

Roger Beecham

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Education and Qualifications

- 11 - 14 | **PhD in Geographic Information Science**, City, University of London, UK.
03 - 06 | **BA (*1st Class Hons*) in Geography**, Durham University, UK.

Employment

- 17 - pres | **Associate Professor (started as Lecturer) in Visual Data Science, University of Leeds**. Research proposes, evaluates and deploys visualization techniques in the analysis of large social science datasets. Methodological work published in the Information Visualization domain and applied work in the Transport, Political Science and Geography domains. Deputy Director of the Centre for Spatial Analysis and Policy (CSAP) research group. Teaching is on modules with an applied Data Science focus.
- 14 - 17 | **Research Fellow - giCentre, City, University of London**. A €13m, four-year EU project involving academic and commercial partners across Europe. Responsible for contributing new research and software in spatial analysis for crime research. As well as publishing research outputs at IEEE VIS and VGTC Eurovis, designed visual analysis software prototypes. Contributed to teaching via guest lectures and lab assistance for modules in Data Science and Data Visualization.
- 11 - 14 | **PhD Researcher - giCentre, City, University of London**. Recent advances in information visualization and data analytics were used to analyse and classify customer travel behaviours within the London Cycle Hire scheme. Work was presented at international academic and industry conferences, winning best paper at one leading conference, and research papers were published in four international academic journals. Tutored and guest lectured on undergraduate and postgraduate modules in Data Visualization and Research Methods. Delivered invited talks on data analytics to industry and academic audiences.
- 10 - 11 | **Senior Researcher - YouGov, London**. Managed fieldwork, client relationships, data analysis and reporting for various customer insight projects. As well as developing and extending skills in data analysis, a substantial aspect of the role was around survey design and implementation: preparing and piloting scripts and monitoring response rates and making decisions about sample boosting when surveys were 'live'. Also introduced new chargeable analysis outputs – dashboard reporting for tracker projects and basic interactive graphics for client use.

- 08 - 10 | **Research Officer - Leicestershire County Council, Leicestershire.** In an award-winning research team, managed and was the principal analyst on a large-scale evidence base commissioned by the council's Transport Department. Using current techniques within GIS and market research, the work considered factors such as access to services, local labour market efficiency and fear of crime on Leicestershire's public transport system. The project was featured in a leading international conference on data analysis. Also worked on various smaller economic insight research projects.
- 06 - 08 | **Research Executive - QA Research, York.** Graduate scheme in social and market research. Developed skills in both qualitative and quantitative research, presenting, report writing, sales/PR writing and project management.

Awards Honors and Distinctions

- 2017 | **InfoVis Best Poster Award.** Top 1 of 64 submissions, IEEE VIS 2017, Phoenix, Arizona.
- 2016 | **InfoVis Best Paper Honorable Mention.** Top 3 of 165 papers, IEEE VIS 2016, Baltimore, Maryland.
- 2014 | **Top 10 Taylor & Francis articles in Transport** for the paper 'Exploring gendered cycling behaviours within a large-scale behavioural data-set' (listed under Publications).
- 2013 | **Smeed Prize (first place).** Best student paper and presentation (14 shortlisted papers), 45th National Universities Transport Study Group Annual Conference, University of Oxford.
- 2012 | **VAST Challenge Award for Efficient Visualization,** IEEE Visweek, Seattle, Washington.
- 2012 | **Nokia Mobile Data Challenge.** Third best paper from c.100 entries, Pervasive 2012, University of Newcastle.
- 2006 | **Robin Mills Award.** Second highest first in academic cohort, Durham University Geography.

Teaching

Invited Courses

- 20-pres | **Invited 10-day course,** Computational methods for Social Data Science: Exploring Society through Visualization and Modelling, Essex Summer School. roger-beecham.com/comp-sds/.
- 18-19 | **LIDA Seminar,** Explaining Trump and Brexit with Tidy Data Graphics, Leeds Institute for Data Analytics. roger-beecham.com/tidy-datavis/.
- 15-16 | **Active Mobility,** MSc Lecture Series, TU Vienna.

