Sacha Epskamp

Curriculum Vitae

Personal

Surname	Epskamp
First name	Sacha
Date of birth	April 15, 1985
Nationality	Dutch/EU

Education

Sep 2010 - Aug 2012 **Master of Science**, University of Amsterdam, Research Master Psychology, Amsterdam.

- Graduated: August 2012 (cum laude)
- Specialization: Psychological Methods
- Minor: Computational Science (University of Amsterdam)

Sep 2007 - Aug 2010 **Bachelor of Science**, University of Amsterdam, Faculty of Psychology, Amsterdam.

- Graduated: July 2010 (cum laude)
- Specialization: Psychological Methods

Experience

Aug 2016 - Current **Assistant Professor**, University of Amsterdam, Department of Psychological Methods, Amsterdam.

As assistant professor I will be teaching advanced statistical courses in the selective research master program, such as network analysis and structural equation modeling.

Aug 2012 - Aug 2016 **PhD student**, University of Amsterdam, Department of Psychological Methods, Amsterdam.

- **Project title:** Network Psychometrics
- **Supervisor:** prof. dr. Denny Borsboom
- **Funded by:** NWO "research talent" Grant Number 406-11-066

In 2012 I was awarded the prestigious research talent grant by NWO to continue my work on network analysis in psychology and psychometrics. I started the 4-year project "Network Psychometrics" in August 2012. During this project I have, among other things, published about the application of network analysis in psychology, taught several master's level courses at the University of Amsterdam, developed multiple software packages and collaborated on various scientific articles.

March 2016 - Aug 2016 **Analysis team for JASP software**, University of Amsterdam, Department of Psychological Methods, Amsterdam.

I worked one day per week for prof. dr. Eric-Jan Wagenmakers to implement statistical analyses in the statistical software suite JASP. Currently I still work on developing methods in Jasp, but now as part of my position as assistant professor.

Feb 2016 **Visiting researcher**, University of Edinburgh, School of Philosophy, Psychology and Language Sciences, Edinburgh.

I was invited to spent February 2016 as a visiting researcher at the University of Edinburgh, to collaborate with dr. Rene Mõttus on the development and implementation of multi-level vector autoregression models to study intra-individual dynamics in personality research.

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Nov 2015 - Jan 2016 **Visiting researcher**, University of Amsterdam, Department of Computational Science, Amsterdam.
Continuing the work I have started at Technological University in Singapore, I stayed for two months at the department of Computational Science at the University of Amsterdam.

Aug 2015 - Nov 2015 **Visiting researcher**, Nanyang Technological University, Complexity Institute, Singapore.
I was inited to work at the complexity institute at Nanyang Technological Institute in Singapore for six months. Here, I worked with dr. Rick Quax and prof. dr. Peter Sloot on further expanding complexity research in Psychology by using information theory to quantify the vulnerability of psychological systems, as well as the relative influence of nodes to psychological systems.

Oct 2013 - Aug 2015 **Psychometrician/Data analyst**, Oefenweb.nl, Amsterdam.
I worked part-time (one day per week) at the University of Amsterdam sister company Oefenweb. Oefenweb offers online educational learning environments to many Dutch elementary schools. My main work included development of new learning environments and analyzing and reporting on the vast Oefenweb database.

Feb 2015 - May 2015 **Statistical Consultant**, Center for Open Science.
I set up and supervised the analysis audit for the now influential Reproducibility Project: Psychology (RPP). For this work, a group of volunteers wrote R codes to redo analyses of all replication studies performed in the RPP. I set up the framework for these audits, trained volunteers in doing the audits and consulted on or performed the most troublesome audits myself.

Jan 2012 - Aug 2012 **Intern**, CITO, Psychometrisch Onderzoeks- en Kenniscentrum, Arnhem.
I was awarded the prestigious Citobeurs to conduct my master thesis research during a half year internship at CITO, Dutch national institute for testing. During this time I investigated novel ways of estimating a wide array of Item Response Theory models.

Feb 2009 - Aug 2012 **Student assistant**, University of Amsterdam, Department of Psychological Methods, Amsterdam.
In the second year of my undergraduate program Psychology I started working as a student assistant in the Psychosystems research group (psychosystems.org). During this year I performed most of the analyses, as well as all visualizations, for the now influential research on the small world of psychopathology. During the third year of my undergraduate program I developed the software package qgraph for high dimensional data visualization and network analysis. I continued this work during my master's programme where I assisted in analyses and visualizations of several key publications. Furthermore, I assisted in undergraduate courses.

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Publications

This CV contains links to my publications, which can also be found on my website at sachaepskamp.com/publications.

