

# Michael Seo

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## EDUCATION

- **University of Bern** Bern, Switzerland  
*Ph.D. Biostatistics* 2019 - 2022 (*Expected*)
- **Stanford University** Stanford, CA  
*M.S. Statistics; GPA: 3.7/4.0* 2012 - 2014
- **Duke University** Durham, NC  
*B.S. Statistics, Graduation with High Distinction; GPA: 3.7/4.0* 2007 - 2011

## EXPERIENCE

- **Institute of Social and Preventive Medicine, University of Bern** Bern, Switzerland  
*Ph.D. Student in Biostatistics* 2019 - Present
  - **Real-world effectiveness:** Developed models that combine individual patient data from randomized controlled trials and non-randomized studies when aiming to predict outcomes for a set of treatments.
  - **Variable selection and shrinkage:** Compared variable selection and shrinkage methods for estimating patient-specific treatment effects in individual patient data meta-analysis.
  - **Multiple imputation:** Explored methods of addressing the systematically missing predictors problem, when the aim is to build a prediction model using data from multiple studies.
- **LLX Solutions** Boston, MA  
*Biostatistician* 2018 - 2019
  - **Experimental designs:** Drafted statistical analysis plans for Phase I trials which address study designs and methods on how to evaluate safety of the new drug in development.
  - **Data manipulation:** Transformed raw clinical data into datasets that meet FDA standards using PROC SQL.
- **Center for Evidence Synthesis in Health, Brown University** Providence, RI  
*Research Associate* 2015 - 2018
  - **Network meta-analysis:** Developed an R package for Bayesian network meta-analysis which allows simultaneous comparison of multiple treatments.
  - **N-of-1 clinical trial:** Developed a Bayesian statistical tool to analyze single patient trials with crossover design and applied it to give individualized recommendations of carbohydrate diet for patients with inflammatory bowel disease.
- **In4mation Insights** Boston, MA  
*Quantitative Analyst* 2015 Summer
  - **Performance metric:** Developed a ranking system for Altria's e-vapor products by defining behavior scores using area and slope based on 6 week share of usage occasions and by defining intent scores using factor analysis.

## PUBLICATIONS

- **Research Publication:** Seo M, Debray TPA, Ruffieux Y, Gsteiger S, Bujkiewicz S, Finckh A, Egger M, Efthimiou O (Under Revision). Combining individual patient data from randomized and non-randomized studies to predict real-world effectiveness of interventions.
- **Research Publication:** Seo M, White IR, Furukawa TA, Imai H, Valgimigli M, Egger M, Zwahlen M, Efthimiou O (2021). Comparing methods for estimating patient-specific treatment effects in individual patient data meta-analysis. *Statistics in Medicine*, 40, 1553-1573.
- **Research Publication:** Seo M, Furukawa TA, Veroniki AA, Pillinger T, Tomlinson A, Salanti G, Cipriani A, Efthimiou O (2021). The Kilim plot: A tool for visualizing network meta-analysis results for multiple outcomes. *Research Synthesis Methods*, 12, 86-95.
- **Research Publication:** Furukawa TA, Debray T, Akechi T, Yamada M, Kato T, **Seo M**, Efthimiou O (2020). Can personalized treatment prediction improve the outcomes, compared with the group average approach, in a randomized trial? Developing and validating a multivariable prediction model in a pragmatic megatrial of acute treatment for major depression. *Journal of Affective Disorders*, 274, 690-697.
- **R Package:** Michael Seo and Christopher Schmid (2020). bnma: Bayesian Network Meta-Analysis using 'JAGS'. R package version 1.4.0. <https://CRAN.R-project.org/package=bnma>.
- **R Package:** Robert Tibshirani, **Michael Seo**, Gil Chu, Balasubramanian Narasimhan, and Jun Li (2018). samr: Significance Analysis of Microarrays. R package version 3.0. <https://CRAN.R-project.org/package=samr>.

## SKILLS

- **Programming:** R, Python, SAS, SQL, C++, Java, LaTeX
- **Statistics:** Bayesian Methods, (Network) Meta Analysis, Machine Learning, Causal Inference