JUSTIN T. VAN DIJK

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Human geographer. Spatial data scientist. Lecturer. Interested in spatial inequalities and spatial justice, urban transport, big data applications in scarce data environments, and re-purposing administrative and commercial data for research purposes. Extensive experience in the domain of Geographic Information Systems, urban studies, and transport research. Possesses a wide skill set in the field of advanced spatial analysis, experienced with Python programming, R scripting, and PostgreSQL/PostGIS.

Present Appointment

2021 – Present Lecturer, University College London

Department of Geography. Lecturer in Social and Geographic Data Science. Contributing to the M.Sc. modules *Principles of Spatial Analysis* and *Data, Politics and Society* as well as the undergraduate modules *Geocomputation*

and Geography in the Field II. Undergraduate Admissions Tutor.

Visiting Appointments

2022 – Present Research Fellow, Stellenbosch University

School for Data Science and Computational Thinking.

Previous Appointments

2020 – 2021 Associate Lecturer, University College London

Department of Geography. Associate Lecturer in Quantitative Social

Science.

2018 – 2021 **Postdoctoral Research Associate**, University College London

Department of Geography. Research Associate in the Geospatial Analytics

and Computing Research Group.

2014 – 2017 **Junior Lecturer**, Stellenbosch University

Department of Logistics. Part-time appointment.

2013 **Junior Lecturer**, Utrecht University

Department of Human Geography and Planning.

2012 **Teaching Assistant**, Stellenbosch University

Department of Logistics.

2009 – 2012 **Teaching Assistant**, Utrecht University

Department of Human Geography and Planning.

Education

2014 – 2017 **Doctor of Philosophy**, Stellenbosch University

Transport Economics. Dissertation title: "Designing Travel Behaviour Change interventions: A spatiotemporal perspective".

2011 – 2013 Master of Science, Utrecht University. GPA 4.0. Cum Laude.

Human Geography and Planning. Dissertation title: "Towards spatial justice: The spatial equity effects of a toll road in Cape Town, South Africa".

2007 – 2011 **Bachelor of Science**, Utrecht University. GPA 4.0.

Human Geography and Planning. Dissertation title: "Contemporary Orientalism? Representations of Islam and Muslims in the Dutch Press: a content analysis of 'De Volkskrant' and 'De Telegraaf', 2001-2010".

Journal Articles

Longley, P. A., Lan, T., and **Van Dijk**, **J. T.** Geography, ethnicity, genealogy and inter-generational social inequality in Great Britain. *Transactions of the*

Institute of British Geographers. Accepted for publication.

institute of British Geographers. Accepted for publication

Longley, P. A., **Van Dijk**, **J. T.**, and Lan, T. The geography of inter-generational

social mobility in Britain. *Nature Communications* 12: 6050.

doi: 10.1038/s41467-021-26185-z

Van Dijk, **J. T.**, Lansley, G., and Longley, P. A., Using linked consumer registers to estimate internal migration in the United Kingdom. *Journal of the Royal Statistical Society: Series A (Statistics in Society* 184(4): 1452-1474.

doi: 10.1111/rssa.12713

Lan, T., **Van Dijk**, **J. T.**, and Longley, P. A., Family names, city size distributions and residential differentiation in Great Britain, 1881-1901. *Urban Studies*

59(10): 2110-2128. doi: <u>10.1177/00420980211025721</u>

Van Dijk, **J. T.** and Longley, P. A. Interactive display of surname distributions in historic and contemporary Great Britain. *Journal of Maps* 16(1): 68-76.

doi: 10.1080/17445647.2020.1746418

Kandt, J., **Van Dijk**, **J. T.**, and Longley, P. A. Family name origins and intergenerational demographic change in Great Britain. *Annals of the American Association of Geographers*. 110(6): 1726-1742.

doi: 10.1080/24694452.2020.1717328

Engin, Z., **Van Dijk**, **J. T.**, Lan, T., Longley, P. A., Treleaven, P., Batty, M., and Penn, A. Data-driven urban management: Mapping the landscape. *Journal of Urban Management* 9(2): 140-150. doi: 10.1016/j.jum.2019.12.001