Postgraduate

- 20-pres | **GEOG5009 Visualization for Geographic Data Science,** MSc GIS ODL, University of Leeds. Module Manager and Lecturer.
 – I deliver all content, set and mark all assignment activity. Website: roger-beecham.com/vis-for-gds/.

17-20

GEOG5927 Predictive Analytics, MSc Consumer Analytics and Marketing Strategy, University of Leeds. Module Manager and Lecturer.

– I develop module materials, deliver lectures and labs and set and mark assignment activity for 80% of the module. Website: roger-beecham.com/predictive-analytics/.

GEOG5957 Dissertations, MSc Consumer Analytics and Marketing Strategy, University of Leeds. Module Manager and Lecturer.

GEOG5002 Professional & Personal Development, MSc GIS, University of Leeds, Lecturer.

– I design, deliver, set and mark assignment activity for two 2-day workshops in R. Website: roger-beecham.com/intro-visual-data-analysis/.

GEOG5927 Predictive Analytics, MSc Consumer Analytics and Marketing Strategy, University of Leeds. Module Manager and Lecturer.

– I develop module materials, deliver lectures and labs and set and mark assignment activity for 80% of the module. Website: roger-beecham.com/predictive-analytics/.

GEOG5255 Geodemographics & Neighbourhood Analysis, MSc Consumer Analytics and Marketing Strategy / GIS, University of Leeds. Lecturer.

– I develop module materials, deliver lectures and labs and set and mark assignment activity for 30% of this module, which was new to 2018/19.

GEOG5042 Geographic Data Visualization & Analysis, MSc Consumer Analytics and Marketing Strategy / GIS, University of Leeds (Lecturer).

– I develop module materials, deliver lectures and labs and set and mark assignment activity for one unit of this module comprising 3 hours of lecture and 3 hours of practical time. Website: roger-beecham.com/data-visualization.

GEOG5002 Professional & Personal Development, MSc GIS, University of Leeds, Lecturer.

– I design, deliver, set and mark assignment activity for two 2-day workshops in R. Website: roger-beecham.com/intro-visual-data-analysis/.

GEOG5870 Web-GIS, MSc GIS, University of Leeds. Lecturer.

– I design, deliver, set and mark assignment activity for two 2-day workshops in R. Website: roger-beecham.com/intro-visual-data-analysis/web-vis.html.

GEOG5957 Dissertations, MSc Consumer Analytics and Marketing Strategy, University of Leeds. Module Manager and Lecturer.

14-17

Visual Analytics, MSc Data Science, City, University of London. Guest Lecturer.

– I design and deliver two lectures and labs on statistical model building.

Principles of Data Science, MSc Data Science, City, University of London. Guest Lecturer.

– I design and deliver one lecture and lab on applications of data science.

Data Visualization, MSc Data Science, City, University of London. Guest Lecturer.

– I delivered one lecture and lab on use of colour in data visualization.

Business Intelligence & Analytics, MSc Business Systems Analysis & Design, City, University of London. Guest Lecturer.

– I delivered one lecture and lab on dashboard design.

Undergraduate

20-21	GEOG3615 Dissertations , BA Geography, University of Leeds. Supervisor. GEOG2000 Tutorials , BA Geography, University of Leeds. Personal Tutor.
19-20	GEOG3191 Geocomputation , BA Geography, University of Leeds. Lecturer. GEOG3615 Dissertations , BA Geography, University of Leeds. Supervisor. GEOG1500Tutorials , BA Geography, University of Leeds. Personal Tutor. GEOG8300 Year in Industry , BA Geography, University of Leeds. Teaching Team.
18-19	GEOG2025 Service Analysis & Planning , BA Geography, University of Leeds. Module Manager and Lecturer. Undergraduate Dissertations , BA module, University of Leeds (Personal Tutor). GEOG2000 Tutorials , BA Geography, University of Leeds. Personal Tutor. GEOG3615 Dissertations , BA Geography, University of Leeds. Supervisor.
17-18	GEOG1500Tutorials , BA Geography, University of Leeds. Personal Tutor.
16-17	Visualizing Society , BA Sociology, City, University of London. Guest Lecturer.

