[W207] Applied Machine Learning
Week 1

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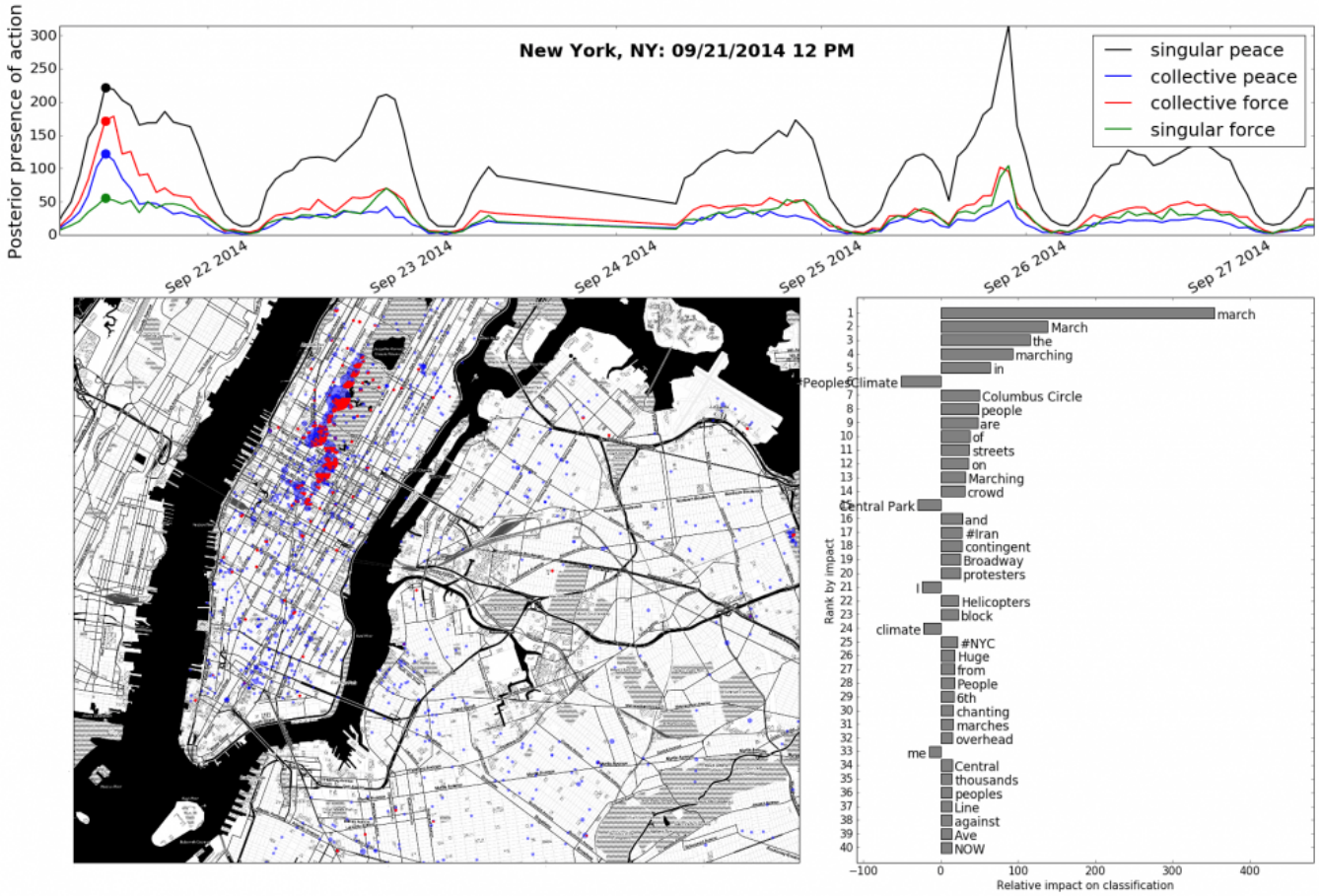
About Me

My full name has 27 letters.

About Me

I have a crazy 19 month old named Seth.