- **In preparation / under review**
  - **Epskamp, S.**, Borsboom, D., and Fried, E.I. Estimating psychological networks and their accuracy: a tutorial paper. Pre-print archive link.
    - Under review at *Behavior Research Methods*
  - **Epskamp, S.**, Kruis, J., and Marsman, M. Estimating psychopathological networks: be careful what you wish for Pre-print archive link.
    - Under review at *PlosOne*
  - **Epskamp, S.**, Waldorp, L.J., Mõttus, R., and Borsboom, D. Discovering Psychological Dynamics: The Gaussian Graphical Model in Cross-sectional and Time-series Data. Pre-print archive link.
    - Under review at Multivariate Behavioral Research
  - **Epskamp, S.** and Fried, E.I. A Tutorial on Regularized Partial Correlation Networks. Pre-print archive link.
    - Under review at Psychological Methods
  - **Epskamp, S.**, van Borkulo, C.D., van der Veen, D.C., Servaas, M.N., Isvoranu, A.M., Riese, H., and Cramer, A.O.J. Personalized Network Modeling in Psychopathology: The Importance of Contemporaneous and Temporal Connections.
    - Submitted to Psychological Medicine
  - **Epskamp, S.**, Regularized Gaussian Psychological Networks: Brief Report on the Performance of Extended BIC Model Selection. Pre-print archive link
  - Golino, H., **Epskamp, S.**. Exploratory graph analysis: a new approach for estimating the number of dimensions in psychological research.
    - Under review at *PlosOne*
  - Wagenmakers, E-J., Marsman, M., Jamil T., Ly, A., Verhagen, J., Love, J., Selker, R., Gronau, Q.F., Smirna, M., **Epskamp, S.**, Matzke, D., Rouder, J.N., Morey, R.D. Bayesian Inference for Psychology. Part I: Theoretical Advantages and Practical Ramifications
    - Under review at *Psychonomic Bulletin & Review*

- **Main author publications:**
  - **Epskamp, S.**, Rhemtulla, M., and Borsboom, D. (accepted) Generalized Network Psychometrics: Combining Network and Latent Variable models. *Psychometrika*.
  - **Epskamp, S.**, Maris, G., Waldorp, L. J., and Borsboom, D. (in press). Network Psychometrics. To appear in: Irwing, P., Hughes, D., and Booth, T. (Eds.), *Handbook of Psychometrics*. New York: Wiley. Link.
  - **Epskamp, S.** (2015). semPlot: Unified visualizations of Structural Equation Models. *Structural Equation Modeling, 22*, 747-757. Link.
  - Costantini, G., **Epskamp, S.** (the first two authors contributed equally to this work), Borsboom, D., Perugini, M., Möttus, R., Waldorp, L. J., and Cramer, A. O. (2014). State of the aRt personality research: A tutorial on network analysis of personality data in R. *Journal of Research in Personality, 54*, 13-29. Link.
  - **Epskamp, S.**, Cramer, A.O.J., Waldorp, L.J., Schmittmann, V.D. and Borsboom, D. (2012) qgraph: Network Visualizations of Relationships in Psychometric Data. *Journal of Statistical Software, 48(4)*, 1-18. Link.

