Valentin Vancak
Curriculum Vitae

valentin.vancak@gmail.com | `www.vvancak.com` | +972-54-000000 (IL), +46-73000000 (SE)

ACADEMIC APPOINTMENTS

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

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, Karolinska Institutet, Stockholm — 2021
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	*Dept. of Ind. Engineering and Management*
Statistical Learning (M.Sc.)	Intro. to Programming with Python (B.Sc.)
Causal Inference (M.Sc.)	Statistical Methods for Data Analysis (B.Sc.)
Python programming for DS (pre–M.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)	*PhD honours program in Social Sciences (2017–2020)*
Introduction to Linear Models (BA)	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	*Dept. of Mathematics*
Statistics and Probability	Linear Algebra
Stochastic Models in Operation Research	Univariate Calculus
	Multivariate Calculus
	Advanced Multivariate Calculus
	Advanced Linear Algebra

2014 – 2015   **Netanya Academic College**

School of Insurance

Calculus I
Calculus II

| 2010–2014, 2016–2021 | **University of Haifa** |
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Dept. of Economics	*Dept. of Statistics*
Introduction to Probability	Probability I
Introduction to Statistics	Probability II
Introduction to Linear Models	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	*Faculty of Management (MBA)*
Introduction to Statistics	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, LaTeX, 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

The Number Needed to Treat: Definition, Estimation, Pitfalls, and Extensions

2026	Public Health Agency of Sweden: Folkhälsomyndigheten	Online

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

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, Braude College of Engineering	Karmiel, Israel
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 |