Andrew T. Bean

CONTACT
INFORMATION

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SUMMARY

Experienced statistician in the pharmaceutical industry currently working as an expert methodological consultant to quantitative teams across disease areas and drug-development phases. Areas of expertise include statistical software and tool development, Bayesian methods, portfolio decision support and probability of success evaluation, meta-analysis and indirect treatment comparisons, and use of trial-external data. Previous roles involved trial- and program-level biostatistics support for Oncology compounds in early development.

EDUCATION

The Ohio State University, Columbus, Ohio

Ph.D., Statistics, August 2017
- *Dissertation:* Transformations and Bayesian Estimation of Skewed and Heavy-Tailed Densities
- *Advisors:* Steven MacEachern and Xinyi Xu

M.S., Statistics, December 2012

Colorado College, Colorado Springs, Colorado

B.A., Mathematics, May 2009
- *cum laude*, Distinction in Mathematics
- Minor in Spanish Language

PROFESSIONAL
EXPERIENCE

Novartis Pharmaceuticals, East Hanover, New Jersey

Associate Director Biostatistician (Advanced Exploratory Analytics)	**May 2023 – present**
Senior Principal Biostatistician (Advanced Exploratory Analytics)	**Jun 2020 – Apr 2023**
Senior Principal Biostatistician (Translational Clinical Oncology)	**May – Jun 2020**
Principal Biostatistician (Translational Clinical Oncology)	**Sep 2017 – May 2020**

- Statistical consulting
  - Provide expert consulting advice and support to quantitative scientists across the Advanced Quantitative Sciences organization in clinical development
  - Serve all development units, with special emphasis on the post-marketing development group (Medical Affairs Biostatistics & Data Science)

- Workstreams and projects
  - Probability of Success workstream (lead since 2024, contributor since 2021)
    - Lead of team of 5 quantitative experts supporting statistical assessment of risk and strength of evidence ahead of development decision points
    - Ensure appropriateness of methodology and consistency of approach across portfolio
    - Lead an additional software team which develops and maintains a suite of software in R with an integrated frontend UI (R shiny) and backend (R package)
    - Stakeholder management and cross-functional collaboration
  - Bayesian model-based dose escalation in Oncology (2017-present)
    - Expert consulting for teams adopting model-based adaptive designs for Phase-I dose escalation
    - Develop and maintain the open-source R package `OncoBayes2`, and a sophisticated suite of company-internal companion software

· AMDS Science VC (2021-present)
  · Organize the department's methodology-focused seminar series featuring internal and external speakers

○ Trial and program statistician (2017-2020)
  · Served as the primary statistical contact for Phase-I Oncology studies

  · Collaborated on cross-functional teams at both the clinical-trial and clinical-program level

  · Took primary responsibility for statistical considerations in trial planning, including statistical analysis plans and key input on study concepts, protocols, and database designs

  · Oversaw trial execution, including statistical support for dose escalation meetings, periodic safety reporting, and external publications

  · Ensured timely study closeout, including preparation of clinical study reports

Eli Lilly and Company, Indianapolis, Indiana

Statistics Intern   **May − Aug 2016**
· Implemented novel Bayesian models to guide dose escalation under minimal assumptions, including constrained reference priors, Dirichlet-process-based nonparametric Bayesian models

· Designed and carried out a simulation study in Julia to assess these methods in comparison to parametric counterparts, such as logistic regression, model-assisted designs like MTPI, and rule-based dose escalation designs like 3+3

Institute for Defense Analyses, Alexandria, Virginia

Summer Associate   **Jun − Aug 2013**
· Built a Bayesian hierarchical model for the combined analysis of data from several rounds of operational tests of a military system

· Collaborated with teams of quantitative researchers and military technology experts

Pearson Education, Glenville, Illinois

Mathematics Courseware Developer   **Apr − Sep 2011**
· Created interactive exercises for Pearson's MyMathLab software for college mathematics.

SOFTWARE AND COMPUTING

R packages
○ **OncoBayes2**: Bayesian Logistic Regression for Oncology Dose-Escalation Trials (CRAN)
○ **pos**: Novartis proprietary R package supporting Probability of Success assessments at the full-development transition point
○ **ob2tools**: Novartis proprietary R package providing companion tools for OncoBayes2 such as trial simulation and reporting

Computing
○ Statistical computing: R (heavy user and contributor) and some Julia
○ Literate programming: Quarto, R Markdown, Shiny
○ Bayesian computation: Stan, JAGS, Turing
○ Additional skills: Git, Make, Snakemake, cluster computing and parallel computation (LSF, SLURM)

TEACHING EXPERIENCE

The Ohio State University, Columbus, Ohio

Graduate Teaching Associate   **Aug 2012 − May 2017**

· *Sole Instructor*: Calculus-based course in introductory statistics (about 150 engineering majors).

       Statistics 3470 Introduction to Probability and Statistics for Engineers   AU 2016

· *Lecturer*: General education statistical literacy course (about 200 undergraduates).

Statistics 1350 Elementary Statistics	AU 2012, AU 2015, SP 2016

· *Data Analytics T.A.*: Introduced students to R for statistical computing and data analysis, and R Markdown for reproducible documents with integrated code (sections of 15-20 from new Data Analytics major).