- **Collaborations:**
  - Mõttus, R., Epskamp, S., Francis, A. (2016). Within- and between individual variability of personality characteristics and physical exercise. *Journal of Research in Personality*. Link.
  - Tio, P., **Epskamp, S.**, Noordhof, A., and Borsboom, D. (2016). Mapping the manuals of madness: Comparing the ICD-10 and DSM-IV-TR using a network approach. International Journal of Methods in Psychiatric Research. Link.
  - Fried, E. I., van Borkulo, C. D., **Epskamp, S.**, Schoevers, R. A., Tuerlinckx, F., and Borsboom, D. (2016). Measuring Depression Over Time. . . or not? Lack of Unidimensionality and Longitudinal Measurement Invariance in Four Common Rating Scales of Depression. *Psychological Assessment*. Advance online publication. Link.
  - **Open Science Collaboration**. (2015). Estimating the reproducibility of psychological science. *Science, 349 (6251)*. Link.
    - I setup and coordinated the "analysis audit" in which a team of students worked on replicating all analyses done in R.
  - Wichers, M., Groot, P.C., **Psychosystems**, ESM Group, EWS Group (2016). *Psychotherapy and Psychosomatics, 85*: 114-116. Link.
  - Nuijten, M.B., Hartgerink, C. H. J., van Assen, M. A. L. M., **Epskamp, S.**, and Wicherts, J. M. (2015). The prevalence of statistical reporting errors in psychology (1985-2013). *Behavior Research Methods*. Link.
  - Fried, E. I., **Epskamp, S.**, Nesse, R.M., Tuerlinckx, F., and Borsboom, D. (2016). What are 'good' depression symptoms? Comparing the centrality of DSM and non-DSM symptoms of depression in a network analysis. *Journal of Affective Disorders, 189*: 314-320. Link.
  - Kossakowski, J. J., **Epskamp, S.**, Kieffer, J. M., van Borkulo, C. D., Rhemtulla, M., and Borsboom, D. (2015). The application of a network approach to health-related quality of life (HRQoL): Introducing a new method for assessing HRQOL in healthy adults and cancer patient. *Quality of Life Research, 0962-9343*, 1-12. Link.
  - Langley, D. J., Wijn, R., **Epskamp, S.**, and Van Bork, R. (2015). Should I Get That Jab? *ECIS 2015 Research-in-Progress Papers*, Paper 64. Link.
  - Wigman, J. T. W., Van Os, J., Borsboom, D., Wardenaar, K. J., **Epskamp, S.**, Klippel, A, MERGE, Viechtbauer, W., Myin-Germeys, I., and Wichers, M. (2015). Exploring the underlying structure of mental disorders: cross-diagnostic differences and similarities from a network perspective using both a top-down and a bottom-up approach. *Psychological Medicine, 45*, 2375-2387. Link.
  - Fried, E. I., Bockting, C., Arjadi, R., Borsboom, D., Amshoff, M., Cramer, A. O. J., **Epskamp, S.**, Tuerlinckx, F., Carr, D., and Stroebe, M. (2015). From loss to loneliness: The relationship between depressive symptoms and bereavement. *Journal of Abnormal Psychology, 124*, 256-65. Link.
  - van Borkulo, C. D., Borsboom, D., **Epskamp, S.**, Blanken, T. F., Boschloo, L., Schoevers, R. A., and Waldorp, L. J. (2014). A new method for constructing networks from binary data. *Scientific Reports, 4*, 5918. Link.
  - Borsboom, D., Cramer, A.O.J., Schmittmann, V.D., **Epskamp, S.** and Waldorp L.J. (2011) The Small World of Psychopathology. *PLoS ONE 6*, e27407. Link.
  - Borsboom, D., **Epskamp, S.**, Kievit, R.A., Cramer, A.O.J., and Schmittmann,V.D. (2011). Transdiagnostic networks. *Perspectives on Psychological Science, 6*, 610-614. Link.
  - Schmittmann, V.D., Cramer, A.O.J., Waldorp, L.J., **Epskamp, S.**, Kievit, R.A. and Borsboom, D. (2011). Deconstructing the construct: Anetwork perspective on psychological phenomena. *New Ideas in Psychology, 31*, 43-53. Link.

- Citation indices (google scholar: 01-11-2016)
  - **Citations:** 1323
  - **h-index**: 13
  - **i-10 index**: 14

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Teaching and Presenting

Please see `sachaepskamp.com/presentations` and `sachaepskamp.com/teaching` for my presentations and lectures.

Lecturer and coordinator

- Network Analysis
  - February - March 2013; September - Oktober 2014
  - Annual two-month research master course on network analysis for psychological research
  - Evaulations:
    - Course: 7.3 (2013); 8.53 (2014)
    - Lecturer: 8.76 (2014)
- Network Analysis
  - Oktober 2013
  - Invited 5-day course at FAINOR university, Vitória da Conquista, Brazil
- LaTeX
  - September - Oktober 2011; April 2013; January 2014; January 2015
  - Annual one-day workshop on writing scientific reports for psychological researchers using LaTeX
- Introduction to R
  - November 2014
  - Two-week introductory course to R, part of research master course on multivariate analysis
  - Scientific Data Visualization, using ggplot2
    - 2014; 2015
    - Guest lecture in Concept and Data Visualization Workshop at the University of Amsterdam

Teacher assistant

- Structural Equation Modeling, research master course
  - February - March 2014
- Various courses in the Psychological Methods bachelor program

Supervisor

- Marie Deserno
  - Research Master thesis
- Jonathan Klaiber
  - Research Master thesis
- Simon Stuber
  - Research Master internship
  - Research Master thesis (current)
- Olmo van den Akker
  - Bachelor thesis

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Invited talks

- Generalizing intra-individual dynamics: multi-level VAR modelling of ESM data. Individual differences journal club, University of Edinburgh, Scotland, UK, 2016.
- Intra-individual Dynamics in Psychology. Complexity Community Sharing Session January 2016, Nanyang Technological University, Singapore, 2016.
- The Dynamics of Psychology. National University of Singapore, Singapore, 2015.
- Complexity in Psychology. Complexity Community Sharing Session August 2015, Nanyang Technological University, Singapore, 2015.
- Complexity in Psychology. Department for Computational Science, University of Amsterdam, The Netherlands, 2015.
- New developments in Network Psychometrics. University of Edinburgh, UK, 2015.
- Network Analysis for Psychologists, using qgraph in R. APS, San Francisco, California, 2014.
  - Invited workshop
- Network Analysis: Applications of networks in Psychology and beyond. TNO, The Netherlands, 2014.
- Network Analysis: Uma abordagem integradora para pesquisa e tratamento em psicopatologia. FAINOR university, Vitória da Conquista, Brazil, 2014.

