AMY JOHNSON PITTS

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EDUCATION

Columbia University, Mailman School of Public Health, New York, NY *August 2020 - Present*
Doctorate of Philosophy (Ph.D.) in Biostatistics
Advisor: Dr. Caleb H. Miles
  Relevant Courses: Asymptotic Statistics, Data Mining, Casual Inference, Advanced Statistical Computing,
  Statistical Interdisciplinary Studies I-II, Probability for Biostatisticians, Theory of Statistical Inference I-II,
  Advanced Methods, Probability, Data Science I-II, Randomized Clinical Trials, Principles of Epidemiology

Marist College, Poughkeepsie, NY *Graduation: May 2020*
Bachelor of Science *Summa Cum Laude*
Applied Mathematics and Data Science & Analytics Double Major with Computer Science Minor *Honors in Mathematics*
  Relevant Courses: Applied Statistics, Advanced ODE, Complex, Real & Numerical Analysis, Abstract Algebra,
  Linear Algebra, Algorithms, Software Dev. I-II, Machine Learning, Database Management, Data Visualization

EXPERIENCE

Research Analyst 2021-Present
Department of Biostatistics, Mailman School of Public Health
- Assists in the development of methods and sensitivity analysis for transportability in multi-study, multi-outcome settings and their applications to cognitive remediation therapy for patients with schizophrenia, Mentor: Dr. Caleb H. Miles
- Develops methods for graphical causal models and identification of direct effects with positivity violations and their applications to the causal effect of anesthesia on fetal development, Mentor: Dr. Caleb H. Miles
- Implements MRP models to improve survey representativeness and the inference of health outcomes among patients with HIV during COVID-19 pandemic, Mentor: Dr. Qixuan Chen
- Creates reproducible reports and visualizations to share with collaborators using tidyverse, R Markdown, and RShiny
- Attends multidisciplinary meetings to discuss both methods and applications

Graduate Teaching Assistant 2020-Present
Department of Biostatistics, Mailman School of Public Health
- Fosters learning through holding weekly office hour, and answering student questions during class and over email
- Provides detailed feedback on weekly assignments, quizzes and projects
- Classes include Introduction to Data Science in R, Randomized Clinical Trials, Biostatistical Methods II, Statistical Methods for Casual Inference, and Data Science II

Biostatistics Graduate Research Intern Summer 2021
Bristol Myers Squibb, Remote Internship
- Conducted research in the early clinical trial biostatistics department with two faculty members
- Explored 2 projects: comparing dose escalation designs through simulations and go/no go decisions using a Bayesian framework
- Both project's corresponding R shiny applications can be found on my website

Biostatistics Research Fellow Summer 2019
Memorial Sloan Kettering Cancer Center, New York, NY
- Accepted to competitive Quantitative Sciences Undergraduate Research Experience (QSURE)
- Explored the effects of missing data in cancer studies under advisement of attending biostatistician Sujata Patil
- Created a RShiny application that allows the users to explore the how missing data introduces bias into analysis. Project can be accessed at amypitts.shinyapps.io/Missing_Data/

Research Experience for Undergraduates (REU) Summer 2018
Lafayette College, Easton, Pennsylvania
- Developed a Bayesian procedure to detect breakpoints in time series alongside two other undergrad students and a professor
- Produced working R code and a rough draft of a paper that is in the process of being edited to be submitted for publication
- Presented research at the Joint Mathematics Meetings and was a recipient of an Outstanding Poster Award in 2019

SKILLS

Programming Languages: R, RStudio, LaTeX, git, GitHub, PASS, Python, HTML, CSS, JavaScript, SQL, MATLAB, Java
Statistical Skills: Causal Inference, Hypothesis testing, Regression Techniques (linear, glm, lasso, ridge), Multivariate, Longitudinal and Survival Analysis, Neural Networks/Deep Learning, Bayesian Approaches, Stochastic Processes
Data Visualization Tools: RShiny, ggplot, gtsummary, Rmarkdown, tikZ, D3, tableau

PUBLICATIONS

Pitts, Amy & Rivas, Pablo. "Finding Time Series Breakpoints with Fully Connected Neural Networks", *Int'l Conf. Artificial Intelligence CSREA Press.* 2019. p.352-357. ISBN: 1-60132-501-0.

Duong, Ngoc Q., **Pitts, Amy J.,** Kim, Soohyun & Miles, Caleb H. "Sensitivity analysis for transportability in multi-study, multi-outcome settings" arXiv preprint arXiv:2301.02904 (2023).

Pitts, Amy J. & Fowler, Charlotte. "Comparison of open-source software for plotting directed acyclic graphs" in preparation.

SELECT PRESENTATIONS

- Pitts, Amy. "Inference of health outcomes among patients with HIV during covid-19 pandemic: using mrp model to improve survey representativeness", American Association for Public Opinion Research (AAPOR). Philadelphia, PA. May 2023.
- Pitts, Amy. Fowler, Charlotte. "Software to Draw DAGs", Causal Inference Learning Group. Feb 2023.
- Pitts, Amy. "R-Shiny Crash Course" Columbia Biostatistics Computing Club. Nov 2022.
- Pitts, Amy. "Bayesian Go/No-Go Rules & Two-stage Designs and Comparison of Dose Escalation Designs in Early Oncology Studies", Bristol Myers Squibb. Aug 2021.
- Pitts, Amy. "Predicting Mesothelioma Disease Status Using Demographic, Clinical, and Exposure-Related Factors", Marist College Pi Mu Epsilon Induction Ceremony. May 2021.
- Pitts, Amy. Kwizera, Muhire. "Python Tutorial" Columbia Biostatistics Computing Club. Zoom. Dec 2020.
- Pitts, Amy. "Overleaf Overview" Department of Epidemiology and Biostatistics at Memorial Sloan Kettering Cancer Center. New York, NY. Aug 2019.
- Pitts, Amy, & Rivas, Pablo. "Finding time series breakpoints with fully connected neural networks" 2019 International Conference of Artificial Intelligence. Las Vegas, NV. July, 2019.
- Pitts, Amy. "Missing Data in Cancer Studies" QSURE Final Presentations hosted in the Department of Epidemiology and Biostatistics at Memorial Sloan Kettering Cancer Center. New York, NY. July 2019.
- Pitts, Amy. Haglich, Kathryn. & Neitzel, Sarah. "A Bayesian method for locating breakpoints in time series" Joint Mathematics Meetings. Baltimore, MD. Jan 2019.

ACTIVITIES/HONORS

Activities: Board Member, Columbia University Biostatistics Computing Club, (2020-Present); Chair of Student Committee, Columbia Biostatistics Department Master Practicum Symposium, (2023); President, Marist College Alpha Pi Chapter, Pi Mu Epsilon(2019-2020); President and Founder, Association for Women in Mathematics Chapter at Marist College (2019-2020); Vice President, Marist Math Club (2019-2020).

Honors: Invited to give the key note speech & the presidential address at the Marist College Pi Mu Epsilon Induction Ceremony (2021); Marist College Excellence in Mathematics Award (2020); Inducted into the Marist College Pi Mu Epsilon Chapter Mathematics Honors Society (2019); Recipient of the Marist College Early Career Undergraduate Mathematics Research Award (2018).