

Dr. Danielle McCool

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Education

- 2018–2026 **PhD Statistics and Methodology**, *Utrecht University*, Utrecht
2012–2014 **Msc Statistics and Methodology**, *Utrecht University*, Utrecht, 8.3, cum laude
2005–2008 **Bsc Psychology/Philosophy**, *Texas Woman's University*, Denton, TX

PhD thesis

- Title *Field notes from the travel app frontier: Build Me, Break Me, Impute Me*
Defense January 2026
Supervisors Peter Lugtig and Barry Schouten
Description Investigated the properties of and solutions for missing data in sensors measuring human mobility. This included developing new imputation methodology broadly applicable for time series data. Incorporated methodology from computer science, machine learning and transportation disciplines in order to provide tools and clear guidelines to applied researchers.

Research and Industry

- 2025–
current **Postdoctoral Researcher (.5 FTE)**, *Utrecht University*, Digital Data Donation Infrastructure (D3I)
- Methodological research on data donation as a measurement instrument, including two papers in progress: data portability APIs as an ingestion method (with H. Janssen, UvA Law) and a multi-study meta-analysis of participant understanding of privacy-preserving collection.
 - Design and implementation of the technical infrastructure supporting Dutch universities' data donation studies on the PORT platform; configuration of new studies, extension of ingestion formats, and coordination with the Eyra open-source platform on the shared codebase.
 - Co-authorship on three external research projects: a multi-platform media consumption diary study (Groot-Kormelink, VU Journalism) and two exposure-measurement pipelines (van der Vegt, UU Sociology) on crime-news video and hate-speech content.
 - Supervision of a research master's thesis on missing data in data donation studies (joint with UvA) and a student assistant on the data portability infrastructure project.
- 2024–2025 **Postdoctoral Researcher (.5 FTE)**, *Utrecht University*, Survey of Health, Ageing and Retirement in Europe (SHARE)
As Country Team Organizer for SHARE Netherlands, coordinated Dutch operations of a 28-country panel survey. Designed an 8,000-person nationally-representative refreshment sample (with RvIG), coordinated the multimode advisory board, and developed the ethical-review documentation for a new linkage-consent instrument.
- 2023–2025 **Postdoctoral Researcher**, *Utrecht University*, ESSnet Smart Survey Implementation (Eurostat)
Led sub-workpackage 2.4, establishing methodological protocols for assessing and managing mode effects between smart and traditional survey formats. Part of a Eurostat-funded consortium of 11 organizations across 7 countries.

2023 **Researcher**, *Statistics Netherlands*
Developed documentation for data management and analysis of app-collected mobility data, and released two Shiny apps for researcher use on outlier removal and UI visualization.

2016–2018 **Consultant**, *ScanmarQED*
Designed multilevel aggregation algorithms, taught courses in data visualization and R, and consulted internationally on marketing data analysis.

Teaching

2018–2024 Workgroup instructor for undergraduate courses in research methods, statistics, and structural equation modeling (TCSM, ARMS, VOS, CAS). Taught in Dutch and English to groups of 16–60 students. Transitioned course materials from SPSS to R and developed supplementary teaching materials.

2025 Invited EMOS guest lectures, Sapienza University of Rome — smart surveys and data donation.

Workshops Data donation workshop for social-science researchers (U Twente, 2025); upcoming workshop at IPDLN 2026 (Rotterdam); thesis consultation ateliers (Ba/Ma); Summer School multivariate statistics; professional-development courses in data visualization and missing-data analysis.

Awards

2017 First place CBS Data Challenge — "Sensors in health" (€1,000)

2017 Second place HackBorne hackathon — "Big data to help municipalities" (€500)

2014 CBS Best Thesis award (€5,000)

Service

Reviews *Public Opinion Quarterly*, *Journal of the National Cancer Institute*, *Journal of Official Statistics*, *Transportation*. LISS Panel grant-proposal reviewer (2025).