Publications

Refereed Academic Journals

2022	<ul style="list-style-type: none"> • Yang, Y., Beecham, R., Heppenstall, A., Turner, A., and Comber, A. (2022). Understanding the impacts of public transit disruptions on bikeshare schemes and cycling behaviours using spatiotemporal and graph-based analysis: A case study of four London Tube strikes. Journal of Transport Geography, 98:103255. [code].
2021	<ul style="list-style-type: none"> • Radburn, R. and Beecham, R. (2021). Mapping deprivation for each and every small area in England. Regional Studies, Regional Science, 8(1):269–272. • Beecham, R., Dykes, J., Hama, L., and Lomax, N. (2021). On the Use of ‘Glyphmaps’ for Analysing the Scale and Temporal Spread of COVID-19 Reported Cases. ISPRS International Journal of Geo-Information, 10(4). [code]. • Beecham, R., Dykes, J., Rooney, C., and Wong, W. (2021). Design Exposition Discussion Documents for Rich Design Discourse in Applied Visualization. IEEE Transactions on Visualization and Computer Graphics, 27(8):3451–3462. [code].
2020	<ul style="list-style-type: none"> • Lovelace, R., Beecham, R., Heinen, E., Vidal Tortosa, E., Yang, Y. Slade, C., and Roberts, A. (2020). Is the London Cycle Hire Scheme becoming more inclusive? An evaluation of the shifting spatial distribution of uptake based on 70 million trips. Transportation Research Part A: Policy and Practice, 140(October):1–15. • Beecham, R., Williams, N., and Comber, L. (2020). Regionally-structured explanations behind area-level populism: an update to recent ecological analyses. PLoS ONE, 15(3):e0229974. [code]. • Beecham, R. (2020). Using position, angle and thickness to expose the shifting geographies of the 2019 UK General Election. Environment and Planning A: Economy and Space, 52(5):833–836 [code][press].

- 2019 • **Beecham, R.** and Slingsby, A. (2019). Characterising labour market self-containment in London with geographically arranged small multiples. **Environment and Planning A: Economy and Space**, 51(6):1217–1224. [code].
- 2018 • **Beecham, R.**, Slingsby, A., and Brunson, C. (2018). Locally-varying explanations behind the United Kingdom’s vote to leave the European Union. **Journal of Spatial Information Science**, 16:117–136. [code].
- 2017 • **Beecham, R.**, Dykes, J., Meulemans, W., Slingsby, A., Turkay, C., and Wood, J. (2017). Map line-ups: effects of spatial structure on graphical inference. **IEEE Transactions on Visualization and Computer Graphics**, 23(1):391–400. [paper web-site] [23% acceptance rate] [Best Paper Honorable Mention].
- 2016 • **Beecham, R.**, Rooney, C., Meier, S., Dykes, J., Slingsby, A., Turkay, C., and Wong, W. (2016). Faceted Views of Varying Emphasis (FaVVEs): a framework for visualising multi-perspective small multiples. **Computer Graphics Forum**, 35(3):241–249. [paper web-site] [28% acceptance rate].
- 2014 • Wood, J., **Beecham, R.**, and Dykes, J. (2014). Moving beyond sequential design: Reflections on a rich multi-channel approach to data visualization. **IEEE Transactions on Visualization and Computer Graphics**, 20(12):2171–2180. [23% acceptance rate].
- **Beecham, R.** and Wood, J. (2014). Characterising group-cycling journeys using interactive graphics. **Transportation Research Part C: Emerging Technologies**, 47(October):194–206.
- **Beecham, R.**, Wood, J., and Bowerman, A. (2014). Studying commuting behaviours using collaborative visual analytics. **Computers, Environment and Urban Systems**, 47(September):5–15.
- **Beecham, R.** and Wood, J. (2014). Exploring gendered cycling behaviours within a large-scale behavioural data-set. **Transportation Planning and Technology**, 37(1):83–97. [Smeed Prize (1st place)] [Taylor & Frances top 10 articles in transport from 2014]
- 2013 • Slingsby, A., **Beecham, R.**, and Wood, J. (2013). Visual analysis of social networks in space and time using smartphone logs. **Pervasive and Mobile Computing**, 9(6):848–864.

