

# FEI LIU

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## Summary

- 5 years professional experience in quantitative analysis, data analytics, and statistical inference
- 5 years experience in statistical programming experience using SAS
- 15 data reports used by New York Times, Washington Post, U.S. News, State of the Union Address, and Department of Education

## Education

- 2008 – 2010 **George Washington University**, *M.S. in Statistics*, GPA 3.91/4.0.  
2004 – 2008 **China Agricultural University**, *B.S. in Mathematics*, GPA 3.30/4.0.

## Publications

*Framework Content Coverage Variation in NAEP: Grade 8 Mathematics and U.S. History*. Young Yee Kim, Fei Liu, Sharyn Rosenberg. In *The American Educational Research Association Annual Meeting, 2014*.

## Technical Skills

**Statistics:** multiple linear regression, Ridge/Lasso regression, logistic regression, generalized linear models, hierarchical linear model (HLM), experiment design, hypothesis test, multiple comparison (Bonferroni and FDR), ANOVA, categorical data analysis, factor analysis, model-assisted sampling survey, variance estimation (Taylor series, Jackknife, and BRR), cross-validation, bootstrap, classification-tree, k-nearest neighbors, principle component analysis

**Programming Languages:** proficient in SAS (BASE, STAT, GRAPH, MACRO, PROC SQL); prior experience in R, Python, STATA, SPSS, and SQL

**Operating Systems:** Mac OS X and Windows

**Databases:** MySQL

## Certifications

- SAS Certified Base Programmer
- SAS Certified Advanced Programmer
- Coursera Computing for Data Analysis

## Experience

1/12 – Present **Statistical Analyst/SAS Programmer**, American Institute for Research/MacroSys LLC, Washington DC.

National Assessment of Education Progress (NAEP) project: NAEP's long-term trend data is the largest nationally representative and continuing assessment of America's student academic progress in various subject areas.

- Utilized factor analysis and multiple linear regression with fixed and random effect to predict difficulty of Grade 4 and 8 reading items with Coh-Metrics factors.
- Implemented bootstrap re-sampling method to create 10,000 hypothetical assessment samples to determine Mathematics and History framework content coverage variability; validated results with the most recent 5 assessments.
- Analyzed complex multi-stage survey data, using techniques such as variance estimation using Jackknife, bias analysis using Chi-square test, t-test, multiple comparison, and HLM.

11/10 – **Statistical Analyst/SAS Programmer**, *American Institute for Research/MacroSys LLC*, Washington DC.

Common Core of Data (CCD) survey project: CCD is the national statistical database of all public elementary and secondary schools and school districts, containing data designed to be comparable across all states.

- Implemented review tests to ensure data integrity, accuracy and consistency; developed SAS programs with SAS/Base, SAS/Stat, Macro, PROC SQL, and ODS for data documentation and reporting.
- Summarized up to 27 years of CCD historical data with descriptive statistics; presented their central tendency and dispersion in concise figures and tables.
- Conducted multicollinearity diagnostics and identified correlations between CCD items to reduce reporting burden.

1/10 – 9/10 **Research Data Analyst Intern**, *Education Data and Policy Center, Academy for Educational Development*, Washington DC.

- Extracted education indicators from household surveys using STATA and SPSS.
- Queried large data sets using SQL: e.g., joining tables, aggregating data with GROUP BY, and deleting duplicates, using RANK function with OVER, sub-setting data with WHERE and HAVING, and creating user-defined variables.

11/07 – 1/08 **Statistical Programmer**, *China Agricultural University*, Beijing, China.

- Conducted univariate analysis, t-test, and ANOVA on data from factorial experimental design and randomized block design.
- Imputed missing data.

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## Awards

**2013** Excellent Employee of the Year, MacroSys LLC

**2006, 2007** 3rd Prize Academic Scholarship, China Agriculture University

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## Graduate Courses

Statistical Inference, Statistical Computing in R, Data Analysis, Linear Regression, Categorical Data Analysis, Practical Machine Learning, Model-Assisted Sampling Survey, and Multivariate Data Analysis.