About Me

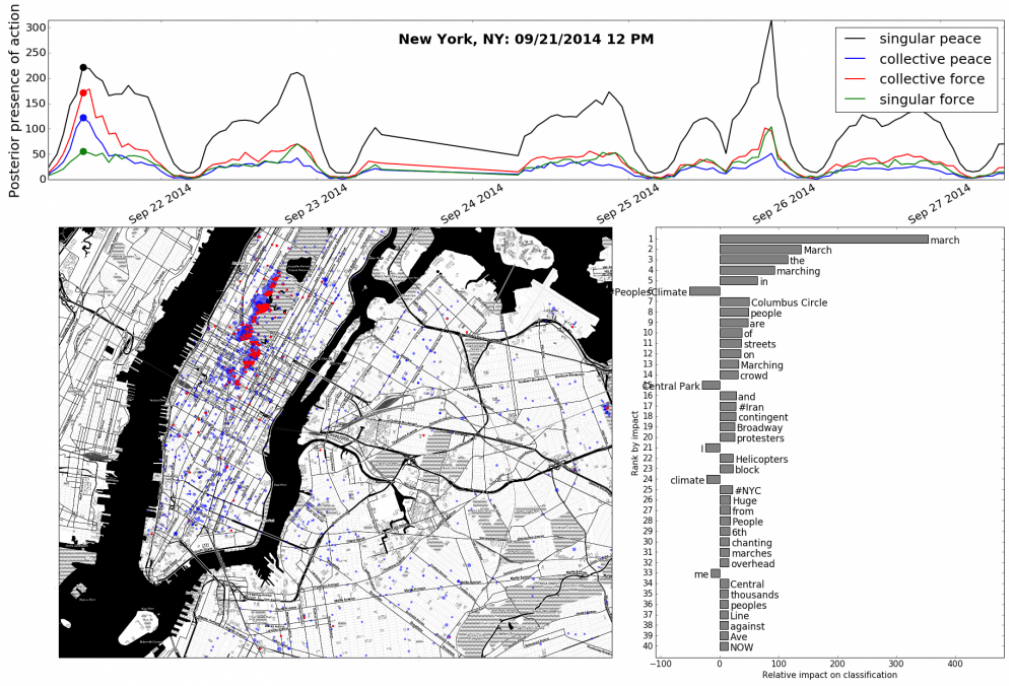


I do research on public policy, political science and machine learning.

Recent Machine Learning Projects

1. **Event detection** – Identifying violent and non-violent protest activity using streaming Twitter data (Naive Bayes).
2. Measuring violence in religious texts (support vector machines).
3. Fairness and bias in machine learning

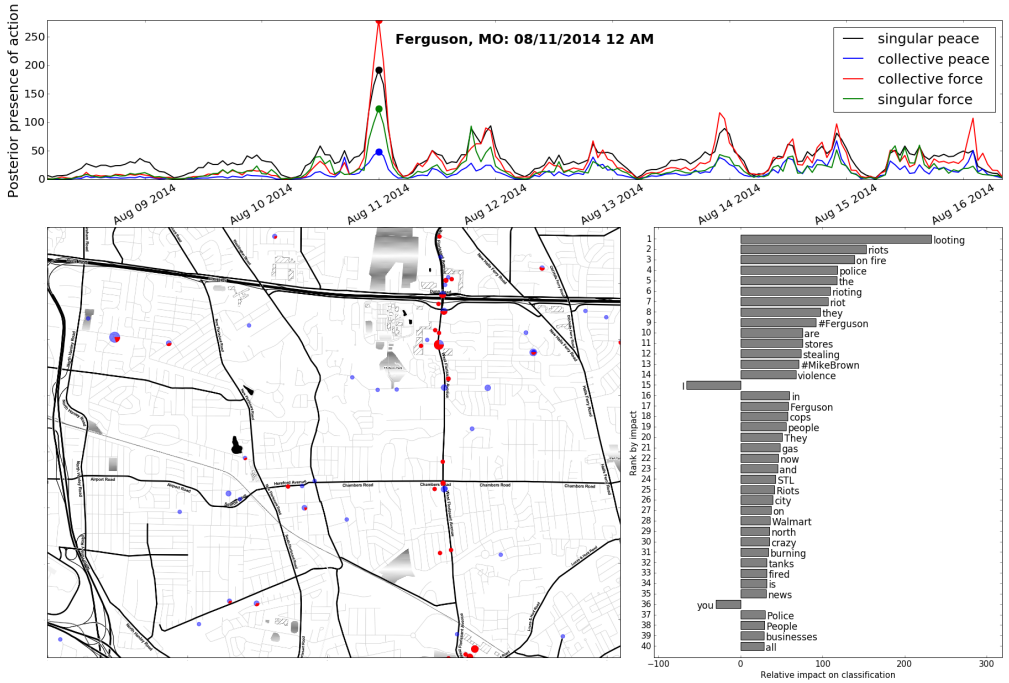
Identifying violent and non-violent protest activity using streaming Twitter data



