

CURRICULUM VITAE

PERSONALIA

Name	Dr. Mark Donald Verhagen (he/him)
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Date of birth	17 April 1993

EDUCATION

University of Oxford, Oxford *2019 - 2022*
DPhil in Sociology. Nuffield College. Fully funded through Nuffield and ESRC (AQM) grants.
Thesis titled ‘Computer Age Sociology’ accepted ‘without corrections’ on December 7th, 2022.
Examiners: prof. Richard Breen (Internal reader), prof. Matt Salganik (Viva), prof. Max Kasy (Confirmation of Status), dr. Jan-Peter Calliess (Transfer of Status)

University of Oxford, Oxford *Oct. 2017 - Sep. 2018*
M.Sc. in Sociology. Trinity College. Graduated with distinction.

University of Amsterdam, Amsterdam *Sept. 2010 - Feb. 2015, Feb. 2016 - August 2017*
M.Sc. in Econometrics. Graduated Cum Laude / with distinction.
B.A. in Art History, B.Sc. in Econometrics. Minors in Economics (Macro) and Philosophy (Aesthetics).
Total of 467 EC over 6 years of study.

PEER-REVIEWED ACADEMIC PUBLICATIONS

- van Dijk, M., Boyd, A., Brakenhoff, S.M., Isfordink, C.J., van Zoest, R.A., et al. (2024). Socio-economic factors associated with loss to follow-up among individuals with HCV: A Dutch nationwide cross-sectional study. *Liver International* 44 (1), 52-60.
- Mazrekaj, D., Verhagen, M.D., Kumar, A., and D. Muzio (2024). Does Price Personalization Ethically Outperform Unitary Pricing? A Thought Experiment and a Simulation Study. *Journal of Business Ethics*, 1-21.
- Niese, R., van der Vlist, D., Verhagen, M., de Haan, N., Stunnenberg, M., et al. (2024). Risk mapping of respiratory viral transmission and disease severity using individual and environmental health parameters: A scoping review and protocol analysis. *One Health*, 100741.
- Verhagen, M.D. (2024). Incorporating Machine Learning into Sociological Model-building. *Sociological Methodology* 54 (2), 217–268.
- Wagner, S., Rahal, C., Spiers, A., and D. Leasure (2024). The SHAPE of research impact. *The British Academy*.
- Frey, A., Tilstra, A.M., and M.D. Verhagen (2024). Inequalities in healthcare use during the COVID-19 pandemic. *Nature Communications* 15 (1), 1894.
- Leasure, D.R., Kashyap, R., Rampazzo, F., Dooley, C.A., Elbers, B., et al. (2023). Nowcasting daily population displacement in Ukraine through social media advertising data. *Population and Development Review* 49 (2), 231-254.
- Verhagen, M. (2022). Computer age sociology. *University of Oxford*.
- Rahal, C., Verhagen, M.D., and D. Kirk (2022). The rise of machine learning in the academic social sciences. *AI & Society* 1-4.
- Verhagen, M. (2022). A pragmatist’s guide to using prediction in the social sciences. *Socius* 8.

- Engzell, P., Frey, A., and M.D. Verhagen (2021). Learning loss due to school closures during the COVID-19 pandemic. *Proceedings of the National Academy of Sciences* 118 (17), e2022376118.
- Verhagen, M.D., and J. Yam (2021). The law of attraction: how similarity between judges and lawyers helps win cases in the Hong Kong court of final appeal. *International Review of Law and Economics* 65, 105944.
- Verhagen, M.D., Brazel, D.M., Dowd, J.B., Kashnitsky, I., and M.C. Mills (2020). Forecasting spatial, socioeconomic and demographic variation in COVID-19 health care demand in England and Wales. *BMC Medicine* 18, 1-11.
- Rosendaal, N.T.A., Hendriks, M.E., Verhagen, M.D., Bolarinwa, O.A., Sanya, E.O., et al. (2016). Costs and cost-effectiveness of hypertension screening and treatment in adults with hypertension in rural Nigeria in the context of a health insurance program. *PloS One* 11 (6), e0157925.

WORKING PAPERS / PREPRINTS / PROJECTS

Mazrekaj, D., and M.D. Verhagen (2024). Mental Health of Children with Same-Sex Parents: Evidence from Longitudinal Population Data.

Verhagen, M.D. and J. Mokander. (2024). Computational evidence-based policy: AI as a monitoring tool.

Kashyap, R., et al. (2022). Digital and Computational Demography in *Research Handbook of Digital Sociology* available at: <https://osf.io/preprints/socarxiv/7bvpt/>.

Verhagen, M.D. (2021). To predict and explain. How prediction improves our understanding of models: an application to the study of teacher bias. *SocArxiv* available at: <https://osf.io/y6mnb/>.

Sako, M., Qian, M., and M.D. Verhagen. (2020). Scaling Up Firms in Entrepreneurial Ecosystems: Fintech and Lawtech Ecosystems Compared. *SSRN* 3520533.

Verhagen, M.D., and Nunez L. (2024). The impact of health deductibles on health consumption: study of a population-wide national experiment.