2018

Van Dijk, **J. T.** Identifying activity-travel points from GPS-data with multiple moving windows. *Computers, Environment and Urban Systems* 70: 84-101. doi: 10.1016/j.compenv urbsys.2018.02.004

2017

Van Dijk, J. T. and Krygsman, S. C. Using GPS-based activity spaces and opportunity indicators for travel behaviour analysis. *Journal of Urban Technology* 25(2): 105-124. doi: 10.1080/10630732.2017.1400814

Van Dijk, **J. T.** and De Jong, T. Post-processing GPS tracks in reconstructing travelled routes in a GIS-environment: Network subset selection and attribute adjustment. *Annals of GIS* 23(3): 203-217. doi: 10.1080/19475683.2017.1340340

2015

Idahosa, L. O. and **Van Dijk**, **J. T.** Freedom for whom in South Africa? Inequality, unemployment and the elderly. *Development* 58(1): 96-102. doi: 10.1057/dev.2015.18

Van Dijk, **J. T.**, Krygsman, S. C., and De Jong, T. Towards spatial justice: The spatial equity effects of a toll road in Cape Town, South Africa. *Journal of Transport and Land use* 8(3): 95-114. doi: 10.5198/jtlu.2015.555

Book Chapters

2021

Van Dijk, **J. T.**, Lansley, G., and Longley, P. A., Using linked consumer and administrative data to model demographic changes in London's city fringe. In: Clarke, G., Birkin, M., and Stimson, B. (Eds.), *Applications of Big Data in Geography and Planning. An Essential Companion*, pp. 43-51. Cheltenham: Edward Elgar Publishing.

2013

Wolfensberger M., Dekker, M., **Van Dijk, J. T.**, Zubizarreta, J., Hait, C., Mann, C., and Lucas, C. Learning as salon: Honors International Collaboration. In: Mulvaney, M. K. and Klein, K. (Eds.), *Preparing Tomorrow's Global Leaders: Honors International Education*, pp. 75-84. Lincoln: National Collegiate Honors Council. NCHC Monograph Series.

Conference Proceedings

2023

Kimura, S., Longley, P. A., and **Van Dijk**, **J. T.** The use of consumer data to explore geographic and social variations in online gambling. *Proceedings of the 31th Conference of GIS Research UK (GISRUK)*. Glasgow: University of Glasgow.

Mavrogeni, M., Longley, P. A., and **Van Dijk**, **J. T.** The use of in-app data to drive geodemographic classification of activity patterns. *Proceedings of the 31th Conference of GIS Research UK (GISRUK)*. Glasgow: University of Glasgow.

2022

Kimura, S., Longley, P. A., and **Van Dijk**, **J. T.** Exploring the spatial disparities in gambling risk and vulnerability. *Proceedings of the 30th Conference of GIS Research UK (GISRUK)*. Liverpool: University of Liverpool.

doi: 10.5281/zenodo.6407146

Winner of the CASA Prize for Best Paper in Spatial Analysis

2021

Van Dijk, **J. T.** and Longley, P. A. Developing a data infrastructure for bespoke demographic analysis. *Proceedings of the 29th Conference of GIS Research UK (GISRUK)*. Cardiff: Cardiff University.

doi: 10.5281/zenodo.4664749

Chen, M., Chi, B., **Van Dijk**, **J. T.**, and Longley, P. A. The use of Linked Consumer Registers to understand social mobility and residential mobility. *Proceedings of the 29th Conference of GIS Research UK (GISRUK)*. Cardiff: Cardiff University. doi: 10.5281/zenodo.4665856

Kuleszo, J., Coulter, R., **Van Dijk**, **J. T.**, and Longley, P. A. Linking consumer datasets to chart residential moves in private rental housing in England and Wales. *Proceedings of the 29th Conference of GIS Research UK (GISRUK)*. Cardiff: Cardiff University. doi: 10.5281/zenodo.4665818

2020

Van Dijk, **J. T.** and Longley, P. A. Platial geo-temporal demographics using family names. In: Westerholt, R. and Mocnick, F.-B. (Eds.), *Proceedings of the 2nd International Symposium on Platial Information science (PLATIAL'19*). Warwick: Warwick University. 23-31. doi: 10.5281/zenodo.3628863

2019

Van Dijk, J. T., Lansley, G., Lan, T., and Longley, P. A. Using the spatial analysis of family names to gain insight into demographic change. *Proceedings of the 27th Conference of GIS Research UK (GISRUK)*. Newcastle: Newcastle University.

