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*
  - **Variable selection and shrinkage**: Compared variable selection and shrinkage methods for estimating patient-specific treatment effects in individual patient data meta-analysis.
  - **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.
  - **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.

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