Tom Cantellow

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EXPERIENCE

Senior Scientific Officer - R&D Fellow — Aug. 2025 – Present
Department for Environment, Food & Rural Affairs — *Newcastle, UK*

- Developing RAG-enabled LLM AI chatbots using environmental personas grounded in large survey data.
- Managed end-to-end (E2E) ETL data pipelines and delta tables using Databricks, Azure, and Posit Connect, following reproducible analytical pipeline (RAP) principles.
- Wrote Python, R, and SQL code for automated data ingestion, transformation, analysis, and summary outputs.
- Presented findings to diverse audiences, managed project timelines, and translated analytical outputs to meet stakeholder requirements.
- Identified expert stakeholders & convened steering group to shape project strategy, technical priorities & deployment.

Teacher — Oct. 2020 – May 2025
University of Bristol — *Bristol, UK*

- Designed and lead lectures for Understanding Global Problems Using Data, teaching quantitative analysis.
- Lead sessions for political, economic, urban, and health geographies; conducted widening participation workshops.

Research Associate — Apr. 2023 – Dec. 2024
University of Bristol — *Bristol, UK*

- Developed the Net-Zero Resilience Index, using reproducible analytical pipelines (RAP) to rank UK areas by resilience to low-carbon economic restructuring.
- Contributed to reports, academic articles, and built websites for policy engagement; analysed energy efficiency in Bristol's rental housing.

EDUCATION

University of Bristol — Bristol, UK
PhD in Human Geography — *Oct. 2020 – Nov. 2024*

University of Sheffield — Sheffield, UK
MSc, Distinction, in Applied GIS — *Sep. 2017 – Sep. 2018*
Awards: Sheffield Postgraduate Scholarship; Ian Masser Prize for best dissertation

University of Lincoln — Lincoln, UK
BA (Hons), 2:1, in International Relations — *Sep. 2012 - May 2016*

PROJECTS

Housing Rentierism and Political Subjectivity | *R, British Election Study* — In Progress

- Co-authoring journal article investigating housing asset economy's impact on class structure and voting behaviour.
- Analyses homeownership types and area-level house price changes using BES and Land Registry data and spatially-differentiated economic returns to examine earner/churner political cleavages.

Net Zero Resilience Index | *R, Leaflet, Github, QGIS, HTML/CSS* — Jun. 2024 – Dec. 2024

- Developed economic complexity/relatedness methodology using machine learning to analyse UK employment.
- Visualised and published ranked resilience index; authored report and peer-reviewed journal article.

PhD Thesis | *R, QGIS, SQL, LaTeX* — Sep. 2020 – Nov. 2024

- Authored a 58,000-word peer-reviewed PhD thesis analysing UK voting behaviour and how the operationalisation of neoliberalism shapes inequalities, political values, and personal financial wellbeing.
- Analysed large-scale national surveys, big-data on housing markets, and local economic indicators using end-to-end (E2E) ETL workflows, applying machine learning, mixed-effects models, and other statistical techniques.

TECHNICAL SKILLS

Languages & Tools: ETL, End to End (E2E) research design, RAP, R, Python, SQL, HTML, CSS, LaTeX; RStudio, Jupyter, Databricks, Azure, Power BI, Posit Connect, QGIS, ArcGIS Online, ArcGIS, Visual Studio, Excel, Overleaf,
Datasets: ACLED, BES, BSA, BRES, CHES, EPCs, IMDs, SAE, Census, UKHLS, UK Land Registry & many others.