



## Letter from the Upcoming President

Last summer, I was honoured to be asked by the VVSOR-board to consider succeeding Casper Albers as its president. Having been active for the society in different roles and at varying intensity during the past 35 years, but not so much during the past 10, this request came somewhat as a surprise. After discussions with several people, especially also on the current situation of the society and its plans, I gladly and confidently agreed to make myself available for the task and look forward to collaborating with the many active members of the society.

The VVSOR is a society with a rich history. It was founded 80 years ago, a period in which many developments were made in statistics, operations research and its intersections. At our forthcoming Annual Meeting, our former president, Gerrit Timmer, will share lessons learned during his long career simultaneously working in industry and academia with us.

The VVSOR is not only an association with a rich history, but definitely also with a future. To realise this, we only need to observe the scale at which data are currently being used to build computer models, which are combined with optimization techniques to automatize many things and support decisions. Activities of this kind go under many fancy names, but the (combined) role of statistics and operations research is evident. Still many developments are going on and needed, developments that ask for active involvement of people of our profession. At the Annual Meeting, Marjolein Fokkema will introduce particular challenges associated to the use of machine learning models in the behavioural sciences and how these can be addressed.

Past, present and future of the VVSOR come together in the prizes to be awarded at the Annual Meeting. Their names refer to three prominent figures in the history of the VVSOR: Willem van Zwet,

his promotor Jan Hemelrijk and his promotor David van Dantzig. History shows that many of the past awardees grew into influential and visible representatives of our community, something we also wish for the prize winners of this year.

I think we all feel that the theme "80 years of statistics and operations research in the Netherlands: past, present and beyond" of our forthcoming Annual Meeting is natural. It is a pleasure to announce this here. The meeting will be held on March 20, at familiar location "In De Driehoek" in Utrecht. The programme committee has managed to compose an interesting programme. Besides the two keynote contributions by dr. Marjolein Fokkema and prof. dr. Gerrit Timmer and talks by the various award winners, presentations will be held on subjects ranging from teaching statistics to causal inference and data integration to age-based maintenance in reliability theory. In addition to attending the talks, I warmly recommend participation in the social parts of the program, including lunch, drinks and dinner. Registration can be done via the website of the VVSOR: [vvsor.nl](http://vvsor.nl), where also more information on the program, venue, costs etc. can be found. I am looking forward to meeting many of you at our meeting in Utrecht!

**Geurt Jongbloed** received his PhD from TU Delft in 1995, under supervision of Piet Groeneboom. He was appointed full professor of statistics at TU Delft in 2007. His research focuses on shape constrained statistical inference. He also works on applications of statistics in various fields, including materials science, health and climate. Within VVSOR, Geurt served as chair of the section Mathematical Statistics for several years and as member of the editorial board of *Statistica Neerlandica*. Outside the VVSOR, he acted as president of the Royal Dutch Mathematical Society, board member of PWN and chair of the department of Applied Mathematics at TU Delft. He currently serves as director of the Faculty Graduate School within the Faculty of Electrical Engineering, Mathematics and Computer Science at TU Delft.

80 Years of  
Statistics and Operations Research  
in the Netherlands

*Past, Present and Beyond*



# VVSOR

Annual meeting  
March 20, 2025

## Annual Meeting of the Netherlands Society for Statistics and Operations Research (VVSOR)

*Thursday March 20, 2025*

10:15 – 17:45

In de Driehoek

Willemsplantsoen 1 C, 3511 LA Utrecht

- prof.dr. Gerrit Timmer (ORTEC)
- dr. Marjolein Fokkema (Leiden University)

Just like last year, this year's Annual Meeting will be at In de Driehoek in Utrecht. We will have a general assembly for members, followed by the actual event with two keynote speakers, three parallel sessions and two award presentations. The AM 2025 will be in English.

Attending the meeting at In de Driehoek (including drinks and lunch) costs 65 euro. Reduced price for students: 30 euro. Additional registration is required for dinner and pubquiz at De Rechtbank.

Please register on the [vvsor](http://vvsor.nl)-website  
<https://www.vvsor.nl/vvsor-annual-meeting>

## DATE

Thursday, March 20, 2025

## VENUE

In de Driehoek, Willemsplantsoen 1C, 3511 LA Utrecht

## REGISTRATION

Registration for the conference is mandatory at <https://www.vvsor.nl/vvsor-annual-meeting>. Detailed information can be found on our website.

## LANGUAGE

The talks at the annual meeting will be in English.

## ALGEMENE LEDENVERGADERING (ALV)

The Annual General Meeting of members (ALV) takes place on March 20, 10:15 – 11:15. The relevant documents will be e-mailed two weeks before the meeting.

## SNACKS AND DRINKS

Lunch and drinks during the breaks will be provided.