Lan, T., Lansley, G., **Van Dijk**, **J. T.**, and Longley, P. A. Geocoding historical census records in England and Wales. *Proceedings of the 27th Conference of GIS Research UK (GISRUK)*. Newcastle: Newcastle University.

2016

Van Dijk, **J. T.** and Krygsman, S. C. Mobile technologies for data collection in sub-Saharan Africa: An outlook to the future of mobility research. #CelebrateGeography: Proceedings of the 11th Biennial Conference of the Society of South African Geographers (SSAG 2016). Stellenbosch: SunMedia. 180-189.

2015

Van Dijk, J. T. and Krygsman, S. C. Gathering individual travel data with GPS-enabled smartphones: A proof of concept study. *Proceedings of the 34th Southern African Transport Conference (SATC 2015). Pretoria: Southern Africa Transport Conference*. 448-460.

Professional Publications

2010

Van Dijk, **J. T.** and De Jong, T. Medische voorzieningen in kaart. Bereikbaarheid medische voorzieningen in Bushbuckridge, Maruleng en Sekhukhune [Accessibility of Medical services in Bushbuckridge, Maruleng and Sekhukhune]. *Geografie* 19 (5): 18-20.

Authored Books

2017

Van Dijk, **J. T.** Designing Travel Behaviour Change Interventions: a spatiotemporal perspective [Ph.D. dissertation]. Stellenbosch: Stellenbosch University. Persistent URL: hdl.handle.net/10019.1/102809

Research and Travel Grants

Research and Travel Grants		
2023	Research Capital Equipment Fund. UCL Faculty of Social and Historical Sciences. "Social Data Science Research Platform." £ 460,177 (co-l, Pl: L. Nesheim, co-ls: M. Altaweel, G. Jorayev, G. Conti, W. Cui, J. Granja, S. Hansen, H. Ku. J. Cheshire, M. Disney, M. Gibin, S. Law, P. A. Longley, A. Musah, N. Metternich, T. O'Grady, B. Lauderdale)	
2023	ESRC Ph.D. Studentship, UBEL DTP. Co-funded by PDV Limited. "Lifestyles and geodemographic behaviours in inter-generational context." £ 60,584 / 3 years (PI, co-I: P. A. Longley)	
2022	ESRC Ph.D. Studentship, UBEL DTP. Co-funded by Didobi Limited. "Real-time geodemographics for business and service planning." £ 57,984 / 3 years (co-l, Pl: P. A. Longley)	
2021	The British Academy Talent Development Award Scheme 2021 £ 9,919.47 / 1 year (Pl, co-l: S. Law, A. Musah) Ref: TDA21\210069	
	ESRC Ph.D. Studentship, UBEL DTP. Co-funded by Gamble Aware. "Geographies of harmful gambling behaviour and their remediation". £ 57,761 / 3 years (Pl, co-l: P. A. Longley)	
2020	Frank Carter Travel Fund, University College London £ 550 (PI)	
2016	Postgraduate travel grant, National Research Foundation South Africa ZAR 24,222 (PI)	
2015	NRF-DST innovation scholarship, National Research Foundation and Department of Science and Technology South Africa ZAR 330,000 / 3 years (PI)	
	Stellenbosch merit bursary, Stellenbosch University	

ZAR 50,000 / 2 years (PI)

2014

Scholarship award for full-time doctoral studies, Stellenbosch University **ZAR 390,000 / 3 years** (PI)

Created Research Datasets

2023

Migration Model, 1997 - 2022

The Migration Model is a dataset that ascribes records pertaining to individuals that vacate a property to their most probable destination address, using a UK-wide population data set: the Linked Consumer Registers. The dataset comprises circa 42 million records. Access to this dataset can be secured through the Consumer Data Research Centre (data.cdrc.ac.uk). Note: supervised the creation, executed by Dr James Todd.

