Anna Ly

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LinkedIn | GitHub | Personal Website

Summary

M.Sc. in Statistics with experience in R software development. Contributor to open-source R packages and co-author of 14 peer-reviewed publications in statistics education and statistical computing.

Experience

Vretta Toronto, ON
Data Analyst July 2026 – October 2026

- Maintained and debugged an asynchronous `R` (Plumber) REST API for psychometric computation, fixing bugs across various endpoint handlers for IRT scoring and plotting.
- Restructured an internal `R` package to standard conventions (DESCRIPTION cleanup, Imports/Depends).
- Wrote unit tests with mock data using `testthat`, and used `covr` and `profvis` to check coverage and performance.

McMaster University Department of Mathematics & Statistics Hamilton, ON
Software Developer (Research Assistant) June 2025 – June 2026

- Contributed 35+ merged pull requests and 170+ commits to `lme4`, a widely used `R` package for mixed-effects modelling (**47.7+ million downloads**, **690+ GitHub stars**).
- Engineered numerical features including **internal auto-scaling** for estimation stability and **MLE initialization** for large-scale data, reducing computation time and improving convergence for high-dimensional research models.
- Fixed bugs in core functions, including a matrix-subsetting error that produced inaccurate standard errors.

University of Toronto Department of Mathematical & Computational Sciences Mississauga, ON
Sessional Instructor January 2026 – April 2026

- Directed the third-year Computational Statistics (STA380H5) curriculum for 96 students, achieving an **Institutional Composite Mean (ICM) of 4.4/5.0**, significantly exceeding the departmental (3.9) and divisional (4.0) averages.
- Developed a project-based pedagogy requiring students to engineer production-style **R packages** and **Shiny applications**; improved students' subject-matter understanding and provided meaningful opportunities for skill demonstration.

Epson Canada Markham, ON
Data and Evaluation Specialist Intern May 2022 – August 2023

- Developed predictive financial models in **Excel VBA** for COGS forecasting, enabling accurate & rapid cost analysis of 3D computer vision solutions for management.
- Applied **Python** and **R** to build visualizations and analyze feasibility data for 10+ computer vision business concepts, including waste detection and robotic bin-picking applications, informing go/no-go decisions for the Business Development team.
- Conducted outreach to companies and professionals, evaluating demand for 3D vision software & hardware solutions, resulting in at least a 40-hour efficiency gain for the Business Development team.

Education

McMaster University Hamilton, ON
M.Sc in Statistics (Thesis – Available Online) September 2024 – October 2025

- CGPA: **12**/12

University of Toronto Mississauga, ON
H.B.Sc, Applied Statistics Specialist and Mathematical Sciences Major September 2019 – June 2024

- CGPA: **3.92**/4.0

Skills

- **Programming Languages:** R, Python, SAS, HTML/CSS, SQL, Excel VBA.
- **Machine Learning/Statistics:** GLMs, logistic regression, linear mixed models, ensemble methods (random forest, boosting, bagging, BART), clustering (k-means, agglomerative, hierarchical), PCA, factor analysis.
- **R Libraries:** Shiny, Tidyverse (ggplot2, dplyr, tidyr, purrr, tibble), Easystats.
- **Python Libraries:** Matplotlib, NumPy, Pandas, SciPy, Seaborn, Plotly.
- **Tools:** Git, LaTeX, Qualtrics.