ALEXANDER DOMBOWSKY

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EDUCATION

Duke University Durham, NC, USA
Doctor of Philosophy – Statistical Science *Aug. 2020 - May 2025*
- Supervisors: David B. Dunson and Amy H. Herring
- Dissertation: *Bayesian Inference for Discrete Structures*

McGill University Montreal, QC, Canada
Master of Science – Mathematics and Statistics *Sept. 2019 - July 2020*
- Supervisor: Russell Steele
- Thesis: *Assessing the Quality of Posterior Samples from No-U-Turn Hamiltonian Monte Carlo*

McGill University Montreal, QC, Canada
Bachelor of Science – Mathematics *Sept. 2015 - May 2019*

PUBLICATIONS

Dombowsky, A., Dunson, D. B., Madut, D. B., Rubach, M. P., & Herring, A. H. (2025). Bayesian Learning of Clinically Meaningful Sepsis Phenotypes in Northern Tanzania. Accepted. *The Annals of Applied Statistics*. arXiv:2405.01746.

Dombowsky, A. & Dunson, D. B. (2025). Product Centered Dirichlet Processes for Bayesian Multi-view Clustering. *Journal of the Royal Statistical Society, Series B*. Accepted. arXiv:2312.05365.

Dombowsky, A., & Dunson, D. B. (2024). Bayesian Clustering via Fusing of Localized Densities. *Journal of the American Statistical Association: Theory and Methods*. In press. arXiv:2304.00074.

PAPERS IN PREPARATION

Madut, D. B., **Dombowsky, A.** [& 12 others]. (2025) Derivation of Clinical Sepsis Clusters Among a Cohort of Hospitalized Patients in Northern Tanzania.

Dombowsky, A. & Dunson, D. B. (2025). Hierarchical Directed Dirichlet Networks for Discrete Graphical Modeling.

Meng, J., **Dombowsky, A.**, & Dunson, D. B. (2025). Kernel Robust Bayesian Clustering in High Dimensions.

Buch, D., **Dombowsky, A.**, & Dunson, D. B. (2025). Bayesian Decision-Theoretic Estimation of Non-Exchangeable Partitions.

RESEARCH PROJECTS

Merck & Co., Inc., BARDS Academic Collaboration *Sept. 2023 - Present*
- Led creation of Bayesian multiview clustering methods

Sepsis Characterization in Kilimanjaro (SICK) Study *Aug. 2021 - Present*
- Led development of statistical methodology for deriving clinical patient clusters
- Contributed to integration of clinical and RNAseq clusterings

Office of Naval Research (ONR) Grant (Awarded, Prof. Dunson PI) *Feb. - April 2024*
- Wrote objectives, project schedule & milestones, and management approach
- Proposed and implemented multiple novel statistical methods

INVITED TALKS

International Society of Bayesian Analysis (ISBA) 2024 World Meeting — Venice, Italy
- "Recent Advances in Bayesian Clustering for Complex Data" — *July 2024*

CONTRIBUTED TALKS

14th International Conference on Bayesian Nonparametrics — Los Angeles, CA, USA
- "Hierarchical Directed Dirichlet Networks for Discrete Graphical Modeling" — *June 2025*

Joint Statistical Meetings (JSM) 2024 — Portland, OR, USA
- "Product Centered Dirichlet Processes for Dependent Clustering" — *Aug. 2024*

Bayesian Young Statisticians Meeting (BAYSM) 2023 — Online
- "Bayesian Clustering via Fusing of Localized Densities" — *Nov. 2023*

Advances in Interdisciplinary Statistics and Combinatorics (AISC) 2022 — Greensboro, NC, USA
- "Bayesian Multi-Study Clustering of Sepsis Patients" — *Oct. 2022*

POSTER PRESENTATIONS

Duke StatSci Research Alumni Symposium — Durham, NC, USA
- "Hierarchical Directed Dirichlet Networks for Discrete Graphical Modeling" — *Oct. 2024*

Bayesian Young Statisticians Meeting (BAYSM) 2024 — Venice, Italy
- "Bayesian Learning of Clinically Meaningful Sepsis Phenotypes in Northern Tanzania" — *June 2024*

International Society of Bayesian Analysis (ISBA) 2022 World Meeting — Montreal, QC, Canada
- "Bayesian Multi-Study Clustering of Sepsis Patients" — *June 2022*

TEACHING EXPERIENCE

Teaching Assistant at Duke University — *Jan. 2021 - Dec. 2024*
- STA 490/690: Analysis of Time-to-Event Data (Instructor: Yue Jiang)
  - Held office hours; graded homeworks, projects, and exams
- STA 831: Probability & Statistical Models (Instructor: Mike West)
  - Held office hours; graded exams
- STA 470S: Introduction to Statistical Consulting (Instructor: Edwin Iversen)
  - Held weekly progress updates with students; graded written reports
- STA 360: Bayesian Methods and Modern Statistics (Instructor: Simon Mak)
  - Held office hours; prepared and graded exams; organized homework graders; advised final projects

Teaching Assistant at McGill University — *Sept. 2019 - Dec. 2019*
- MATH 203: Principles of Statistics 1 (Instructors: Abbas Khalili and David Wolfson)
  - Held office hours; organized homework graders; gave weekly lab lecture; graded exams

HONORS AND AWARDS

Myra and William Waldo Boone Fellowship for Canadian Graduate Students — *2023 - 2025*

ASA-SBSS Student Paper Competition — *Aug. 2024*

ISBA World Meeting Travel Award — *2022, 2024*

BAYSM 2023 Best Long Talk Award — *Nov. 2023*

PROFESSIONAL SERVICES AND ACTIVITIES

Reviewer: Journal of the American Statistical Association (JASA), Electronic Journal of Statistics (EJS), Biometrika

Member: ISBA, j-ISBA, the ASA (Biometrics & SBSS), and the IBS (ENAR)

Organizer: 2023-2025 PRIME and ACES Reading Groups

- PRIME group: Bayesian methods for modeling environmental exposures (15 members)
  - Hosted meetings; obtained speakers; led discussion
- ACES group: novel MCMC methods, collaboration with Mathematics department (24 members)
  - Hosted meetings; obtained speakers; organized schedule

Session chair: BAYSM 2024–"Bayesian Methods for Environmental and Health Data"

SOFTWARE

Languages: R (Advanced), RCPP (Advanced), Python (Proficient), Git (Proficient), C++ (Proficient), Cluster computing via SLURM (Proficient)

Packages: foldcluster