Book Chapters

- 2015 • **Beecham, R.** (2015). Using bikeshare datasets to improve urban cycling experience and research urban cycling behaviour. In Gerike, R. and Parkin, J., editors, **Cycling Futures: From Research into Practice.**, pages 267–283. Ashgate, Farnham, UK.

Refereed Conference Proceedings

- 2021 • Doppler, J. H., Pohl, M., **Beecham, R.**, and Dykes, J. (2021). Strategies for Detecting Difference in Map Line-Up Tasks. In Lamas, D., Loizides, F., Nacke, L. E., Petrie, H., Winckler, M., and Zaphiris, P., editors, **INTERACT 2021 - 18th International Conference on Human-Computer Interaction, Bari, Italy, August 30th-2nd September, 2021, Proceedings**, volume 12934 of **Lecture Notes in Computer Science**. Springer.
- 2019 • Lovelace, R., Hama, L., and **Beecham, R.** (2019). Reproducible road safety research: an exploration of the shifting spatial and temporal distribution of car-pedestrian crashes. In **Geographical Information Science Research UK (GISRUK)**, Newcastle, UK.

- 2017
 - Rooney, C., **Beecham, R.**, Dykes, J., and Wong, W. (2017). Dynamic Design Documents for supporting applied visualization. In **Poster presented at IEEE VIS**, Phoenix, USA. [Best Poster Award]
 - **Beecham, R.** and Dykes, J. (2017). Map LineUps: implications for spatial analysis. In **Geocomputation 2017**, Leeds, UK.
 - **Beecham, R.**, Slingsby, A., Brunsdon, C., and Radburn, R. (2017). Spatially varying explanations behind the UK's vote to leave the EU. In **Geographical Information Science Research UK (GISRUK) 2017**, Manchester, UK.
- 2016
 - **Beecham, R.**, Wood, J., and Turkay, C. (2016). Towards explanatory model building in social data science. In **Royal Geographical Society Annual International Conference 2016: Urban Analytics**, London, UK.
- 2015
 - **Beecham, R.**, Dykes, J., Slingsby, A., and Turkay, C. (2015). Supporting crime analysis through visual design. In **Poster presented at IEEE VIS**, Chicago, USA.
 - Dykes, J., Rooney, C., **Beecham, R.**, Turkay, C., Slingsby, A., Wood, J., and Wong, W. (2015). Multi-Perspective Synopsis with Faceted Views of Varying Emphasis. In **Poster presented at IEEE VIS**, Chicago, USA.
- 2014
 - **Beecham, R.**, Dykes, J., Turkay, C., Slingsby, A., and Wood, J. (2014). Map Line Ups: Using Graphical Inference to Study Spatial Structure. In **DECISIVE: Dealing with Cognitive Biases in Visualizations, a workshop at IEEE VIS**, Paris, UK.
 - **Beecham, R.** and Wood, J. (2014). Towards confirmatory data analysis? Deriving and analysing routing information for an origin-destination bike share dataset. In **46th Annual Universities Transport Study Group (UTSG) Conference**, Newcastle, UK.
- 2012
 - **Beecham, R.**, Wood, J., and Bowerman, A. (2012). Identifying and explaining inter-peak cycling behaviours within the London Cycle Hire Scheme Conference. In **Progress in Movement Analysis: Experiences with Real Data**, Zurich, Switzerland.
 - Kachkaev, A., Dillingham, I., **Beecham, R.**, Goodwin, S., Ahmed, N., and Slingsby, A. (2012). Monitoring the Health of Computer Networks with Visualization - VAST 2012 Mini Challenge 1 Award: Efficient Use of Visualization. In **IEEE Conference on Visual Analytics Science and Technology**, Seattle, USA.
 - **Beecham, R.**, Wood, J., and Bowerman, A. (2012). A visual analytics approach to understanding cycling behaviour. In **Poster presented at the IEEE Conference on Visual Analytics Science and Technology (VAST)**, Seattle, USA.
- 2010
 - Radburn, R., **Beecham, R.**, Dykes, J., Wood, J., and Slingsby, A. (2010). Using spatial treemaps in local authority decision making and reporting. In **IEEE Conference on Information Visualization (InfoVis), Discovery Exhibition**, Utah, USA.