Violent and non-violent protest activity in New York City.

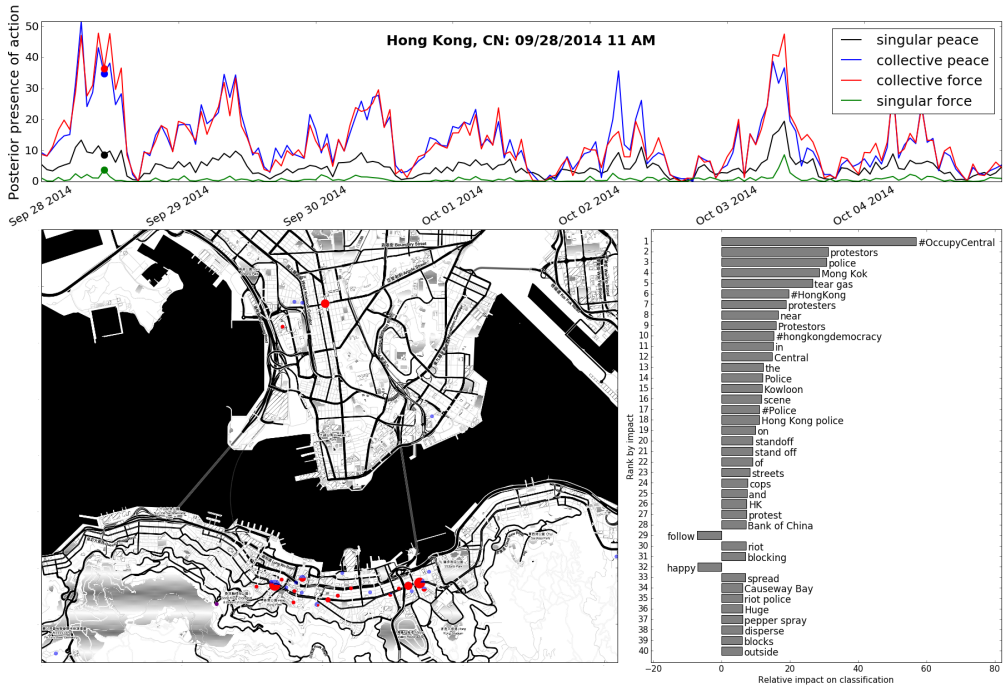
Modified näive Bayes algorithm trained on a large geo-coded Twitter database.

Identifying violent and non-violent protest activity using streaming Twitter data



Violent and non-violent protest activity in the wake of the Ferguson verdict.

Identifying violent and non-violent protest activity using streaming Twitter data



Violent and non-violent protest activity during Hong Kong Occupy protests.