Department Search committees for Associate Professor, Postdoc, and PhD positions; designed a technical-assessment component of the research-engineer recruitment process.

Volunteering ESRA 2025 local organizing committee; ISCB; Sensor Data Challenge 2023 jury.

Governance Contribution to Nova Software Foundation circles on governance, licensing, and contribution guidelines for the shared Next/PORT codebase.

Open Science CBS Travel App contributor; maintain two R packages on CRAN (`topdownratio`, `stopdetection`); editor of the data-donation newsletter (2025).

Publications

Preprints

2025 **McCool, D.**, Lugtig, P., & Struminskaya, B. (2025). Integrating smart surveys with traditional surveys. *arXiv [stat.ME]*. <https://doi.org/10.48550/arXiv.2510.07521>

2024 **McCool, D.**, Lugtig, P., & Schouten, B. (2024). Dynamic time warping-based imputation of long gaps in human mobility trajectories. *arXiv [stat.ME]*. <https://doi.org/10.48550/arXiv.2410.16096>

Published

2025 Fritz, M., Keusch, F., Volk, J., Häufiglößner, L., Blanke, K., De Vitiis, C., D'Amen, B., De Fausti, F., Inglese, F., Lorè, B. M., Pappagallo, A., Piccolo, F., Terribili, M., Perez, M., Van Tienoven, T. P., Lusyne, P., **McCool, D.**, Lugtig, P., Struminskaya, B., ... Holmøy, A. (2025, July). *Deliverable 2.3 smart advanced stage* (research rep.). ESSnet. Brussels, Belgium, European Commission. <https://doi.org/https://doi.org/10.5281/>

zenodo.20210640

- 2024 Bucher, H., Keusch, F., Volk, J., Häufglöckner, L., Blanke, K., De Fausti, F., Inglese, F., Terribili, M., Perez, M., van Tienoven, T. P., **McCool, D.**, Lugtig, P., Struminskaya, B., Elevelt, A., De Groot, J., Kompier, M., Schouten, B., Klingwort, J., Van Den Heuvel, J., . . . Holmøy, A. (2024). *Smart survey implementation - work package 2: Research methodology - deliverable M14: Smart baseline stage* (research rep.). European Commission. <https://doi.org/10.13140/RG.2.2.15333.92640>
- 2023 Bucher, H., Keusch, F., De vitiis, C., de Fausti, F., Inglese, F., van Tienoven, T. P., **McCool, D.**, Lugtig, P., & Struminskaya, B. (2023). *Smart survey implementation workpackage 2: Research methodology deliverable M6: Review stage* (research rep.). European Commission. <https://doi.org/10.13140/RG.2.2.20367.09126>
- 2022 **McCool, D.**, Lugtig, P., & Schouten, B. (2022). Maximum interpolable gap length in missing smartphone-based gps mobility data. *Transportation*, 1–31.
- 2021 **McCool, D.**, Lugtig, P., Mussmann, O., & Schouten, B. (2021). An app-assisted travel survey in official statistics: Possibilities and challenges. *Journal of official statistics*, 37(1), 149–170. <https://doi.org/10.2478/jos-2021-0007>
- 2019 Akdeniz, D., Schmidt, M. K., Seynaeve, C. M., **McCool, D.**, Giardiello, D., van den Broek, A. J., Hauptmann, M., Steyerberg, E. W., & Hooning, M. J. (2019). Risk factors for metachronous contralateral breast cancer: A systematic review and meta-analysis. *Breast*, 44, 1–14. <https://doi.org/10.1016/j.breast.2018.11.005>
- Kramer, I., Schaapveld, M., Oldenburg, H. S. A., Sonke, G. S., **McCool, D.**, van Leeuwen, F. E., Van de Vijver, K. K., Russell, N. S., Linn, S. C., Siesling, S., et al. (2019). The influence of adjuvant systemic regimens on contralateral breast cancer risk and receptor subtype. *JNCI: Journal of the National Cancer Institute*, 111(7), 709–718.
- 2017 van Rossum, A. G. J., Kok, M., **McCool, D.**, Opdam, M., Miltenburg, N. C., Mandjes, I. A. M., van Leeuwen-Stok, E., Imholz, A. L. T., Portielje, J. E. A., Bos, M. M. E. M., van Bochove, A., van Werkhoven, E., Schmidt, M. K., Oosterkamp, H. M., & Linn, S. C. (2017). Independent replication of polymorphisms predicting toxicity in breast cancer patients randomized between dose-dense and docetaxel-containing adjuvant chemotherapy. *Oncotarget*, 8(69), 113531–113542. <https://doi.org/10.18632/oncotarget.22697>
- 2015 Drooger, J., Akdeniz, D., Pignol, J.-P., Koppert, L. B., **McCool, D.**, Seynaeve, C. M., Hooning, M. J., & Jager, A. (2015). Adjuvant radiotherapy for primary breast cancer in BRCA1 and BRCA2 mutation carriers and risk of contralateral breast cancer with special attention to patients irradiated at younger age. *Breast cancer research and treatment*, 154(1), 171–180. <https://doi.org/10.1007/s10549-015-3597-7>