Invited Presentations

- 2022
 - **Beecham, R.** (2022). Data graphics as statistics? A call to adventure for statistical communication, at 54th Annual Meeting of the French Statistical Society. Nice, France.
 - Full travel, accommodation and fees paid. Session from 2021 postponed to 2022.
- 2021
 - **Beecham, R.** (2021). Applications of Data Visualization: Covid-19, at 54th Essex Summer School. Essex, UK.
 - **Beecham, R.** (2021). Visualizing the pandemic and other health outcomes, i-sense Q&A Series. London, UK.

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| 2020 | <ul style="list-style-type: none"> • Beecham, R. (2020). Glyphmaps for analysing the scale and temporal spread of covid-19 cases, at Annual VizTIG 2020 Symposium, Alan Turing Institute. London, UK. • Beecham, R. (2020). Visualization for social data science principles and applications, at 53rd Essex Summer School. Essex, UK. |
| 2016 | <ul style="list-style-type: none"> • Beecham, R. (2020). Thinking spatially ... through visualization, TU Vienna. Vienna, Austria. – Full travel and accommodation paid for guest lecture and 3-day research visit. • Beecham, R. (2016). Visualising uncertainty (and probability), at Visual Analytics Bootcamp. Middlesex University, London. |
| 2015 | <ul style="list-style-type: none"> • Beecham, R. (2015). Thinking spatially ... through visualization, at Geography Department Seminar Series. University College School, London. |

Supervision and Mentoring

Postgraduate Researchers

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| 18–23 | Supervisor to Caroline Tait . Towards data-driven policy development - the case of London's built cycling infrastructure. ESRC CDT funded studentship. Primary supervisor; other supervisors: Dr Robin Lovelace, Dr Stuart Barber. |
| 18–
paused | Supervisor to Colin Caine . New methods of space-time data analysis to operationalise passively collected transport data on the route network. ESRC CDT funded studentship. Second supervisor; other supervisors: Dr Robin Lovelace, Dr Stuart Barber. |
| 17–pres | PhD Research Support Group member for four students: Yanxuan Yang; Amanda Otley; Eugeni Vidal Tortosa; Zi Ye. |

Postdoctoral Researchers and Interns

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| 2021 | Thomas Richards , Postdoctoral Research Assistant. UKRI Covid Research Fund project, line manager and co-supervisor with Prof Alison Heppenstall. |
| 2020 | Thomas Richards , Intern. Inferring illegitimate behaviour through data driven research, co-supervisor with Prof Alison Heppenstall. |
| 2020 | Millie Wagstaff , Intern. A Scalable Interactive Cancer Analytics Web Application With Integrated Automated Reporting for Routinely Collected Data, co-supervisor with Dr Kieran Zucker and Prof Geoff Hall. |
| 2018 | Benjamin Wilson , Intern. Using machine learning to understand the dynamics of cities. Co-supervisor with Prof Alison Heppenstall, Dr Minh Le Kieu and Dr James Hetherington. |

Research Income

Funding Gained

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| 2021 | Digital Twins and the Turing Geovisualisation Engine (Co-I) £120,195
UKRI/Alan Turing Institute. |
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2020	SaferActive: prioritising investment in traffic calming measures for vulnerable road users (Co-I) Department for Transport.	£90,000
2018	Creating a Digital Twin (Co-I) UKRI and The Alan Turing Institute.	£888,464

Funding Sought

2021	RAMPVIS+: Building Data Visualization and Visual Analytics (VIS) Services into Data Research Infrastructure in the UK (Co-I) UKRI. Not funded.	£392,085
2020	ESRC Centre for Urban Analytics (Co-I) ESRC. Not funded.	£9.9m
	Universities as enablers of productivity gains (Co-I) ESRC. Not funded.	£40,327
2019	International Exchanges 2019 Round 2. (PI) Royal Society. Not funded.	£3,000
2018	Progressing social data science beyond description: a framework for analysis (PI) Leverhulme Trust. Not funded.	£44,095
2016	Mapping the Cycling Environment (MaCE): an interactive web tool (Co-PI) Department for Transport. Not funded.	£102,444

