

A satellite map of the African continent and surrounding regions, including parts of Europe, the Middle East, and Asia. The map shows the natural terrain with various shades of brown, green, and blue representing land, vegetation, and water bodies. The text is overlaid on the map, centered over the African continent.

# An Interactive Visualization Platform for African Studies Journal Review Database Project

By Alex Xiaotong Gui



THIS IS YOUR MACHINE LEARNING SYSTEM?

YUP! YOU POUR THE DATA INTO THIS BIG  
PILE OF LINEAR ALGEBRA, THEN COLLECT  
THE ANSWERS ON THE OTHER SIDE.

WHAT IF THE ANSWERS ARE WRONG?

JUST STIR THE PILE UNTIL  
THEY START LOOKING RIGHT.



# Motivation

- Took a class with Professor Pierre Englebert, a Politics Professor at Pomona College and a prominent scholar in **sub-saharan African politics and development**.
- He is very dedicated to **data-drive research** in social sciences
- Gave me a dataset for the African Studies Journal Review Project
  - ◆ Given I study math and statistics...

# The Final Vision

**Objective:** develop **an interactive visualization dashboard** to analyze publication data in major african studies journals

**Target user:** **researchers and policy stakeholders** in african studies

# About the Dataset

## Overview

- ~ **1000 observations** (every observation is a published article on a well-recognized journal)
- **148 features** containing article information
- Publications from **09-15**
- 20% incomplete entries
- More data is being collected

# Types of Features

## ❖ Publication information: **strings**

- Name of the article, name of the journal, type of the journal
- Date of publication

	A	B	C	D	◀ ▶ Z	AA
1	Observations	Number	Date	Date	Journal	Journal Type
2	"ZANU(PF) strategies in general elections, 1980-2000: Discourse and coercion"	1	Jan-05	Vol. 104 Iss. 414	AA	africanist
3	"Rewriting the African diaspora: Beyond the Black Atlantic"	2	Jan-05	Vol. 104 Iss. 414	AA	africanist
4	"Shifting geographies of social inclusion and exclusion: Secondary education in Pietermaritzburg, South Africa"	3	Jan-05	Vol. 104 Iss. 414	AA	africanist
5	"Japan and the development of Africa: A preliminary evaluation of the Tokyo International Conference on African Development"	4	Jan-05	Vol. 104 Iss. 414	AA	africanist
6	"Briefing: Darfur, Sudan: Prospects for peace"	5	Jan-05	Vol. 104 Iss. 414	AA	africanist
7	"Who are the Darfurians? Arab and African identities, violence and external engagement"	6	Apr-05	Vol.104 Iss.415	AA	africanist
8	"Malice in Maasailand: The historical roots of current political struggles"	7	Apr-05	Vol.104 Iss.415	AA	africanist
9	"Popular music, popular politics: <i>Unbwogable</i> and the idioms of freedom in Kenyan popular music"	8	Apr-05	Vol.104 Iss.415	AA	africanist
10	"Entertaining repression: Music and politics in postcolonial Cameroon"	9	Apr-05	Vol. 104 Iss. 415	AA	africanist

# Types of Features



## Geographical Information: **string**

- Countries that were discussed in the article
- Countries of the authors
- Regions

	A	AB	AC	AD	AE	AF
1	Observations	Country 1	Country 2	Country 3	Country 4	Country 1 Subregion
2	"ZANU(PF) strategies in general elections, 1980-2000: Discourse and coercion"	Zimbabwe	0	0	0	
3	"Rewriting the African diaspora: Beyond the Black Atlantic"	continental	0	0	0	
4	"Shifting geographies of social inclusion and exclusion: Secondary education in Pietermaritzburg, South Africa"	South Africa	0	0	0	Pietermaritzburg
5	"Japan and the development of Africa: A preliminary evaluation of the Tokyo International Conference on African Development"	continental	0	0	0	
6	"Briefing: Darfur, Sudan: Prospects for peace"	Sudan	0	0	0	Darfur
7	"Who are the Darfurians? Arab and African identities, violence and external engagement"	Sudan	0	0	0	Darfur
8	"Malice in Maasailand: The historical roots of current political struggles"	Kenya	0	0	0	Maasailand



# Types of Features

- ❖ Topics: **binary**
  - Hierarchical
  - Defined by Prof. Englebert and previous research students.

- ❖ Methods: **binary**
  - Qualitative or quantitative
  - Interview, field work

## Level 1

- Domestic Politics
- International Relationship
- Society
- Economic/ Political Economy

## Level 2

- Political Systems
- Constitutional Issues
- Justice/Judiciary
- Legislatures
- Policy
- Governance
- Security & conflict
- State/Statehood
- Foreign Policy
- Multilateral Intervention
- Regional issues
- UN
- Land
- Identity
- Social sectors
- Demography

## Level 3

- Rulers
- Neopatrimonialism
- Authoritarianism
- Democracy/democratization
- Corruption
- Rule of law
- Military
- Civil conflict
- Genocide/ethnic violence
- Citizenship
- Sovereignty
- Extra-continental FP
- Intra-continental FP
- FP towards Africa
- Conflict resolution & peace-building
- Post-conflict & peace-keeping
- Regional Integration
- Border issues
- Regional

- Health
- Education
- Public services
- Age
- Migration
- Diaspora
- NGO
- Social/popular movements
- Cell phones
- Mining
- Manufacturing
- Agriculture
- Donors
- Development aid
- Humanitarian aid
- Media

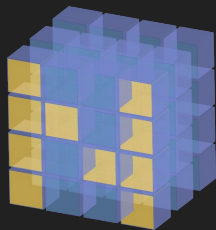
## Level 4

- Democratic reversal
- Elections
- Public opinion/polling
- Parties
- Coup
- