planning in Colima (Mexico) from an international perspective. *Semana de actividades de la Facultad de Arquitectura. Universidad de Colima – Colima, Mexico*.

Datasets

Verduzco Torres, J. R., Bus Open Data Service GTFS archive [dataset]. Zenodo. Available at <https://doi.org/10.20394/dqmgka2s>

Verduzco Torres, J. R., & McArthur, D. (2024). Great Britain Accessibility Indicators 2023 (AI23) [dataset]. Zenodo. <https://doi.org/10.5281/zenodo.14778265>

Verduzco Torres, J. R., & McArthur, D. (2022). Public Transport Accessibility Indicators for Great Britain [dataset]. Zenodo. <https://doi.org/10.5281/zenodo.8037156>.

Software

Verduzco Torres, J. R. (2024). AccessUK R package to easily streamline accessibility measures for Great Britain. GitHub: <https://github.com/urbanbigdatacentre/AccessUK>

Theses

Revisiting the capitalization of public transport accessibility into residential land value: an empirical analysis drawing on Open Science (2023). PhD, University of Glasgow. <https://doi.org/10.5525/gla.thesis.83588>

Website

Georgiou, M., Bailey, B., N., A. and **Verduzco-Torres, J.R.** (2026) The slow demise of the sustainable city?. URL: <https://www.ubdc.ac.uk/news/the-slow-demise-of-the-sustainable-city>

Verduzco-Torres, J. R. and McArthur, D. (2023) From morning to night: Unveiling the variability in public transport services across Great Britain. URL: <https://ubdc.ac.uk/news-media/2023/august/unveiling-the-variability-in-public-transport-services-across-great-britain/>

News or media

Data maps show the impact of losing Glasgow's night bus services (2023). The Herald. URL: <https://www.heraldscotland.com/news/23696053.data-maps-show-impact-losing-glasgows-night-bus-services/>

Teaching outputs

Teaching materials

[Online workbook] Statistical Methods for Transport Planning – Workbook (2026). URL: https://rafavdz.github.io/smtplib_workbook/

[Online workbook] Quantitative Methods in the Social Sciences. A step-by-step guide for conducting quantitative research with R (2020). URL: https://ugquants.github.io/quants_workbook/

[Online training] UBDC How to Guides - Multimodal Transport Routing for the UK with R Part 1 (2023). URL: <https://www.youtube.com/watch?v=3YvVqGLytWI>

[Online training] UBDC How to Guides - Multimodal Transport Routing for the UK with R Part 2 (2023). URL: <https://www.youtube.com/watch?v=oWclb0fne2U>

Guest lectures

- Spatial Analysis and GIS Application in Urban Planning (04-12-2025). ENGG09058: Applied GIS and 3D modelling. University of the West of Scotland.

- Introduction to R Labs (20-09-2022). UG Quantitative Research Methods. University of Glasgow.

Coding mindset (27-09-2022). UG Quantitative Research Methods. University of Glasgow.

-The value of accessibility: The impact of transport infrastructure on the real estate market in Greater Mexico City (15-11-2020). Instituto Tecnológico y de Estudios Superiores de Occidente (ITESO).

Supervision

- 2026 Jonathan Lee (Research Assistant). Project: UK Fare bus calculator (Software – Scalable prototype)
- 2025 to 2028 Tweneboah, Eric Kodua (PGR – First Supervisor). Project: Public transport and social welfare: The impact of bus connectivity on employment outcomes for low-income populations.
- 2025 to 2028 XIE, YUCHEN (PGR) Impact Analysis of the New Electric Cargo Tricycle (ECT) Management Policy in China: From Drivers and Other Road Users' Perspectives

Skills and qualifications

Software

Programming languages: R, SQL, Git, Python (entry level)

R packages

Data management: DuckDB, SQLite, tidyverse, data.table, base-R

Spatial data: sf, stplanr, spdep

Data visualization: ggplot, mapview, leaflet

Multilevel spatial modelling: INLA, HSAR, CARBayes

Publishing: rmarkdown, bookdown

Geospatial packages: QGis

Statistics: IBM-SPSS Statistics

Certifications and training

- 2022 Reproducible research (Doctoral School). Association of Geographic Information Laboratories in Europe (AGILE). Universitat Jaume I (Catellón, Spain).
- 2021 ONS Safe Research Training (Accredited). Urban Big Data Centre, University of Glasgow.
- 2021 An introduction to spatio-temporal modelling of small-area data in R. National Centre for Research Methods (Online).
- 2020 Generalized linear models (Audit). School of Mathematics and Statistics, University of Glasgow.
- 2019 Global Challenges in Transport: Infrastructure, Development and Finance. Transport Studies Unit, University of Oxford.
- 2018 Spatial interaction modelling. National Centre for Research Methods, University College London.

Languages

Spanish (Native speaker), English (Fluent, IELTS: CEFR Level C1)