Enterprise and Knowledge Transfer

Funded Consultancy Projects

2015	A web-based visualization of bus usage data to support media campaign , Mirror Group. [project web-site].	£2,700
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Other Knowledge Transfer

2020	Expert advisor to RAMP VIS . Provide feedback and guidance on a programme of data visualization projects that support exploration, analytics and dissemination activities within The Scottish COVID-19 Response Consortium (SCRC).
2015	Contributed to a UK national report to the International Cartographic Association , preparing an audit of progress in Geovisulization.
2015	Invited by Department for Transport and Transport for London to contribute towards a feasibility study for the introduction of quietways cycle infrastructure through secondary data analysis of London Travel Demand Survey, bikeshare and Strava. Preliminary data analysis completed and funded consultancy of c.£30,000 agreed, but project paused due to budget constraints.
2013	Flow visualization of London Bike Share Scheme usage data featured in New Scientist , an exhibition at Museum of London and an art instillation at Digital Shoreditch , described in Wood et al. (2014).

Academic Leadership

School of Geography

18 -pres	Deputy Director of Centre for Spatial Analysis & Policy research (CSAP) group. Design, facilitate and chair research seminars, meetings, research planning and funding call-type sessions and maintain CSAP blog.
18-pres	Digital Education Academic Lead for Geography. Act as Geography representative at Faculty Digital Education Meetings, presenting regular summary documents to the group on digital education practice in the school, raising and escalating with IT technical and other challenges associated with student learning.
19-20	Acting Programme Lead from Geography for Consumer Analytics & Marketing Strategy (CAMS). At a time of rapidly increasing numbers (160+ students), liaised with LUBS around issues of enrolment, the planning and delivery of induction activities, scheduling of modules and organisation of dissertations.

Leeds Institute for Data Analytics

21-pres	Co-leader of LIDA Visualization Study Group. In preparation is a programme of networking activities connecting academics across domains and departments in the University with the aim of formulating project proposals directed towards current funding priorities.
17-20	Member of LIDA Seminar Committee. Supporting the organisation of monthly talks from a wide range of disciplines, attracting audiences of 100+.

Academic and Professional Duties

Reviewing

CS/Vis	ACM CHI; EuroVis; IEEE VIS; IEEE Transactions on Visualization & Computer Graphics; Computers & Graphics; IEEE Pervasive Computing.
Geog	IJGIS; Computers, Environment & Urban Systems; Applied Geography; Environment & Planning A, B; Cambridge Journal of Regions, Economy & Society.
Tran	Journal of Transport Geography; Journal of Transportation & Health; International Journal of Sustainable Transportation; Research in Transportation Business Management; IEEE Transactions on Intelligent Transport Systems.
Other	Psychological Science.

Conference and Seminar Organisation

2021	RGS-IBG 2021: The Presence and Impact of Spatial Boundaries in Transport Geography, September 2021, London, UK. Committee member.
2018	GVIZ@GIScience 2018: New Directions in Geovisual Analytics: Visualization, Computation, and Evaluation, August 2018, Melbourne, Australia. Committee member.
2017	DECISIVE: Dealing with Cognitive Biases in Visualisations (a workshop at IEEE VIS 2017), 2nd October 2017, Phoenix, USA. Committee member.
2015	Universities Transport Study Group, 47th Annual Conference, 6th-8th January, City, University of London. Committee member and judging panel for best paper award.
2014	DECISIVE: Dealing with Cognitive Biases in Visualisations (a workshop at IEEE VIS 2014), 9th November 2014, Paris, France. Committee member.

2014 | **Universities Transport Study Group**, 46th Annual Conference, 6th-8th January, Newcastle University. Committee member.

Technical skills

code	R, Java, Processing, PHP, HTML, CSS.
dbase	MySQL, PostgreSQL SQLite, MongoDB.
vis	ggplot2, vega-lite, vega, Tableau
soft	QGIS, SPSS, Excel.
stats	computational statistics, machine learning approaches, graphical inference.

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