

Valentin Vancak

Curriculum Vitae

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ACADEMIC APPOINTMENTS

Lecturer, Department of Data Science, Holon Institute of Technology (HIT), 2023 – present
Israel

Postdoctoral researcher, Biostatistics group, Dept. of Medical Epidemiology and Biostatistics, Karolinska Institutet, Stockholm, Sweden 2021 – 2023

Supervisor: Prof. Arvid Sjölander.

Research topics: G-estimators (Instrumental variables)

EDUCATION

Complementary courses, Dept. of Medical Epidemiology and Biostatistics, 2021
Karolinska Institutet, Stockholm

Courses: Introduction to Causal Inference, Advanced Causal Inference

Ph.D. in Statistics, University of Haifa 2014 – 2020

Dissertation title: Systematic Analysis of the Number Needed to Treat

Supervisors: Prof. Yair Goldberg (Technion); Prof. Stephen Z. Levine (Univ. of Haifa)

Complementary courses for PhD studies (Technion & Univ. of Haifa) 2013 – 2014

MA in Statistics (cum laude), University of Haifa 2010 – 2013

Thesis title: Continuous Statistical Models – With or Without Truncation Parameters?

Supervisor: Prof. Yair Goldberg

BA in Statistics (cum laude) and Economics, University of Haifa 2007 – 2010

PUBLICATIONS

1. V. Vancak, A. Sjölander. (2025). Definition, identification, and estimation of the direct and indirect number needed to treat. *Epidemiologic Methods*, 14(1), 20250018
2. V. Vancak, A. Sjölander (2024), Estimation of the Number Needed to Treat, the Number Needed to Expose, and the Exposure Impact Number with Instrumental Variables, *Epidemiologic Methods*, 13(1), 20230034
3. V. Vancak, A. Sjölander (2023), A. Sensitivity analysis of G-estimators to invalid instrumental variables. *Statistics in Medicine*. 42(23), 4057–4299
4. V. Vancak, Y. Goldberg, S.Z. Levine (2022). The Number Needed to Treat Adjusted for Explanatory Variables and Survival Analysis: Theory and Application, *Statistics in Medicine*, 41(17), 3299–3320
5. V. Vancak, Y. Goldberg, S.Z. Levine (2021). Guidelines to Understand and Compute the Number Needed to Treat, *Evidence-Based Mental Health*, 24, 131–136
6. V. Vancak, Y. Goldberg, S.Z. Levine (2020). Systematic Analysis of the Number Needed to Treat, *Statistical Methods in Medical Research*, 29, 2393–2410
7. V. Vancak, Y. Goldberg, S.K. Bar-Lev, B. Boukai (2015). Continuous Statistical Models – With or Without Truncation Parameters?, *Mathematical Methods of Statistics*, 24, 55–73

UNDER REVIEW

1. O. Elior, V. Vancak, H. Mosheiff, Students' Difficulties with the Disciplinary Study of R, *Minor revision*

WORKING PAPERS

1. V. Vancak, G. Caliskan, Estimation of the Number Needed to Treat in Observational Studies Using the 2-Stage Least Squares
2. V. Vancak, R. Atias, V. Kazhdan, Software Library and Web Application for Calculation of the Direct and Indirect NNT, NNE, and EIN

REVIEWER

Statistical Methods in Medical Research
Statistics in Medicine
Pharmaceutical Statistics
Biometrical Journal
Value in Health
BMC Infectious Diseases
BMC Medical Research Methodology
Türkiye Klinikleri Journal of Biostatistics
Journal of Clinical Epidemiology
Nature Human Behaviour

RESEARCH GRANTS

Early-Career Research Grant, HIT (PI) 2025 – 2026
Project: "Software Library and Web Application for Calculation of the Direct and Indirect NNT, NNE, and EIN". Budget: 40,000 NIS