## DINNER WITH PUBQUIZ

Dinner at De Rechtbank, Utrecht. The pubquiz will be organized by the Young Statisticians.

## ORGANIZING COMMITTEE

The annual meeting is organized by a special committee in cooperation with the board of the VVSOR. For questions, contact the organizers by email at [annualmeeting@vvsor.nl](mailto:annualmeeting@vvsor.nl).

**PLEASE REGISTER BEFORE MARCH 17**

- 9:45 - 10:15 **Registration + coffee & tea**
- 10:15 - 11:00 **ALV, General Assembly (members only)**
- 11:00 - 11:15 **Break with coffee & tea**
- 11:15 - 11:30 **Prof. dr. Casper Albers | Welcome & Opening of the AM 2025**
- 11:30 - 12:15 **Making an impact with OR and Statistics**  
prof.dr. Gerrit Timmer  
ORTEC
- 12:15 - 12:45 **Short presentations (session 1)**
- 12:45 - 13:30 **Lunch at In de Driehoek**
- 13:30 - 14:20 **Ceremony of the Willem R. van Zwet Award and the Jan Hemelrijk Award**  
Prize winners will be presented by the juries, followed by a short presentation by the laureates
- 14:20 - 14:50 **Short presentations (session 2)**
- 14:50 - 15:00 **Short break**
- 15:00 - 15:40 **Ceremony of the Van Dantzig Award**  
Prize winner will be presented by the jury, followed by a short presentation by the laureate
- 15:40 - 16:25 **Machine Learning in Behavioural Science**  
dr. Marjolein Fokkema  
Leiden University
- 16:25 - 16:30 **Wrap up & Finish**
- 16:30 - 17:30 **Drinks at In de Driehoek**
- 17:45 - 21:00 **Dinner + Pubquiz at De Rechtbank (extra registration required, walk-in from 17.45)**

## Key note speaker 1

11:30 - 12:15

## Making an impact with OR and Statistics

**Gerrit Timmer**  
ORTEC

In the past 44 years, I have been in the position to observe hundreds of projects in various industries and application areas. Clearly, a lot has changed in computer capabilities, data availability, and available techniques. But independent of these changes, I noticed how subtle differences in circumstances and approach led to the impact varying from huge to none at all. I will summarize this experience in a number of lessons learned.

**Gerrit Timmer** is one of the founders of ORTEC in 1981 and is currently non-executive board member. He was chairman of the VVSOR from 1998-2003 and (part-time) professor of Business Econometrics at the Free University of Amsterdam for more than 25 years.

## Short presentations (session 1)

12:15 - 12:45

## Teaching Statistical Reasoning Using Quantitative Replication

**Lucie Zicha**  
Leiden University

The challenge of fostering statistical literacy among high school and university students lies in the fact that it extends beyond merely applying statistical tools or interpreting results. Instead, it requires a broader framework that integrates rigorous reasoning skills, numeracy, and scientific literacy—specifically, an understanding of the scientific method. The close relationship between statistical literacy and scientific reasoning presents pedagogical challenges: to effectively cultivate statistical literacy, students must also develop a solid foundation in scientific reasoning. The replicatED project makes the case that teaching statistical literacy through quantitative replication addresses this issue directly as it bridges the disconnect that students often manifest between the mechanical understanding of the statistical technique (the so called “cookbook” approach) and struggling to relate it confidently to the substance of the question and the scientific research design. Replication work challenges students to critically assess methodology, measurement, and interpretation of findings. Students learn to scrutinize research claims, and identifying potential sources of error and bias. Lastly, replication teaches students about “researcher degrees of freedom”—the numerous points where subjective choices can impact results. In our paper, we introduce the replicatED project developed at Leiden University College that integrates replication as a pedagogical tool into statistics education. The project features an online database of replication datasets, searchable by the method used in the original study, and offers a range of pedagogical resources tailored to different levels of statistical knowledge among students.

**Lucie Zicha** is an Assistant Professor of Quantitative Research Methods at Leiden University College (LUC). Since 2015, she has served as the convenor of the quantitative methods track in the BSc program at LUC, and in 2024, she became the Major Team Lead for the BSc Governance, Economics, and Development program. She co-developed LUC's first-year Introduction to Statistics course and has played a pivotal role in advancing quantitative education within the curriculum. Lucie holds a PhD in Comparative Politics and Quantitative Methods from Binghamton University, U.S.