Measuring violence in religious texts

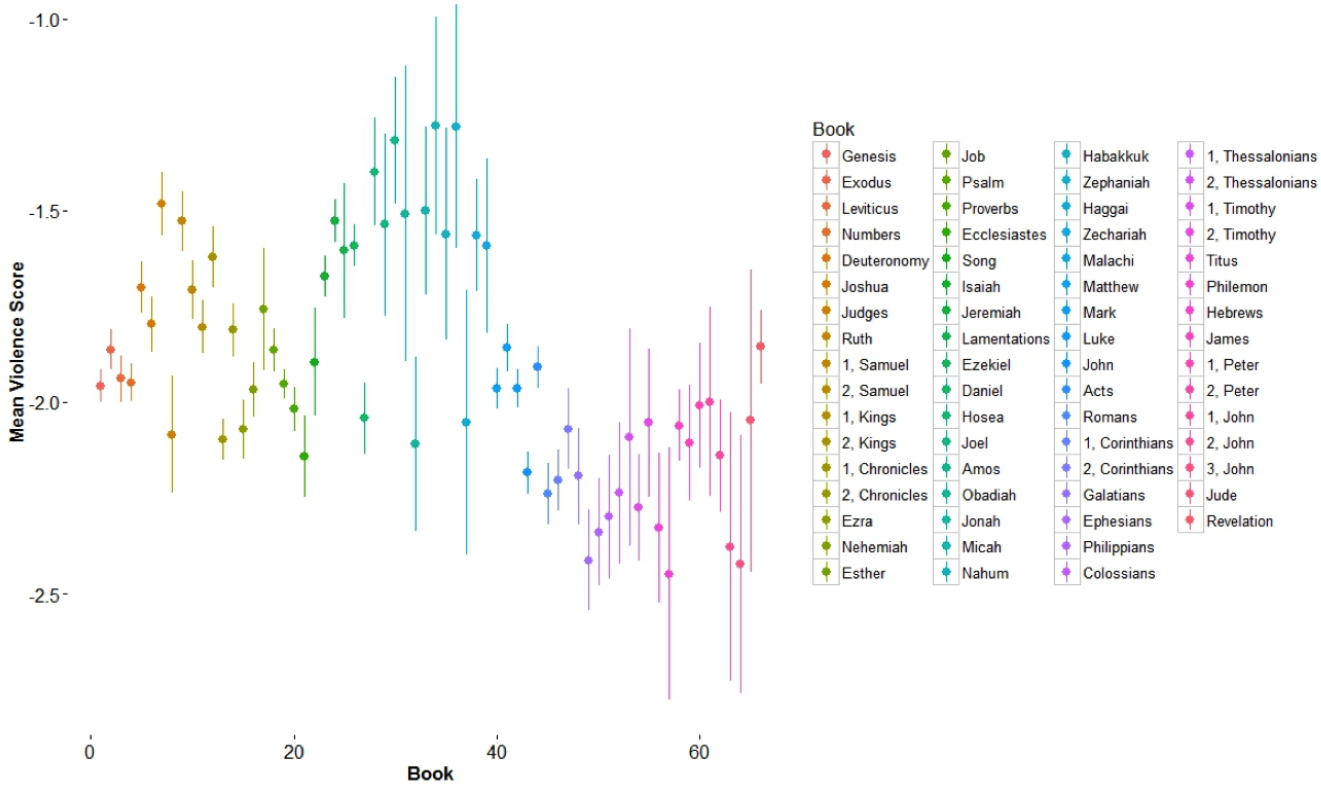
	Bible
Collective	"He arose and struck the Philistines until his hand was weary and his hand froze to the sword..." (2 Samuel 23:10)
Collective Promote	"I will set a fire in Egypt Sin shall be in great anguish..." (Ezekiel 30:16)
Interpersonal	"Even in the third year of Asa king of Judah did Baasha kill him and reigned in his place" (1 Kings 15:28)
Interpersonal Promote	"The daughter of any priest if she profanes herself by playing the prostitute she profanes her father she shall be burned with fire." (Leviticus 21:9)

Table 1: Samples of classified verses from training data.

Identification of different types of violence in verses with support vector machines.