Contributed talks

- Discovering Psychological Dynamics in Time-Series Data. Conference on Complex Systems, Amsterdam, 2016.
- Generalized Network Analysis: Combining Network and Latent Variable Models. IOPS 2015 winter conference, Leiden, The Netherlands, 2016.
- Applied network analysis in Clinical Practice. ICPS, Amsterdam, The Netherlands, 2015.
- Residual Interaction Modeling. IMPS, Beijing Normal University, China, 2015.
  - For this talk I was awarded a "Pearson Travel Award"
- semPlot: Unified visualizations of Structural Equation Models. Modern Modeling Methods, Storrs, Connecticut, US, 2014.
- semPlot: Unified visualizations of Structural Equation Models. Psychoco, Tuebingen, Germany, 2014.
- Workshop Netwerken in de psychopathologie. Lustrumcongres, Utrecht, The Netherlands, 2013
- Network Visualizations of Statistical Relationships and Structural Equation Models. UseR, Albacete, Spain, 2013.
- Network Visualizations of Relationships in Psychometric Data and Structural Equation Models, Using the qgraph package for R. IMPS, Arnhem, The Netherlands, 2013.
- Estimation of (Logistic) Vector-autoregression Models, Using generalized linear modelling. IMPS, Arnhem, The Netherlands, 2013.
- Applications of visualizing test data through networks. ITC, Amsterdam, The Netherlands, 2012.
- The qgraph package for network visualizations of psychometric data. Psychoco, Tuebingen, Germany, 2011.
- The qgraph package for network visualizations of psychometric data. Amsterdam R usergroup, The Netherlands, 2011.

Other Activities

Editorial Duties

- Member of editorial board of the European Journal of Personality

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Software

Stable R packages

- **qgraph**
  - Network drawing, construction and estimation and network-based data visualization (Link to CRAN repository)
- **semPlot**
  - Path diagrams and visual analysis of various SEM packages' output (Link to CRAN repository)
- **IsingSampler**
  - Sampling methods and distribution functions for the Ising model (Link to CRAN repository)
- **lisrelToR**
  - Import output from LISREL into R (Link to CRAN repository)
- **graphicalVAR**
  - Estimate temporal and contemporaneous effects on $N = 1$ longitudinal data (Link to CRAN repository)
- **mlVAR**
  - Multi-level vector autoregression (Link to CRAN repository)
- **bootnet**
  - General robustness tests and plots for network models (Link to GitHub repository)

Developmental R packages

- **elasticIsing**
  - Ising model estimation using elastic net regularization (Link to GitHub repository)
- **lvnet**
  - Latent variable network modeling (Link to GitHub repository)

Collaborations

- **IsingFit**
  - Fitting Ising models using the eLasso method (Link to CRAN repository)
- **statcheck**
  - Fitting Ising models using the eLasso method (Link to CRAN repository)
- **JASP**
  - A low fat alternative to SPSS, a delicious alternative to R. (Link to website)

Languages

Dutch	Native
English	Fluent

Skills

Programming Skills

- Expert in the statistical programming language R
  - Expert in working with Sweave, knitR, shiny, ggplot2, plyr/dplyr, markdown, RMySQL and many more packages in R
- Proficient in writing in LaTeX and markdown
- Proficient in the programming languages C and C++ and their integration in R
- Familiar with Python, SQL, PHP and MATLAB

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Analytic Skills

Network analysis; Graph estimation; Time-series analysis; Mathematical statistics; Calculus; Linear algebra; Computational methods; Item response theory (IRT); Structural equation modelling (SEM); Multivariate analysis of variance; Multi-level analysis; Bayesian modeling and inference; Stochastic simulations (Monte Carlo Markov chains) such as metropolis and Gibbs samplers; Latent class analysis; Generalized linear modeling; Generalized latent variable models; Hidden Markov / regime switching models; Regularization methods; Information theory; Statistical learning.

Online references

- **sachaepskamp.com**
  - My personal website including all my presentations and course materials
- **psychosystems.org**
  - Website of the Psychosystems research group in which I conduct my PhD research
- **scholar.google.com/citations?user=fQpiw-sAAAAJ**
  - My Google scholar profile
- **github.com/SachaEpskamp**
  - My GitHub profile including all latest versions of my R package
- **linkedin.com/pub/sacha-epskamp**
  - My LinkedIn profile

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