## Short presentations (session 1)

12:15 - 12:45

### Causal Inference in Finite Samples: The Potential of Invalid Adjustments

**Nadja Rutsch**  
VU Amsterdam

Traditional covariate selection methods for causal inference focus on achieving unbiasedness and asymptotic efficiency. In many practical scenarios, researchers must estimate causal effects from observational data with limited sample sizes or when covariates are difficult or costly to measure. Their needs might be better met by selecting adjustment sets that are finite sample-optimal in terms of Mean Squared Error (MSE). We aim to find the adjustment set that minimizes the MSE of the causal effect estimator, taking into account the joint distribution of the variables and the sample size. We present examples where the MSE-optimal adjustment set differs from the asymptotically optimal adjustment set. To identify the MSE-optimal adjustment set, we introduce a sample size criterion for comparing adjustment sets in linear Gaussian models. We develop graphical criteria to reduce the search space for this adjustment set based on the causal graph. In experiments with simulated data, we show that the MSE-optimal adjustment set can outperform the asymptotically optimal adjustment set in finite sample size settings, making causal inference more practical in such scenarios.

**Nadja Rutsch** is a PhD student in the BayCause project. Her research focuses on Bayesian causal inference in high-dimensional data, under the supervision of Dr. Stéphanie van der Pas (Amsterdam UMC) and Dr. Sara Magliacane (UvA). Her work involves using directed acyclic graphs (DAGs) to improve our understanding of causal relationships.

Her academic background includes a Master's in Artificial Intelligence from the University of Amsterdam, where she graduated cum laude and completed a thesis on joint intervention detection and causal discovery.

## Short presentations (session 2)

14:20 - 14:50

### Bayesian Survey Data Integration: Can We Enhance Inference and Reduce Costs?

**Camilla Salvatore**  
Utrecht University

Traditional probability sample surveys, the gold standard for population inference, are becoming increasingly expensive and suffer from declining response rates. As a result, researchers are increasingly turning to less costly but potentially biased non-probability sample surveys. This research addresses a crucial question: Can integrating a small probability sample with a larger non-probability sample improve analytic inference while reducing survey costs? We answer this question through an application involving logistic regression, utilizing both simulated and real-world data (e.g., volunteering, voting behaviour). Our findings reveal that integrating data sources significantly lowers the Mean Squared Errors of regression coefficients, compared to scenarios without integration, and can result in cost savings of up to 70 percent. A Shiny web app allows for deeper exploration of the methods and results. We also discuss the potential of extending this approach to studies that incorporate both self-reported and objective measurements (e.g., medical data, digital trace data).

**Camilla Salvatore** Dr. Camilla Salvatore works as an assistant professor at the department of Methodology and Statistics at Utrecht University, where she specializes in survey research. Her interests include survey data integration, inference with non-probability samples, survey weighting, nonresponse, the use of digital trace data and their integration with surveys.

## Short presentations (session 2)

14:20 - 14:50

### Combining age-based maintenance with an imperfect fault detection model

**Ingeborg de Pater**  
Delft University of Technology

Age-based maintenance is a popular maintenance strategy where components are always maintained at a certain age or upon failure. There is, however, an increasing interest in predictive (also called condition-based) maintenance instead. In predictive maintenance, the measurements of the sensors installed around a component are used to develop prognostic models. A prognostic fault detection model detects when a component becomes unhealthy, but has not failed yet. Unfortunately, prognostic models are usually imperfect, with false positives and false negatives. By solely planning maintenance based on the outcomes of an imperfect prognostic model, the number of failures and maintenance tasks might actually increase, compared to age-based maintenance.

However, also an imperfect prognostic model might still provide useful information on the potential failures of the components. In this presentation, we will therefore combine an age-based maintenance strategy with an imperfect prognostic fault detection model. With Bayes theorem, we derive a formula for the probability of a false positive based on the age of the component. We subsequently use the classical renewal reward theory to optimize the age at which to preventively replace components, if we also replace components based on the alarms of the imperfect fault detection model. We analyse this approach with a small case study, where we assume a Weibull lifetime distribution for a component. We show how even prognostic models with a very high false negative rate can still contribute to lowering the maintenance costs.

**Ingeborg de Pater** started this summer as an assistant professor at the TU Delft on predictive maintenance and maintenance optimization for aircraft. Her research focuses on developing health estimation and RUL prediction models, the validation and uncertainty quantification of these models, and finding the optimal maintenance moment under uncertainty. Before this, she completed her PhD at the TU Delft on the same topic.

## Key note speaker 2

15:40 - 16:25

### Machine Learning in Behavioural Science

**Marjolein Fokkema**  
Leiden University

Flexible algorithms from machine learning can provide highly accurate predictions, but they are a black box to users. This is problematic for behavioural scientists, who not only want to predict human behaviour, but also want to understand how it works. We are developing effect sizes that quantify the shape and magnitude of predictor variables' effects in ML models. Furthermore, we develop uncertainty quantification, to allow for hypothesis tests and meta-analysis with ML. This will allow behavioural scientists to not only profit from the highly accurate predictions of ML, but to also use it for testing and improving scientific theories.

**Marjolein Fokkema** is associate professor at Leiden University's Institute of Psychology