Juliette Coly

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EDUCATION

- **Stanford University** — Stanford, CA
  Ph.D. in Economics — *Sep. 2022 - Now*
- **Ecole Normale Supérieure** — France
  MSc and BS in Quantitative Economics — *Sep. 2017- Jun. 2020*

WORK EXPERIENCE

- **Stanford University** — Stanford, CA
  Graduate research assistant with Prof. Guido Imbens — *Sep. 2023 - Now*
  Coded econometric models (among which matrix completion estimators) to compare their performance on panel data with different structures.

- **Quantco** — Berlin, Germany
  Data science intern — *Jun. 2024-Sep. 2024*
  Employed causal inference models (such as IPW, IV, and metalearners) alongside microeconomic theory to estimate the effect of deductibles on profits in the auto insurance industry. Resulted in a new pricing model for the insurance company.

- **Stanford Graduate School of Business** — Stanford, CA
  Research assistant in economics (Pre-doc) of Prof. Guido Imbens — *Jun. 2020 - Jun. 2022*
  Contributed to the development of a robust variance estimator for clustered experiments through simulations and literature reviews. (article in the *Quarterly Journal of Economics*).

PROJECTS

- **Text as outcome within a causal inference framework (Project Link)**
  Stanford CS 224N, Grade: 10/11
  I investigated the evolution of topics in political speeches by Republicans and Democrats before and after 9/11, using a causal inference framework. I analyzed how different topic modeling approaches—LDA and BERTopic—affected the estimation of treatment effects. Interestingly, both models indicated that Democrats increased their focus on war-related topics more than Republicans post-9/11. However, BERTopic revealed an additional nuance: Republicans significantly increased their focus on terrorism, potentially shifting attention away from war topics. This study underscored the pivotal role of textual representation in shaping the interpretation of causal estimates.

- **Predicting electoral outcomes (Project Link)**
  Stanford CS229, Grade: 190/200
  I analyzed voter preferences and explored why different socio-demographic groups (income, religion, race, education, etc.) vote for specific candidates, as these features are often considered key predictors. To predict the outcome of the 1981 French presidential election, I used three regression algorithms—Ridge, AdaBoost, and a multi-layer perceptron. However, each model produced a mean squared error (MSE) of around 0.09, suggesting that the chosen variables may lack sufficient explanatory power for accurate prediction in this context.

Programming Languages: Python (Scikit-Learn, PyTorch), R, SQL