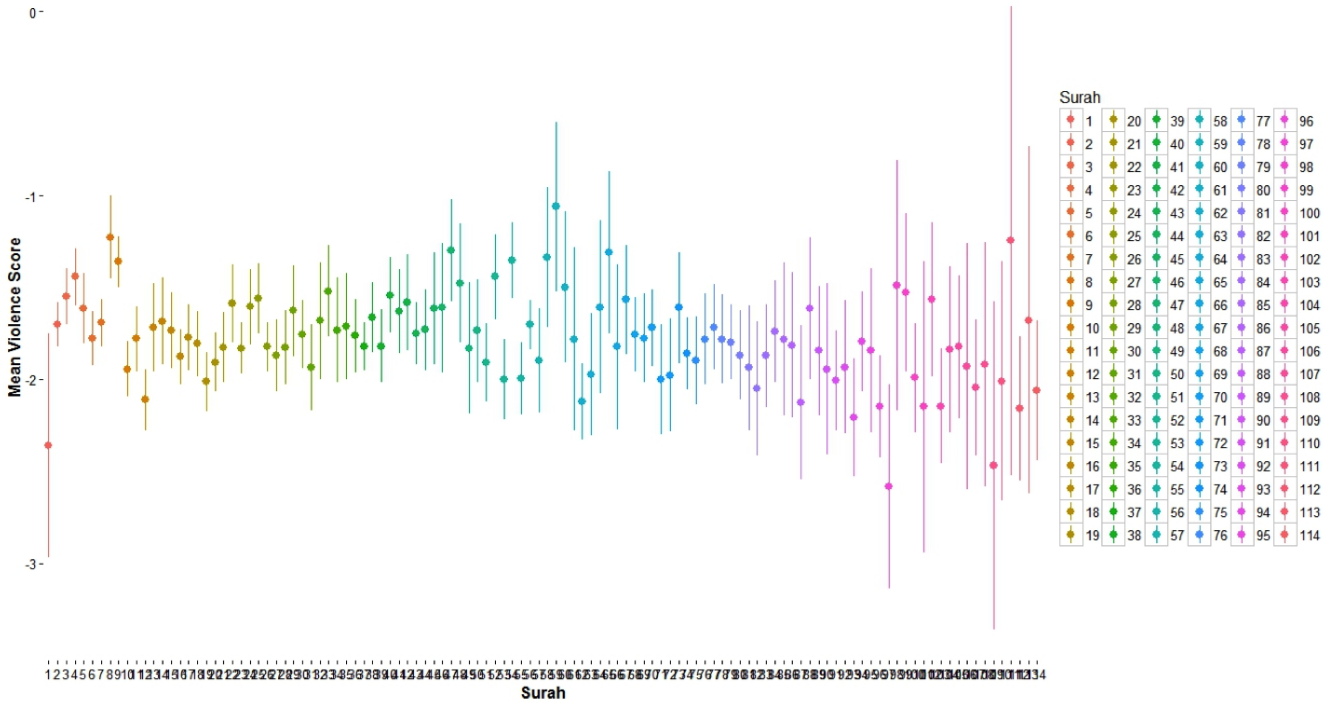
Trained on classified Quran and Bible verses.

Measuring violence in religious texts



SVM confidence scores to estimate patterns of violence in the Bible...

Measuring violence in religious texts



...and in the Quran.

About POLS 4150

- Course goals.
- Textbooks.
- R.
- Syllabus.
- Intro to Machine Learning

By the end of this course you will...

- Understand how to apply some of the most popular machine learning algorithms.
- Be able to read research papers discussing these machine learning algorithms.

Textbooks

Hal Daume's: A Course in Machine Learning

Github

All materials will be on Github.

All assignments will be submitted on Github.

Course repository:

https://github.com/ljanastas/207-Applied-Machine-Learning

Python and Jupyter

- I use Python 2.7+.
- Assignments will be completed in Jupyter (Python) notebooks.

Assignments

- 4 total assignments.
- 3 HW's due on Week 5, Week 9, Week 13 (Projects folder).
- Final project: Week 10 (Proposal); Week 12 (Discuss Project); Week 15 (Submit Project Notebook + Presentation).