

# MARIUM TAPAL

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## EDUCATION

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### Smith College

Northampton, MA

B.A. in Mathematics & Statistical and Data Sciences

May 2022

- GPA: 3.97/4.00
- Awards & Memberships: Cum Laude Honors, Mu Sigma Rho, Dean's List, Phi Beta Kappa, American Statistical Association

## RESEARCH INTERESTS

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applied statistics · statistical inference · statistics pedagogy

## RESEARCH EXPERIENCE

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### Research Associate

Harvard Business School

*Supervisor: Dr. Leslie A. Perlow*

Aug 2022 - Present

- Award: \$500 HBS Human Resources Rewards and Recognition Program, June 2023
- Developed, tested, and refined a well-being measurement framework using advanced statistical inference and custom algorithms, contributing to an academic publication in progress.
- Independently analyzed multiple datasets to validate research questions within a well-being measurement framework.
- Collaborated with an interdisciplinary team of faculty and post-doctoral researchers to prepare four research presentations for audiences of over 500.
- Specialized in survey data analysis, creating data pipelines for a forthcoming public tool.
- Managed all data and statistics related work for the Crafting Your Life MBA course and project.

### Undergraduate Researcher

Smith College

*Supervisor: Dr. Benjamin S. Baumer*

Jan 2020 - May 2022

- Created and maintain the fec16 R package providing tools for loading 2016 U.S. election data using the Extract, Transform, and Load (ETL) framework.
- Researched the extension of the package to work for any election year and created supplementary packages for the 2012 and 2020 federal U.S. elections.

### Summer Undergraduate Research Fellow

Smith College

*Supervisor: Dr. Katherine M. Kinnaird*

May 2021 - Aug 2021

- Translated the repytah Python package which contains functions to build aligned hierarchies from sequential data from source code written in MATLAB.
- Contributed to the development for distribution via PyPI and Anaconda and the JOSS paper.

### Undergraduate Researcher

Smith College

*Supervisor: Dr. Albert Y. Kim*

Jun 2020 - Jul 2020

- Solved problem of hosting large datasets in the 538 R package due to CRAN size limits by creating a supplementary drat repository/package.
- Refactored the ModernDive textbook, website, and package to improve reproducibility and accessibility.

## Undergraduate Researcher

Supervisor: Dr. Stephanie G. Wang

Smith College

Sep 2019 - Dec 2019

- Researched taxonomies of non-associative quasigroups (abstract algebra).
- Used MATLAB and R to generate and test data in the form of  $(\mathbb{Z}/p)^n$  matrices to look at finite-dimensional vector spaces over finite fields.

## PUBLICATIONS

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- **Tapal, M.**, Gahwagy, R., Ryan, I., & Baumer, B. (2023). fec16: Data Package for the 2016 United States Federal Elections. R package version 0.1.4. <https://CRAN.R-project.org/package=fec16>.
- Jia, C., Carpenter, L., Tran, T., Liu, A. Y., Yeutseyeva, S., **Tapal, M.**, Wang, Y., Zhao, Z. K., Moody, J., Nava, D., Donaher, E., Jiang, L. Y., Bruncati, B., & Kinnaird, K. M. (2023). repytah: An Open-Source Python Package for Building Aligned Hierarchies for Sequential Data. Journal of Open Source Software, 8(85), 5213. <https://doi.org/10.21105/joss.05213>

## CONFERENCE POSTER PRESENTATIONS

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- **Tapal, M.**, fec16: An R Package Containing Relational Data From The U.S. 2016 Elections. Poster presented at the **Women in Statistics and Data Sciences** conference, October 2020.
- **Tapal, M.**, fec16: An R Package Containing Relational Data From The U.S. 2016 Elections. Presentation given at the **Electronic Undergraduate Statistics Research** conference, November 2020.

## TEACHING EXPERIENCE

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- Sep 2021 - May 2022: Statistics Tutor, Spinelli Center for Quantitative Learning, Smith College
- Jan 2022 - May 2022: Grader for SDS 270: Advanced Programming in R, Statistical and Data Sciences, Smith College
- Sep 2021 - May 2022: Data Assistant, Statistical and Data Sciences, Smith College
- Sep 2019 - May 2022: Vice President & Data Mentor, Smithies in Statistical and Data Sciences
- Sep 2016 - May 2018: Teaching Assistant, Advanced Level Mathematics, Nixor College

## TECHNICAL PROJECTS

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- Sentiment Analysis of Twitter Data of Financial Institutions, Capstone Project, Federal Reserve Bank of Cleveland.
- Automated Bayesian Simple Normal Regression: generate a customizable R Markdown report with 1 line of code.
- Personal Website created using the blogdown R package and Hugo-Apero.
- Marium Bakes: a baking website made using R / Quarto Markdown & HTML/CSS.
- Shiny App exploring NYC Civilian Complaints about the NYPD.
- 15-minute activity teaching classification in multimodal memes.

## WORKSHOPS

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- Intro to Git/GitHub Workshop Blog Post
- R Markdown Tips and Tricks Workshop Document

## LEADERSHIP EXPERIENCE

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- Sep 2018 - May 2022: Social Chair, Publicity Chair, EKTA (Smith College's South Asian Students Association)
- Aug 2019 - May 2021: House Community Advisor, Smith College Residence Life

PROFESSIONAL EXPERIENCE

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- Jan 2021 - Feb 2021: Data Science Intern, FinePrint Data
- Jun 2019 - Jul 2019: Treasury and Capital Markets Intern, United Bank Limited

ADDITIONAL INFORMATION

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<b>Technical Languages and Packages</b>	R (including Tidyverse, Quarto, Markdown) Python (including Pandas, Scikit-Learn, TensorFlow) SQL, Git/GitHub, LaTeX, HTML, CSS
<b>Languages</b>	English, Urdu, Gujarati, German (Elementary)
<b>Training &amp; Certifications</b>	CITI Social and Behavioral Research Investigators UMass Amherst Social Justice Mediation