2023

Linked Consumer Registers, 1997 – 2022

The Linked Consumer Registers are a dataset that contain the names and addresses for adults in the UK in annual snapshots from 1997 onwards to 2022. They are compiled from reported outputs from linking public versions of the electoral roll and consumer registers (supplied by value-added resellers). The dataset comprises circa 141 million records. Access to this dataset can be secured through the Consumer Data Research Centre (data.cdrc.ac.uk). Note: supervised the creation, executed by Dr James Todd.

Professional Development

2023

UCL Arena for Lecturers on Probation (ALP), University College London This course explores the relationships between student education and research and develops skills to teach confidently and effectively.

Teaching Experience

2021 – Present

Lecturing, University College London

- GEOG0114: Principles of Spatial Analysis (M.Sc.). Module contributions page: <u>itvandijk.github.io/GEOG0114/</u>
- GEOG0163: Data, Politics and Society (M.Sc.). *Module convenor*. Full module page: <u>itvandijk.github.io/GEOG0163/</u>
- GEOG0030: Geocomputation (B.Sc.). *Module convenor*. Full module page: <u>itvandijk.github.io/GEOG0030/</u>
- GEOG0014: Geography in the Field II.

 Module contributions page: <u>itvandijk.github.io/GEOG0014</u>
- Principal dissertation supervisor of B.Sc. students
- Principal dissertation supervisor of M.Sc. students

2020 - 2021

Lecturing, University College London

- GEOG0114: Principles of Spatial Analysis (M.Sc.). Module page: <u>itvandijk.github.io/GEOG0114_20202021/</u>

- GEOG0125: Advanced Topics in Social and Geographic Data Science.
 (M.Sc.). Module contribution page: jtvandijk.github.io/GEOG0125_20202021/
- POLS0008: Introduction to Quantitative Research Methods (B.Sc.). Module contribution page: <u>jtvandijk.github.io/POLS0008_20202021/</u>
- Principal dissertation supervisor of M.Sc. students

2019 - Present

High-school Student Supervision, Nuffield Foundation

Supervision of first-generation prospective university students as part of the annual Nuffield Future Researchers widening participation work experience programme. Number of supervisions to date: 5.

2019

Seminar Speaker, University College London

Co-organiser and speaker in the "Technical Tuesdays" Seminar Series on methods and techniques for quantitative researchers. Module material: github.com/jtvandijk/TechnicalTuesdays

2014 - 2017

Lecturing, Stellenbosch University

- Spatial Accessibility and Transport Network Analysis (B.Sc. Hons, M.Sc.)
- Secondary dissertation supervisor of two B.Sc. Hons students

2013

Lecturing, Utrecht University

- Introduction to Human Geography and Planning (B.Sc.)
- Research Methods and Techniques (B.Sc.)
- Introduction to Geographic Information Systems (B.Sc.)
- Advanced Geographic Information Systems (B.Sc., M.Sc.)
- Principal dissertation supervisor of three B.Sc. students

2012

Teaching Assistant, Stellenbosch University

- Spatial Accessibility and Transport Network Analysis (B.Sc. Hons, M.Sc.)

2009 - 2012

Teaching Assistant, Utrecht University

- Introduction to Geographic Information Systems (B.Sc.)
- Advanced Geographic Information Systems (B.Sc., M.Sc.)
- Transport Geography (B.Sc.)
- Honours College Geosciences (B.Sc.)

Ph.D. supervision

2023 - Present

Subsidiary Supervisor, University College London

Michael Xiao on the topic of "Lifestyles and geodemographic behaviours in inter-generational context". Project due to start: September 2023. Expected submission: September 2026.

2022 - Present

Subsidiary Supervisor, University College London

Mikaella Mavrogeni on the topic of "Real-time geodemographics for business and service planning". Expected submission: September 2025.

2021 - Present Subsidiary Supervisor, University College London

Shunya Kimura on the topic of "Geographies of harmful gambling behaviour and their remediation". Expected submission: September 2024.

Ph.D. examination

2022 **Ph.D. upgrade**, University College London

Shunya Kimura on the topic of "Geographies of harmful gambling behaviour and their remediation"

2021 **Ph.D. upgrade**, University College London

Louise Sieg on the topic of "New Forms of Data and Geodemographics: Evaluation and regionalisation of big mobile phone datasets"

2020 **Ph.D. upgrade**, University College London

Jakub Wyszomierski on the topic of "Hybrid geodemographics and creation of the 2021 Output Area Classification"

Invited talks and Conference Presentations

2023 "DigitalFootprints Data". Invited Research Seminar. Graduate School of Economic and Management Sciences and School of Data Science and Computational Thinking, Stellenbosch University. Stellenbosch, South Africa,

April 13, 2023.