Conference papers

- 2022 **McCool, D.**, Schouten, B., & Lugtig, P. (2022). Dynamic time warping-based imputation for long gaps in gps mobility research. *European Transport Conference 2022 Association for European Transport (AET)*.
- 2019 **McCool, D.**, Schouten, B., Lugtig, P., Røth, K., & Smeets, L. (2019). Smartphones and Always-On location data: Assessing the impact of a transition to mobile devices. *European Transport Conference 2019 Association for European Transport (AET)*.

Selected presentations

- 2025 **McCool, D.** *Two methods for integrating smart surveys with traditional surveys*. 2025.
- McCool, D.**, & Boeschoten, L. *The role of participant understanding in data donation studies*. European Survey Research Association Conference 2023. Utrecht, Netherlands, 2025.
- Struminskaya, B., & **McCool, D.** *Multi-mode future of share*. ODISSEI Conference. Utrecht, Netherlands, 2025.

- 2024 **McCool, D.** *The future is smart (surveys)*. EMOS Guest Lecture 2024. Utrecht, Netherlands, 2024.
- 2023 **McCool, D.** *Dynamic time warping based multiple imputation of long gaps in human trajectories*. Mobile Apps and Sensors in Surveys (MASS). Manchester, United Kingdom, 2023.
- McCool, D.,** Lugtig, P., & Schouten, B. *Imputing missing mobility data in the 2018 smartphone travel diary study*. European Survey Research Association Conference 2023. Milan, Italy, 2023.
- 2022 **McCool, D.** *Dynamic time warping based imputation for imputing long gaps in mobility data*. European Transport Conference, Association for European Transport (AET). Milan, Italy, 2022.
- McCool, D.** *Dynamic time warping based multiple imputation for large gaps in time series*. Mobile Apps and Sensors in Surveys (MASS). Utrecht, Netherlands, 2022.
- 2021 **McCool, D.** *Multiple imputation with (annoyingly) spatiotemporal data*. Nederlandstalig Platform voor Survey Onderzoek (NPSO Innovatiedag). Den Haag, 2021.
- McCool, D.** *The tabi travel app – construction, results and commentary*. 2021.
- 2020 **McCool, D.** *Gaps small and large in app-based location tracking*. CBS Big Data Seminar. Online, 2020.
- McCool, D.** *Mind the gap - the missing data problem in longitudinal location data*. BigSurv20. Online, 2020.
- 2019 **McCool, D.** *Assessing and addressing missingness mechanisms in Passively-Recorded location data*. European Survey Research Conference. Zagreb, Croatia, 2019.
- McCool, D.** *Improving transportation research with passively-collected location data*. Mobile Apps and Sensors in Surveys. Mannheim, Germany, 2019.