SCHOLARSHIPS AND PRIZES

- 2023–2024: Outstanding Faculty Member, Department of Data Science, HIT
- 2024: Travel grant (1,600 USD) from the Hebrew University of Jerusalem to present the paper *Students' Difficulties with the Disciplinary Study of R* at the Royal Statistical Society International Conference, Brighton, United Kingdom
- 2023: The paper "The Number Needed to Treat Adjusted for Explanatory Variables and Survival Analysis: Theory and Application" was recognized as the Top Downloaded Article (during its first 12 months of publication in *Statistics in Medicine*)
- 2021: The paper "Guidelines to Understand and Compute the Number Needed to Treat" was selected as Editor's Choice of *EBMH* vol. 24, issue 4
- 2018: The paper "Systematic Analysis of the Number Needed to Treat" was awarded the Ernst Prize (1,200 NIS), a conference participation award, Ernst Fund, 10th Conference of the EMR-IBS
- 2015: Outstanding teacher, Netanya Academic College
- 2011, 2013, 2014: Outstanding teacher, Dean of Students, University of Haifa

- 2012: Scholarship for excellence in studies in MA (5,000 NIS), The Graduate Studies Authority, University of Haifa
- 2010: Scholarship for excellence in studies in BA (5,000 NIS), The Graduate Studies Authority, University of Haifa

TEACHING EXPERIENCE

Lecturer

2024 –

Holon Institute of Technology

Dept. of Data Science

Statistical Learning (M.Sc.)

Causal Inference (M.Sc.)

Python programming for DS (pre-M.Sc.)

Dept. of Ind. Engineering and Management

Intro. to Programming with Python (B.Sc.)

Statistical Methods for Data Analysis (B.Sc.)

Python for Data Science (B.Sc.)

Adjunct lecturer

2020 – 2025 The Hebrew University of Jerusalem

Dept. of Psychology

R programming for psychology research (BA; 2020 – 2025)

Introduction to R programming (BA; 2022 – 2024)

2023

Karolinska Institutet

Dept. of Learning, Informatics, Management and Ethics

Intermediate Medical Statistics: Regression Models 2738 (Ph.D.; Co-lecturer)

2016 – 2022 University of Haifa

Dept. of Evolutionary and Environmental Biology (2022)

Statistical Modeling with R (M.Sc. & Ph.D., English)

Dept. of Economics (2016–2017)

Introduction to Linear Models (BA)

PhD honours program in Social Sciences (2017–2020)

Statistical Modeling with R (Eng & Heb)

Teaching Assistant

2022 – 2023 Karolinska Institutet

Dept. of Medical Epidemiology and Biostatistics

Introduction to R programming 2958 (Ph.D.)

Extensions to the design and analysis of case-control studies 5577 (Ph.D.)

2014 – 2021 Braude College of Engineering

Dept. of Ind. Engineering & Management

Statistics and Probability

Stochastic Models in Operation Research

Dept. of Mathematics

Linear Algebra

Univariate Calculus

Multivariate Calculus

Advanced Multivariate Calculus

Advanced Linear Algebra

2014 – 2015 Netanya Academic College

School of Insurance

Calculus I

Calculus II

2010–2014, University of Haifa

2016–2021

Dept. of Economics

Introduction to Probability
Introduction to Statistics
Introduction to Linear Models

Dept. of Statistics

Probability I
Probability II
Mathematical Statistics
Statistical Models I (SAS & R)
Statistical Models II (R)
Stochastic Models
Math. and Stats. Methods (MA Logistics)
Prob. and Stoch. Processes (MA Logistics)
Generalized Linear Models (MSc Stats)
Stochastic Processes (Eng Int. MSc)
High-Dim. Data Analysis (Eng Int. MSc)
Multivariate Analysis (Grader)
Applied Statistics I (Eng Int. MSc; Grader)
SAS Programming

Dept. of Information Systems

Introduction to Statistics

Faculty of Management (MBA)

Quantitative Methods

Dept. of Multidisciplinary Studies

Introduction to Statistics (Grader)

OTHER ACADEMIC ACTIVITIES

2010 – Part-time freelance statistical consultant (Medicine, Political Science, Econ)
2015 Research assistant of Prof. S. Z. Levine, Dept. of Public Mental Health, Univ. of Haifa
2014 Research assistant of Prof. Doron Kliger, Dept. of Economics, Univ. of Haifa
Research field: Finance and Econometrics. Proofreader of Kliger, D. & Gurevich, G. (2014) *Event Studies for Financial Research: A Comprehensive Guide*. Springer
2014, 2015 Instructor, computer skills workshop, Dean of Students, Univ. of Haifa
2010–2016 Private tutor on behalf of the Students' Dean

