Anna Ly

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Summary

Data scientist and statistician with an M.Sc. in Statistics, with a proven ability to build and deploy data-driven tools, develop production software for widely used open source R packages, and communicate complex analytical findings to diverse audiences.

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

Experience

McMaster University Department of Mathematics & Statistics — Hamilton, ON
R Programmer (Research Assistant) — June 2025 - Present

- Contributed 35+ merged pull requests and 160+ commits to lme4, a widely used `R` package for mixed-effects modeling with **(43.4+ million downloads)** and **10k+ GitHub stars.**
- Engineered high-impact numerical features, notably **internal auto-scaling** for estimation stability and **MLE initialization** for large-scale data, reducing computation time and improving convergence for high-dimensional research models.
- Resolved critical bugs in core functions, including a complex matrix-subsetting fix to ensure accurate 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.

University of Toronto Department of Statistical Sciences — Toronto, ON
Statistical Web Application Developer (Research Assistant) — Nov 2022 - August 2024

- Deployed a full-stack **R Shiny** web application implementing Bayesian ROC/AUC analysis based on a published research paper, enabling researchers to perform relative belief ratio inference across multiple diagnostic models and sampling regimes.

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.

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.