2022 "Linkage of historical GB Census data to present day population registers".

International Population Data Linkage Network Conference. Edinburgh,
United Kingdom, September 8, 2022.

"A more granular approach of the social outcome inequalities among different ethnic groups in Great Britain". The British Society for Population Studies Annual Conference. *Winchester, United Kingdom, September 6, 2022.* Presented by T. Lan.

"Harder, better, faster, stronger. Exploring GPU-based analysis for social and geographic applications". Talent Development Award Induction Day. *The British Academy, United Kingdom, May 11, 2022.*

"What's in a name? Visualising surname geographies in a GIS environment". International Spring School on Visualization (ISSonVis). *Palacký University Olomouc, Czech Republic, April 7, 2022.*

"Harder, better, faster, stronger. Exploring GPU-based analysis for social and geographic applications". Human Geography Seminar Series Department of Geography. *University College London, United Kingdom, March 15, 2022.*

2021 "New data on equality, exclusion and social change in London and the UK". Levelling Up and London, London Research and Policy Partnership London, United Kingdom, September 17, 2021. "Developing a data infrastructure for bespoke demographic analysis". 29th Conference of GIS Research UK. Cardiff, United Kingdom, September 14 -September 16, 2021. 2020 "Applied Geoinformatics: Insights into human mobility patterns". Guest lecture Department of Physical Planning [online]. School of Architecture and Planning New Delhi, India, October 29, 2020. 2019 "Platial geo-temporal demographics using family names". 2nd International Symposium on Platial Information science. Coventry, United Kingdom, September 5 – September 6, 2019. "Using the spatial analysis of family names to gain insight into demographic change". 27th Conference of GIS Research UK. Newcastle, United Kingdom, April 23 - April 26, 2019. 2017 "Using GPS-enabled smartphones for Voluntary Travel Behaviour Change interventions". Guest lecture Utrecht University Summer School on "GPS data analysis". Utrecht University, the Netherlands, July 12, 2017. 2016 "Mobile data collection techniques in sub-Saharan Africa: An outlook to the future of transport research". 11th Biennial Conference of the Society of South African Geographers. Stellenbosch, South Africa, September 25 -September 25, 2016. "Designing a Voluntary Travel Behaviour Change Intervention: Smartphones and Space-Time Accessibility Analysis". Mobile Tartu 2016. Tartu, Estonia, June 29 – July 1, 2016. "GPS data analysis". Guest lecture Utrecht University in the module "Introduction to GIS". Utrecht University, the Netherlands, February 18, 2016. 2015 "GPS data analysis". Guest lecture Utrecht University in the module "Introduction to GIS". Utrecht University, the Netherlands, November 25, 2015. "Gathering individual travel data with GPS-enabled smartphones: A proof of concept study". 34th Southern African Transport Conference. Pretoria, South

unemployment and inequality in a young democracy". 12th Development Dialogue "Rethinking Democracy". *The Hague, the Netherlands, October 16 – October 17, 2014.*

"Twenty years of Freedom: The role of the Old Persons Grant in addressing

Africa, 6 July - July 9, 2015.

2014

"Towards spatial justice: The spatial Equity Effects of a Toll Road in Cape Town, South Africa". World Symposium on Transport and Land Use. *Delft, the Netherlands, June 24 – June 27, 2014.*

Professional Societies

2021 – Present Fellow of the Royal Geographical Society (with Institute of British Geographers)

Committee member of the RGS-IBG GIScience Research Group.

Community Service and Engagement

2022 - Present Department Management Team

Member of the Department Management Team (UCL Geography).

2022 - Present Undergraduate Admissions Tutor

Undergraduate Admissions Tutor for the Undergraduate programmes in UCL geography. Part of my remit involves a strong focus on widening participation as well as outreach to schools located in widening participation

areas.