Verhagen, M.D., Schellekens M., and M. Garstka. (2024). TaxEngine: A linear optimization method to generate optimal income tax systems.

Rahal, C., Yan, J., and M.D. Verhagen. (2024). Seed variability: analysis of seed variability as a source of research uncertainty in quantitative research.

Rahal, C., Chasalow, K., Verhagen, M.D., and M. Mills. (2024). The evolution of interdisciplinarity in the sciences: a scientometric analysis of Dimensions data

Verhagen, M.D., Stroebl, B., Liu, T., Liu, L., Salganik, M. (2024). BOLT: Social Science Data as Text.

SELECTION OF TALKS, NON-ACADEMIC PUBLICATIONS ETC.

My academic work has been covered extensively by media outlets, including The New York Times, Economist, Financial Times, Sky News, Der Spiegel, BBC, NOS, Volkskrant, NPO, amongst others.

Selection of recent talks:

Leverhulme Centre for Demographic Science 5 year summit. *Rhodes House*. October 17th 2024.

Centre for Information Technology Policy seminar. *Princeton University*. April 23rd 2024.

SICSS Rotterdam. *Erasmus University*. 29th June 2023.

Dutch Demography Day. *Utrecht University*. November 16th 2022.

Population Association of America Annual Meeting. May 7th 2021.

European Commission Joint Research Committee (CoP). *European Commission*. April 27th, 2021.

Current Sociological Research. *University of Zurich*. April 27th, 2021.

LEARN! Conference. *Vrije Universiteit Amsterdam*. January 20th, 2021.

AI4LAW Seminar. *Saïd Business School, University of Oxford*. January 20th, 2021.

World Bank Educational Recovery Seminar. *World Bank*. January 14th, 2021.

OECD EduSkills Seminar. *OECD*. October 27th, 2020.

Joint IZA & Jacobus Center Workshop: Consequences of COVID-19 for Child and Youth Development.
Institute for Labor Economics. October 19th, 2020.

PROFESSIONAL EXPERIENCE

Leverhulme Centre for Demographic Science

Nov. 2022 - Present

Researcher

Oxford

- Researcher at the LCDS to work on various academic projects with a focus on statistical methods, data collection and data visualization.

Bright-Box Analytics (www.bright-box.io)

Dec. 2021 - Present

Co-founder

Amsterdam

- Your algorithms, audited by experts. We assess algorithms on performance, external validity and explainability for various clients.

Apadana Consult (www.apadana.io)

Oct. 2018 - Present

Owner / Freelance Analytics Expert

Amsterdam

- Data analytics expert. Currently interim manager and data scientist for various independent projects.
- Clients include multinationals, research institutes, service providers and various start-ups.

Nuffield College, University of Oxford

Nov. 2022 - Nov. 2024

Non-Stipendiary Research Fellow

Oxford

- Non-Stipendiary Research Fellow at Nuffield college.

Ministry of Finance, The Netherlands

Jan. 2024 - Dec. 2024

Academic Fellow

The Hague

- Academic fellow working on developing methods to optimize tax systems algorithmically.

Centre for Information Technology Policy, Princeton University

Feb. 2024 - May 2024

Visiting Fellow

Princeton

- Visiting fellow at CITP to work on projects exploring AI in the social sciences.

Blavatnik School of Government / University of Oxford

Dec. 2017 - June 2018

Research Assistant / Teaching Assistant

Oxford

- Assistant to prof. Karthik Ramanna (Business & Public Policy) and prof. Dave Kirk.
- Teaching assistant for 'Statistical Software Support' at the University of Oxford, responsible for R and Python.

SELECTED PROJECTS

Learning Loss due to school closures

Summer 2020

- Together with two co-authors I studied learning loss during school shutdowns during COVID-19 in the Netherlands.
- Our work has been covered globally by news outlets and was instrumental in the Dutch government's 8.5 billion EUR support package.
- Paper ranks among the highest cited research outputs tracked by Altmetric.

TaxSolver

2024

- Developed a methodology to integrally optimize tax systems using constrained optimization.
- The approach provides policymakers the ability to choose guarantees on tax revenue, progressivity and complexity.
- Method is instrumental in developing the new Dutch income tax code.

PreFer

2024

- Together with an interdisciplinary team of social scientists and computer scientists, we won an international competition to predict fertility.
- Our models included a custom LLM, Cruijff, trained on entire population data.

LANGUAGES, SKILLS, SOFTWARE & TEST RESULTS

Languages	Dutch, English and German (CEFR: B2).
Adv. Software Know.	R, Python, SQL.
Technical Skills:	Statistical Modelling, Machine Learning, Scraping, Data Visualisation, LLMs.
IELTS:	8.5/9 (98th Percentile).
GRE:	Verbal/Quant/Writing: 167/168/5 (98th/95th/93rd Percentiles).
Awards:	Cozarelli Prize, Excellence in Impact Award, Accenture Innovation.
Academic Grants:	ODISSEI start-up grant (10,000 EUR), ZonMW research grant (2x 50,000 EUR).
Educational Grants:	ESRC, Nuffield, Vreedesfonds, Hendrik Muller, Noorthey, B. La Bastide.