ACADEMIC AND PROFESSIONAL SERVICE

Management Committee Member, COST Action CA24151 (PERCC): Towards PERsonalized Cancer Chronotherapy 2025 – present
Member of the Graduate Admissions Committee, Data Science Master's Program, HIT 2024 – present
Co-organizer of the Biostatistics group day at MEB 2022
Cofounder and coordinator of the weekly research seminar for graduate students, Dept. of Statistics, Univ. of Haifa 2014 – 2015

COMPUTER SKILLS

R, Python, L^AT_EX, SAS, Mathematica

SOFTWARE

R-package: `nntcalc`: NNT calculator <https://github.com/vancak/NNTcalculator>

R-shiny app: <https://vvancak.shinyapps.io/NNTcalculator>

INVITED, CONTRIBUTED AND SEMINAR TALKS, AND POSTERS

Definition, Identification, and Estimation of the Direct and Indirect Number Needed to Treat

2025	Royal Statistical Society International Conference	Edinburgh, UK
2025	MEB Biostatistics seminar, Dept. of Medical Epidemiology and Biostatistics, Karolinska Institutet	Stockholm, Sweden
2025	Nordic–Baltic Biometric Conference	Oslo, Norway
2024	IMS International Conference on Statistics and Data Science	Nice, France
2024	Royal Statistical Society International Conference (poster)	Brighton, UK

Students' Difficulties with the Discipline-Oriented Teaching of R

2024	Royal Statistical Society International Conference (RFT)	Brighton, UK
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Estimation of the Number Needed to Treat, the Number Needed to Expose, and the Exposure Impact Number with Instrumental Variables

2024	Annual European Causal Inference Meeting (poster)	Copenhagen, Denmark
2024	Statistics seminar, Dept. of Statistics and Operation Research, Tel Aviv University	Tel Aviv, Israel

Estimation of the Number Needed to Treat with Instrumental Variables

2023	MEB Biostatistics seminar, Dept. of Medical Epidemiology and Biostatistics, Karolinska Institutet	Stockholm, Sweden
2023	Young Statisticians Meeting	Leicester, UK

Sensitivity Analysis of G-estimators to Invalid Instrumental Variables

2023	Conference of the Nordic–Baltic Region of the IBS	Göteborg, Sweden
2023	Israel Statistical Association annual meeting	Tel Aviv, Israel
2022	FMS–DSBS Biennial joint meeting of the Swedish Medical Statistics Society and the Danish Society for Biopharmaceutical Statistics	Malmö, Sweden
2022	MEB Biostatistics seminar, Dept. of Medical Epidemiology and Biostatistics, Karolinska Institutet	Stockholm, Sweden
2022	Israel Statistical Association annual meeting (poster)	Tel Aviv, Israel

The Number Needed to Treat Adjusted for Explanatory Variables in Regression and Survival Analysis

2022	Clalit Research Institute - Innovation Division, Clalit Health Services	Zoom
2021	MEB Biostatistics seminar, Dept. of Medical Epidemiology and Biostatistics, Karolinska Institutet	Stockholm, Sweden
2021	Seminar on Optimization, Algorithms, and Applications, Karmiel, Israel	
2020	Braude College of Engineering	
2020	Annual Haifa International Social Science Workshop for Graduate Students	Haifa, Israel

Systematic Analysis of the Number Needed to Treat

2019 Ph.D. Students Statistics seminar, Tel Aviv University Tel Aviv, Israel
2018 Conference of the Eastern Mediterranean Region of the IBS Jerusalem, Israel
2018 Statistics Seminar, Dept. of Statistics, Univ. of Haifa Haifa, Israel

Continuous Statistical Models—With or Without Truncation Parameters?

2014 Statistics Seminar, Dept. of Statistics, Univ. of Haifa Haifa, Israel