

CURRICULUM VITAE

DR. PATRICK BALLANTYNE

Postdoctoral Research Associate, Geographic Data Science
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RESEARCH INTERESTS

Urban Analytics | Geographic Data Science | Cities | Mobility | Retail | Accessibility

EMPLOYMENT

Postdoctoral Research Associate, Geographic Data Science Lab (June. 2022 – present)

Working on a variety of projects within the broad themes of Geographic Data Science, Urban Analytics, Urban Mobility, Retail, Geodemographics. Supporting research activities of Prof. Alex Singleton, Consumer Data Research Centre (CDRC) and coordinating day-to-day research activities and exchanges within the Geographic Data Science Lab.

Spatial Data Consultant, Liverpool City Region (Mar. 2023 – present)

Providing part-time freelance support to Liverpool City Region Combined Authority on the use of spatial data to facilitate better decision making. Derivation of a variety of data products and composite indices around four key themes: Access to Transport Network, Health and Deprivation, Economic Development and Housing and Future Economic Development and Housing. Visualisation of data products and indices on an interactive web mapping platform to increase engagement with stakeholders.

Data Scientist, Consumer Data Research Centre (Jan. 2021 – April 2022)

Development and enhancement of new and existing data products for CDRC, specifically relating to the 'UK Retail Centres' data product. Creation of supporting materials and training resources demonstrating how such products can be integrated within spatial analysis frameworks. Promotion of new and existing products through written data stories and visualisation on the mapmaker interactive web mapping platform.

Senior Open Day Ambassador, University of Liverpool (Sept. 2017 – Sept. 2019)

Supporting open days and applicant discovery days (ADDs) for the Department of Geography and Planning. Responsibilities included delivery of talks, coordination and demonstration of practical activities and meeting prospective students (and their families).

EDUCATION

PhD & MSc Data Analytics and Society, University of Liverpool (Sep. 2018 – Dec. 2022)

“Retail Centre Geographies: Who, What, Where and How” (Pass with no corrections, examined March 2023 by Prof. Scott Orford, Prof. Mark Birkin, and Dr. Mark Green). Thesis summary: working with location and mobility datasets from SafeGraph and Geolytix to better understand the geographies of retail centres in the UK and US, and their response to COVID-19. Thesis was comprised of three empirical papers published in highly reputable journals.

BSc Physical Geography, University of Liverpool (Sep. 2015 – Jul. 2018)

First Class with Honours. Dissertation title: “Quantifying nutrient loading from septic tanks and agricultural land-use to streams in the Loweswater catchment” (78%). Successfully completed a number of modules including Geographic Data Science, Statistics for Social Scientists and GIS for human geography.

RESEARCH

Peer-Reviewed Journal Articles

- **Ballantyne, P.**, Sanderson, R.K., Davies, A., Houlden, V., MacLachlan, A., Owen, G., Robinson, C., Shin, H., Wartmann, F.M., Wilkin, J. and Williams, I. 2023. ‘There is no formula for life and career’: A commentary on perspectives and experiences of early career quantitative human geographers. *The Geographical Journal*, 189 (1), pp.174-181. DOI: [10.1111/geoj.12499](https://doi.org/10.1111/geoj.12499).
- **Ballantyne, P.**, Singleton, A. and Dolega, L. 2022. Using unstable data from mobile phone applications to examine recent trajectories of retail centre recovery. *Urban informatics*, 1 (1), p.21. DOI: [1007/s44212-022-00022-0](https://doi.org/10.1007/s44212-022-00022-0).
- **Ballantyne, P.**, Singleton, A., Dolega, L. and Macdonald, J. 2023. Integrating the who, what, and where of US retail center geographies. *Annals of the American Association of Geographers*, 113 (2), pp.488-510. DOI: [10.1080/24694452.2022.2098087](https://doi.org/10.1080/24694452.2022.2098087).
- **Ballantyne, P.**, Singleton, A. and Dolega, L. 2021. A regional exploration of retail visits during the COVID-19 pandemic. *Regional Studies, Regional Science*, 8 (1), pp.366-370. DOI: [10.1080/21681376.2021.1973548](https://doi.org/10.1080/21681376.2021.1973548).
- **Ballantyne, P.**, Singleton, A., Dolega, L. and Credit, K. 2021. A framework for delineating the scale, extent and characteristics of American retail centre agglomerations. *Environment and Planning B: Urban Analytics and City Science*. DOI: [10.1177/23998083211040519](https://doi.org/10.1177/23998083211040519).

