

# AMY JOHNSON PITTS

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## EDUCATION

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**Columbia University**, New York, NY  
Mailman School of Public Health  
Doctorate of Philosophy  
Biostatistics

*Expected Graduation: Spring 2025*

**Marist College**, Poughkeepsie, NY  
Bachelor of Science  
Double Major: Applied Mathematics and Data Science & Analytics  
Minor: Computer Science

*Graduation: May 2020  
Summa Cum Laude  
Honors in Mathematics*

## EXPERIENCE

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### Graduate Teaching Assistant

2020-Present

*Biostatistics Department, Mailman School of Public Health*

- Holds office hours, grades, and helps create assignments for the graduate level class Introduction to Health Data Science
- The fully remote class primarily focuses on R and basic biostatistics fundamental topics

### Math Lab Lead Tutor

2018-2020

*Department of Mathematics, Marist College*

- Supervise, train, and administrate staff of six students
- Provide tutoring in the Math Lab, a peer help/tutoring center staffed entirely by students
- Courses covered are: Calculus with Management Application, Calculus I-III, Linear Algebra, Differential Equations, Introduction to Mathematical Reasoning, Mathematical Analysis

### 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
- Created a RShiny Application currently accessible online. Paper currently in process of being written

### 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 eventually be submitted for publication

## PUBLICATIONS

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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.

Pitts, Amy, & Patil, Sujata. "Missing data in cancer studies" in preparation.

## PRESENTATIONS

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### Presentations:

- Pitts, Amy. Mulligan, Kaitlyn. & Allison Nowakowski. "The Machine Learning Quote Generator" Marist College School of Computer Science & Mathematics. Cisco Webex. May 2020.
- Pitts, Amy. "SeminaR: an R tutorial looking at shiny applications" Marist College Department of Mathematics. Poughkeepsie, NY. November 2019.
- Pitts, Amy. "My Research Experience at Memorial Sloan Kettering Cancer Center" Marist College Department of Mathematics. Poughkeepsie, NY. October 2019.
- Pitts, Amy. "Overleaf Overview" Department of Epidemiology and Biostatistics at Memorial Sloan Kettering Cancer Center. New York, NY. August 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. January 2019.
- Pitts, Amy. “My Research Experience at Lafayette College” Marist College Department of Mathematics. Poughkeepsie, NY. September 2018.

#### Poster Presentations:

- Pitts, Amy. Haglich, Kathryn. Neitzel, Sarah. & Leibner, Jeffery. “A Bayesian method for locating breakpoints in time series” ACM New York Celebration of Women in Computing. Lake George, NY. April 2019.
- Pitts, Amy. Haglich, Kathryn. Neitzel, Sarah. & Leibner, Jeffery. “A Bayesian method for locating breakpoints in time series” Joint Mathematics Meeting. Baltimore, MD. January 2019.

### RELEVANT COURSES

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#### Columbia University:

Statistical Inference, Probability, Biostat Methods I-II, Data Science I-II, Randomized Clinical Trials, Epidemiology Principles

#### Marist College:

*Mathematics:* Applied Statistics, Differential Equations, Advanced ODE, Complex Analysis, Mathematical Analysis, Numerical Analysis, Operations Research, Abstract Algebra, Independent Study in Math Biology, Computational Linear Algebra

*Computer Science:* Algorithms, Software Development I-II, Database Management

*Data Science:* Machine Learning, Data Mining, Data Analysis, Data Visualization, Data Management

### SKILLS/RELEVANT PROJECTS

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Experience in Python, R, RStudio, RShiny,  $\text{\LaTeX}$ , Java, HTML, CSS, JavaScript, D3, node.js, git, GitHub, SQL, Access, Maple, Octave, MATLAB, Hadoop, Hive, Pig, Spark, Microsoft Sql Server, and Microsoft Visual Studio

#### Statistical Methods Comparison (DID and Multilevel Logistic Regression) 2020 – Present

- Comparing a Difference in Difference approach with Multilevel Logistic Regression approach on marijuana usage and legislation data alongside a Professor in the Mailman School of Public Health

#### An Exploration into SEER Missing Data Fall 2019 – Spring 2020

- Honors project that explores the missing data from a SEER data subset via a survival analysis problem

#### The Machine Learning Quote Generator Spring 2020

- Project that generates quotes via a Stacked LSTM algorithm training on data gathered from twitter

#### Missing Data in Cancer Studies Application Summer 2019

- 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/](http://amypitts.shinyapps.io/Missing_Data/)

#### Finding Time Series Breakpoints with Fully Connected Neural Networks Spring 2019

- Machine learning project coded in Python that learned from simulated time series to detect significant point of change

#### A Bayesian Procedure that Detects Breakpoints in Timeseries Summer 2018

- Working R code completed during my REU experience that outputs the distributions on the location of change points

### ACTIVITIES/HONORS

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#### Activities:

- Board Member, Columbia University Biostatistics Computing Club, (2020-Present)
- President, Marist College Alpha Pi Chapter, Pi Mu Epsilon (2019-2020)
- President and Founder, Association for Women in Mathematics (AWM) Chapter at Marist College (2019-2020)
- Vice President, Marist Math Club (2019-2020)
- Treasurer, Equestrian Team (2017-2020)
- Member of Marist Team, 79th annual William-Lowell Putnam Mathematical Competition (2018)

#### Honors:

- Marist College Excellence in Mathematics Award (2020)
- Inducted into the Marist College Pi Mu Epsilon Chapter Mathematics Honors Society (2019)
- Recipient of an Outstanding Poster Award at the Joint Mathematics Meeting, Baltimore (2019)
- Student Subcommittee Chair, 2019 Marist Math Department Faculty Search Committee (2019)
- Recipient of the Marist College Early Career Undergraduate Mathematics Research Award (2018)
- Awarded Best Visualization at DataFest located at Vassar College (2018)
- Winner of the Hack Harassment Category in Marist College Hackathon (2016)