ELIZABETH SANTORELLA

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Economist by training, software developer by passion.

EDUCATION

Harvard University *May 2018*
PhD in Economics
Research focus: econometrics, education, and public economics

Massachusetts Institute of Technology *June 2013*
S.B. in Physics & Economics; Physics concentration in Computer Science

SKILLS

- **Relevant Skills:** Machine learning, statistics, experiment design, e-commerce pricing, software design, economic analysis, technical writing, numerical optimization
- **Languages and Frameworks:** Python (Numpy, Pandas, etc.), R, SQL, Spark, Docker, Git

RECENT EXPERIENCE

QuantCo Senior Data Scientist
Full time December 2017 - present
Part time December 2015 - May 2017 *Boston, MA*

- **E-commerce pricing algorithm:**
  - Lead development of a machine learning product that estimates a crucial input to pricing over $4 billion in e-commerce revenue (Python, SQL, R)
  - Multiple A/B tests demonstrated increases of >10M in both revenue and profit
  - Lead a team and communicated with clients.
- **E-commerce pricing research:** Experiment design, economic analysis, algorithm development
- **Scientific software development:**
  - **GLM:** Co-developing a library for insurance pricing via Generalized Linear Models (Python)
  - **Performant tabular matrices:** Co-developing a matrix library for highly performant operations on tabular data (Python, Cython, C++)

RESEARCH

My dissertation, "Adding Value to Value-Added," consists of three essays available on my website. I studied value-added estimators, which traditionally estimate teachers' effects on student outcomes such as test scores. I improved these methods and used them to study teachers in New York City and bureaucrats in India, and showed that existing methods may greatly understate teachers' effects on their students.

My dissertation has informed my later work in e-commerce. Value-added estimators are a type of Empirical Bayes estimator. Empirical Bayes methods are very helpful in contexts with a large amount of data, but a small amount of data for any relevant unit. For example, an e-commerce company may have millions of orders, but very little data on most individual consumers or products.