Working Papers

- Gibbs, H., **Ballantyne, P.**, Cheshire, J., Singleton, A., Green, M. *under review*. Can new forms of data replace the census? An examination of work from home behaviours in England.
- Mahmood, K., Mahabir, R., Gkountouna, O., **Ballantyne, P.** *in preparation*. ChatGPT: Bridging the Gap between Human and Machine Communication - A Systematic Review of its Multifaceted Applications.
- **Ballantyne, P.**, Singleton, A., Plater, A. *in preparation*. Scenario-based emission reduction strategies from maritime industries: the case of Liverpool City Region Combined Authority.
- **Ballantyne, P.**, Singleton, A., Gkountouna, O. *in preparation*. “I’ll just walk instead”: evaluating the accessibility and reliability of bus services in Liverpool City Region.

Conference Papers

- **Ballantyne, P.**, Singleton, A., Dolega, L., Macdonald, J. 2022. Integrating the *who, what* and *where* of American retail centre geographies. *GIS Research UK (GISRUK) Annual Conference 2022*. <https://zenodo.org/record/6410106#.ZEFYP87MK5c>.
- **Ballantyne, P.**, Singleton, A., Dolega, L., Macdonald, J. 2021. American Retail Centre Geographies: Centres, Characteristics and Catchments. *American Association of Geographers (AAG) Annual Meeting 2021*.
- **Ballantyne, P.**, Singleton, A., Dolega, L., Macdonald, J. 2021. American Retail Centre Geographies: Centres, Characteristics and Catchments. *Royal Geographical Society (RGS) Annual Conference 2021*.
- **Ballantyne, P.**, Singleton, A., Dolega, A., Credit, K. 2021. A Framework for Delineating the Scale, Extent and Characteristics of American Retail Centre Agglomerations: The Case of

Chicago Metropolitan Area during COVID-19. *GIS Research UK (GISRUK) Annual Conference 2021*.

- **Ballantyne, P.,** Singleton, A., Dolega, A. 2020. An updated measure of the ‘e-resilience’ of retail centres. *GIS Research UK (GISRUK) Annual Conference 2020*.

Other Research Activities

- **Ballantyne, P. 2022.** Workshop: Retail and Geodemographics: A Spatial Data Science Approach. *CARTO Spatial Data Science Conference, Google HQ, New York*. Materials available at: <https://github.com/patrickballantyne/CARTO-SDSC2022>.
- **Ballantyne, P. 2022.** Retail Indicators I. Identifying ‘clone towns’ across the UK. *CDRC Stories*. Available at: <https://data.cdrc.ac.uk/stories/retail-indicators-i-identifying-clone-towns-across-uk>.
- **Ballantyne, P.,** Sanderson, R., Davies, A., Houlden, V., Maclachlan, A., Owen, G., Robinson, C., Shin, H., Wartmann, F., Williams, I., Wilkin, J. 2021. The Ups and Downs of a PhD and Beyond. *Panel Session at the RGS Postgraduate Mid-Term Conference, sponsored by the Quantitative Methods Research Group*.
- **Ballantyne, P. 2020.** Moving the lab home: changes to research and data resulting from COVID-19. *Resilient and Sustainable Cities Podcast*. Listen at: <https://open.spotify.com/episode/2OHngRBoOxoYMPxMzZ8N6c>.
- **Ballantyne, P. 2020.** An approach to retail centre delineation based on graph structures and H3 geometries. *MethodsX Twitter Take-Over*.
- **Ballantyne, P. 2019.** Book Review: An introduction to R for Spatial Analysis and Mapping (2nd Edition) *International Journal of Geographic Information Science (IJGIS)*. DOI: [10.1080/13658816.2019.1647541](https://doi.org/10.1080/13658816.2019.1647541).

Awards and Prizes

- Robin Flowerdew Prize 2021. *Best postgraduate paper in the “Future of Quantitative Geography” sessions at the RGS-IBG Annual Conference 2021*. Blog post: <https://qmrg.github.io/blog/2021/10/12/Ballantyne-bio>.

Invited Presentations and Keynotes

- Ballantyne, P. 2023. *Mobility data: does it live up to the hype?* Quantitative Spatial Sciences (QuSS) Seminar Series, University of Bristol.
- Ballantyne, P. 2022. *Who, what, where and how: a quantitative investigation of retail centre geographies*. Maynooth University Social Science Institute (MUSSI) and National Centre for Geocomputation (NCG).

PROFESSIONAL RESPONSIBILITIES

Peer Reviewer

- Journal of the Royal Statistical Society Series A (Statistics in Society).
- Environment and Planning B (Urban Analytics and City Science).
- Regional Studies, Regional Science (RSRS).
- International Journal of Geographic Information Science (IJGIS).
- Journal of Urban Design (JUD).