2022 Session organiser RGS-IBG Annual International Conference

Organiser for two sessions in the RGS-IBG International Conference on "Dealing with uncertainty: Quality and Representation in the context of Big

Data". Newcastle, United Kingdom, August 29 - September 2, 2022.

2021 – Present Committee member RGS-IBG GIScience Research Group

Organisation and promotion of the events of the RGS-IBG GIScience Research Group, including a webinar series and RGS Annual Conference

session.

2021 Data for Policy conference

Session chair. "Informing policy for region and cities: data approaches for timely and granular evidence" *London, United Kingdom, September 16, 2021*.

2021 Consumer Data Insights for Housing Policy Workshop

Presentation and participation in stakeholder workshop to showcase work on housing and residential mobility. *London, United Kingdom, June 26, 2021.*

2020 – Present Under One Sky

Volunteering. Provision of food and assistance to the homeless community

in London.

2014 – 2015 Social Sciences for Development conference

Member of the local organising committee at Stellenbosch University for the

2015 Social Sciences for Development conference.

Web Development

2019 – 2021 Gamble Aware

Data analysis, web mapping, and visualisation of the geographical distribution of supply and demand for treatment and support for problematic gamblers.

2018 – 2022 GBNames

GBNames explores the spread of family names across Great Britain, using historic censuses and recent consumer registers, and links surnames to consumer data statistics. Website available through:

apps.cdrc.ac.uk/gbnames/

External Projects

2021 World Bank

Generation of travel time indicators and market access indicators for small administrative units in Ethiopia. This project is part of a wider study conducted by the World Bank that aims to identify and tackle deeply rooted binding constraints that could hamper the gains of economic growth being spread evenly across regions and between rural and urban areas. Final report available through: bit.ly/3Aj57U0

2020 UCL, Bloomsbury and East London Doctoral Training Partnership

Scoping study, consisting of both desk research and in-person interviews, to identify potential factors and themes that underpin successful partnerships and collaborations between academia and industry.

2019 Greater London Authority

Preparation of selected data products on ethnicity, population churn, migration, and social mobility for the Greater London Authority.

2016 – 2017 Harambee Youth Employment Accelerator

Data analysis using well-known statistical techniques as well as more advanced machine learning classifiers for Harambee Youth Employment Accelerator to better understand, and possibly predict, successful job placements.

2009 AfriScope

Contributions to a study on the accessibility of government services in the Integrated Sustainable Rural Development (ISRD) Nodes in South Africa.

Journal Review

2022 Transportation Research Board

Transportation Research Record

2021 Transactions in GIS

Environment and Planning B: Urban Analytics and City Science

2020 Computers, Environment, and Urban Systems

Journal of Transport Geography

Transactions in GIS

2019 Transactions in GIS

Journal of Transport Geography

The Israel Science Foundation (Grant review)
Journal of Traffic and Transportation Engineering

2018 Journal of Transport Geography

Computers, Environment, and Urban Systems

2016 Area Development and Policy2015 Journal of Transport and Land Use

Media Coverage of Research Projects

2021 The Economist. Britain's inequalities are spelt out in its surnames. Nov 20,

2021; Vol. 442 (9272)

UCL News. Social mobility is influenced by where ancestors lived [Online]. https://www.ucl.ac.uk/news/2021/oct/social-mobility-influenced-where-

ancestors-lived

Core Technical Skills

Geographic Information Systems R, Python, Q-GIS, ESRI suite

Data processing R, Python, Unix shell, GNU Parallel

Data analysisR, PythonData visualisationggplot2, tmapProject managementGit, GitHubWeb mappingLeaflet.js

Web development HTML, CSS, JavaScript, Django

Database management PostgreSQL, PostGIS

Typesetting LaTeX, markdown, rmarkdown, bookdown

Language Proficiency

Dutch Native proficiency

English Full professional proficiency isiXhosa Basic conversational proficiency

References

Professor Paul Longley

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T +44 20 7679 0500

Professor James Cheshire

Professor of Geographic Information and Cartography, University College London

E j.cheshire@ucl.ac.uk

T +44 20 7679 0500

Dr Jens Kandt

Associate Professor Urban Geography and Data Science, Centre for Advanced Spatial Analysis

E j.kandt@ucl.ac.uk

T +44 20 3108 3880