ELIZABETH SANTORELLA

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Economics, statistics, and software development

EDUCATION

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

Massachusetts Institute of Technology *June 2013*
GPA 4.9/5.0
S.B. in Physics & Economics; Physics concentration in Computer Science

SKILLS

- **Relevant Skills:** Machine learning, statistics, modeling, 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:**
  - Led 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
  - Led a team and communicated with clients.
- **Research in e-commerce pricing and insurance:** Experiment design and evaluation, economic analysis, algorithm development
- **Scientific software development:**
  - **GLM:** Co-developed a library for insurance pricing via Generalized Linear Models (Python)
  - **Performant tabular matrices:** Co-developed 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' causal 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. I showed that existing methods may greatly understate teachers' effects on their students, and demonstrated that these methods are biased and unreliable when estimated on smaller data sets.

Since my dissertation used complex models and computation-heavy techniques, leveraged large data sets, and answered causal questions, it has been highly relevant for my later work in e-commerce and insurance pricing.