Organisational Roles and Membership within Professional Societies

- Postgraduate Fellow (Royal Geographical Society).
- Postgraduate Representative, Quantitative Methods Research Group (Royal Geographical Society).
- Early-Career Committee and Organiser (GISRUK Annual Conference 2022).

- Social Media Co-ordinator (Geographic Data Science Lab).
- Representative (Centre for Doctoral Training Liverpool ‘Buddy’ Scheme).

PhD Students

- Cillian Berragan (2019 – *present*), ESRC CDAS CDT.

MSc Students

- Robert Edmiston (2022 – 2023), MSc Geographic Data Science.

TEACHING

Teaching Assistant, Ritsumeikan University Kyoto (Sep. 2022).

Delivery of “Geographic Data Science for Urban Analytics” short course to master’s students with Prof. Alex Singleton. Responsible for delivery of six practical sessions on the use of R for Geographic Data Science, and one guest lecture on “new forms of data and the analysis of cities”.

Training Course Delivery, CDRC (May. 2021).

Developed an online tutorial for the CDRC “Advanced GIS Methods Training: Retail Centres and Catchment Areas”, using R to introduce and explore retail centres, hierarchies, and catchment delineation approaches. Took sole responsibility for writing the content of the course in R, working with Dr. Les Dolega and Dr. Nick Bearman to co-design and deliver it.

Teaching Assistant, University of Liverpool (Sep. 2018 – June 2022).

Supported teaching on a range of undergraduate and postgraduate modules for the Department of Geography and Planning. Modules included GIS and Study Skills (UG), GIS for Human Geography (UG), Geographic Information Science (PG), Exploring the Social World (UG), Population and Society (UG) and Undergraduate Dissertation (UG).

Teaching Assistant, Geospatial Training Solutions (Jun. 2019).

Supported delivery of “Introduction to Spatial Data and Using R as a GIS” content as a teaching assistant with Dr. Nick Bearman.

TECHNICAL

R ***

Data cleaning and manipulation, data exploration and visualisation, spatial analysis, GIS, mapping and cartography, machine learning, statistics, big data, parallel computing.

QGIS ***

GIS, spatial analysis, mapping, cartography.

GitHub **

Project management, version control, collaboration, research dissemination.

SQL *

Database management, data manipulation and exploration.

Other Technical Skills

Microsoft Office Suite**, Python**, SPSS**, Mendeley**, Docker* JavaScript*, Davinci Resolve Video Editing Software*.

Training

UK Data Service Safe Researcher Training Course, February 2021.

Introduction to SQL, February 2020.

Intermediate R, January 2020.

Spatial Modelling for Retail Analytics, January 2019.

Introduction to GIS and Spatial Analysis for Retail Applications I, November 2018.

*** Advanced, ** Intermediate, * Novice

SCIENTIFIC SOFTWARE, DATA AND TEACHING MATERIALS

“Advanced GIS Methods Training: Retail Centres and Catchment Areas”

Training course developed with Dr. Les Dolega and Dr. Nick Bearman. Materials consisted of two R markdown files for students to follow, a series of video tutorials and discussions, and an accompanying GitHub repository for flagging of any issues and integrating updates.

Materials available at: <https://data.cdrc.ac.uk/dataset/advanced-gis-methods-training-retail-centres-and-catchment-areas>

GitHub repository: <https://github.com/patrickballantyne/CDRC-Retail-Catchment-Training>.

“CDRC Retail Centre Indicators”

Developed a series of indicators and catchments for the 2021 release of the CDRC retail centre boundaries data product, to be disseminated via the <https://data.cdrc.ac.uk> platform and used in further research and by external organisations (e.g. High Streets Task Force).

Data product available at: <https://data.cdrc.ac.uk/dataset/retail-centre-indicators>.

GitHub repository: <https://github.com/patrickballantyne/CDRC-Retail-Indicators>.

“Tidylodes”: An R package for extracting, processing and ‘spatialising’ data from the US Census Bureau’s LODES database.

Developed a quick R package for working with the LODES database at a time when this was going to be a primary dataset for my research. Package enabled extraction of LODES data in ‘tidy’ spatial formats, for mapping and further spatial analysis.

GitHub repository: <https://github.com/patrickballantyne/tidylodes>.

PERSONAL

Citizenship

United Kingdom / Republic of Ireland

Location

Liverpool, England.

Other Details

Full UK Drivers Licence.

GCSE's: 10 A* - C (including English and Maths).

A-levels: ABB (Geography, Music, Biology).

(Updated 03/05/2023)