Selected lines of research

Causal inference under network interference (statistical models, methods, and theory, with Subhankar Bhadra*)

A general-purpose statistical platform for studying attributes under network interference, which is scalable and interpretable (statistical models, methods, and theory, with Cornelius Fritz*, Subhankar Bhadra*, and David R. Hunter)

High-dimensional network models (statistical models, methods, and theory, with Jonathan R. Stewart*, Pegah Golestaneh**, and Johannes Lederer)

Personalized mental health and online educational assessments (statistical models and applications, with Minjeong Jeon, Samuel Baugh, Alyssa Hu**, and Matthew Beckman)

Construction of novel stochastic models with applications to economic, social, and other phenomena involving networks, space, or time (with Cornelius Fritz*, Yubai Yuan, Angelo Mele, Co-Pierre Georg, Saikat Nandy**, and Scott Holan).

Research preprints under peer review

Grieshop**, Nicholas, Feng**, Yong, Hu, Guanyu and **Michael Schweinberger.** A continuous-time stochastic process for high-resolution network data in sports. Decision by *Statistica Sinica* in October 2023: invited major revision. Revision resubmitted to *Statistica Sinica* in January 2024. **Invited.**

Stewart*, Jonathan R. and **Michael Schweinberger.** Pseudo-likelihood-based M-estimation of random graphs with dependent edges and parameter vectors of increasing dimension. Decision by *The Annals of Statistics* in June 2023: invited major revision. Revision resubmitted to *The Annals of Statistics* in December 2023.

Nandy**, Saikat, Holan, Scott H. and **Michael Schweinberger.** A socio-demographic latent space approach to spatial data when geography is important but not all-important. Submitted to *The Annals of Applied Statistics* in September 2023.

Eli*, Sean and **Michael Schweinberger.** Non-asymptotic model selection for models of network data with parameter vectors of increasing dimension. Submitted to the *Journal of Statistical Planning and Inference* in November 2021.

Accepted peer-reviewed and editor-reviewed research publications

Students and postdoctoral scholars funded by me are indicated by *. Students and postdoctoral scholars funded by others are indicated by **.

Jeon, Minjeong and **Michael Schweinberger** (2024). Latent process models for monitoring progress towards hard-to-measure targets, with applications to mental health and online educational assessments. Accepted by *The Annals of Applied Statistics* in January 2024. **Equal contributions. The order of authors is alphabetical.**

Peer-reviewed and editor-reviewed research publications

Students and postdoctoral scholars funded by me are indicated by *. Students and postdoctoral scholars funded by others are indicated by **.

Schweinberger, Michael and Cornelius Fritz* (2023). Discussion of "A tale of two datasets: Representativeness and generalisability of inference for samples of networks" by Pavel N. Krivitsky, Pietro Coletti, and Niel Hens. *Journal of the American Statistical Association,* 118, 2225–2227. **Invited. Editor-reviewed.**

Schweinberger, Michael, Bomiriya**, Rashmi P., and Sergii Babkin* (2022). A semiparametric Bayesian approach to epidemics, with application to the spread of the coronavirus MERS in South Korea in 2015. *Journal of Nonparametric Statistics,* 34, 628–662.

Jin, Ick Hoon, Jeon, Minjeong, **Schweinberger, Michael**, Yun, Jonghyun, and Lizhen Lin (2022). Multilevel network item response modeling for discovering differences between innovation and regular school systems in Korea. *Journal of the Royal Statistical Society, Series C (Applied Statistics),* 71, 1225–1244.

Park, Jaewoo, Jin, Ick Hoon, and **Michael Schweinberger** (2022). Bayesian model selection for high-dimensional Ising models, with applications to educational data. *Computational Statistics & Data Analysis,* 165, 1–20.

Schweinberger, Michael (2022). Discussion to: "Bayesian graphical models for modern biological applications" by Yang Ni, Veerabhadran Baladandayuthapani, Marina Vannucci, and Francesco C. Stingo. *Statistical Methods & Applications (Journal of the Italian Statistical Society),* 31, 253–260. **Invited. Editor-reviewed.**

Jeon, Minjeong, Jin, Ick Hoon, **Schweinberger, Michael,** and Samuel Baugh** (2021). Mapping unobserved item-respondent interactions: A latent space item response model with interaction map. *Psychometrika,* 86, 378–403. **The first three authors made equal contributions. The order of the first three authors is alphabetical.**

Schweinberger, Michael, Stingo, Francesco C., and Maria P. Vitale (2021). Special issue on statistical analysis of networks. *Statistical Methods & Applications (Journal of the Italian Statistical Society),* 30, 1285–1288. **Invited. Editor-reviewed.**

Schweinberger, Michael and Jonathan R. Stewart* (2020). Concentration and consistency results for canonical and curved exponential-family models of random graphs. *The Annals of Statistics,* 48, 374–396.

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Schweinberger, Michael and Pamela Luna** (2018). hergm: Hierarchical exponential-family random graph models. *Journal of Statistical Software,* 85, 1–39.

Cao**, Ming, Chen, Yong, Fujimoto, Kayo, and **Michael Schweinberger** (2018). A two-stage working model strategy for network analysis under hierarchical exponential random graph models. *Proceedings of the 2018 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining,* 290–298. Acceptance rate: 15%.

Schweinberger, Michael, Babkin*, Sergii, and Katherine B. Ensor (2017). High-dimensional multivariate time series with additional structure. *Journal of Computational and Graphical Statistics,* 26, 610–622.

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Schweinberger, Michael (2012). Statistical modeling of network panel data: goodness-of-fit. *British Journal of Mathematical and Statistical Psychology*, 65, 263–281.

Schweinberger, Michael (2011). Instability, sensitivity, and degeneracy of discrete exponential families. *Journal of the American Statistical Association, Theory & Methods*, 106, 1361–1370.

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Unpublished preprints

Schweinberger, Michael, Krivitsky, Pavel N., and Carter T. Butts (2017). A note on the role of projectivity in likelihood-based inference for random graph models. **The first two authors made equal contributions.**

Vu**, Duy Q. and **Michael Schweinberger** (2014). Model-based clustering of large random graphs with high-dimensional predictors.

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