Statistics 3202 Intro. to Stat. Inference for Data Analytics	SP 2015, SP 2017

· *Recitation Instructor*: Led recitations including group work, practice exercises, or statistical computing with software like R or JMP (sections of about 30 undergraduates).

Statistics 2480 Statistics for the Life Sciences	SP 2015
Statistics 1450 Intro. to Practice of Statistics	SP 2013, AU 2013, SP 2014, SU 2015
Statistics 1350 Elementary Statistics	AU 2012, AU 2014, SP 2016

Colorado College, Colorado Springs, Colorado

Paraprofessional   **Aug 2009 – May 2010**

Academic duties included running daily problem sessions for all courses, coordinating nightly tutors, holding open office hours for Math & C.S. students. Planning and advertising department events.

PUBLICATIONS

- Weber, S., Holzhauer, B., Widmer, L. A., & **Bean, A.** (Eds.). (2024). Bayesian Applied Modelling in Drug Development: Flexible regression modelling in Stan via brms. Open-source e-book: https://opensource.nibr.com/bamdd/.

- Widmer, L. A., **Bean, A.**, Ohlssen, D., & Weber, S. (2023). Principled Drug-Drug Interaction Terms for Bayesian Logistic Regression Models of Drug Safety in Oncology Phase I Combination Trials. (In revisions) arXiv preprint: 2302.11437.

- Meric-Bernstam, F., Sweis, R. F., Kasper, S., Hamid, O., Bhatia, S., Dummer, R., Stradella, A., Long, G. V., Spreafico, A., Shimizu, T., Steeghs, N., Luke, J. J., McWhirter, S. M., Müller, T., Nair, N., Lewis, N., Chen, X., **Bean, A.**, Kattenhorn, L., Pelletier, M., & Sandhu, S. (2023). Combination of the STING Agonist MIW815 (ADU-S100) and PD-1 Inhibitor Spartalizumab in Advanced/Metastatic Solid Tumors or Lymphomas: An Open-Label, Multicenter, Phase Ib Study. Clinical Cancer Research, 29(1), 110-121. doi:10.1158/1078-0432.CCR-22-2235

- Meric-Bernstam, F., Sandhu, S. K., Hamid, O., Spreafico, A., Kasper, S., Dummer, R., Shimizu, T., Steeghs, N., Lewis, N., Talluto, C. C., Dolan, S., **Bean, A.**, Brown, R., Trujillo, D., Nair, N., & Luke, J. J. (2019). Phase Ib study of MIW815 (ADU-S100) in combination with spartalizumab (PDR001) in patients (pts) with advanced/metastatic solid tumors or lymphomas. Journal of Clinical Oncology, 37(15_suppl), 2507-2507. doi:10.1200/JCO.2019.37.15_suppl.2507

- **Bean, A.**, Xu, X., & MacEachern, S. (2016). Transformations and Bayesian Density Estimation. Electronic Journal of Statistics, 10(2), 3355-3373. doi:10.1214/16-EJS1158

CONFERENCES, WEBINARS AND WORKSHOPS

Andrew Bean. Tale of Two Studies: Quantitative enablement of smart risk-taking in clinical study design. EFSPI SSL Webinar, 2025. Slides

David Ohlssen, Andrew Bean, Björn Holzhauer. Applied Modeling in Drug Development Using brms (short course). Joint Statistical Meetings, 2024. Slides

Andrew Bean, Biju Wang, and Daniel Sabanes Bove. Good Software Engineering Practice for R Packages (workshop). George Washington University, Rockville, MD 2023. Website.

Andrew Bean and Thibaud Coroller. Bayesian Topic Modeling of Adverse Event Data (contributed talk). Joint Statistical Meetings, virtual, 2020.

Andrew Bean, Xinyi Xu, and Steve MacEachern. Bayesian Estimation of Heavy-Tailed Densities using Transformations (contributed talk). Joint Statistical Meetings, Chicago, IL, 2016.

Andrew Bean, Xinyi Xu, and Steve MacEachern. Transformations and Bayesian Density Estimation (poster presentation). Joint Statistical Meetings, Seattle, WA, 2015.

Andrew Bean, Xinyi Xu, and Steve MacEachern. Transformations and Bayesian Density Estimation (contributed talk). 10th Conference on Bayesian Nonparametrics, Raleigh, NC, 2015.

Andrew Bean, Amelia Taylor, Laura McQuaid, Ralph Bertrand. Bootstrap Confidence Estimates in Phylogenetics (talk). First Annual NIMBioS Undergraduate Research Conference at the Interface of Biology and Mathematics, Nashville, TN, 2009.

HONORS AND AWARDS

Craig Cooley Memorial Prize, Department of Statistics, Ohio State, 2017

Thomas and Jean Powers Award for Outstanding Graduate Teaching Associate, 2015

University Fellowship, Graduate School, Ohio State, 2011

Lubrizol Corporate Fellowship, Department of Statistics, Ohio State 2011

Phi Beta Kappa, Colorado College, 2009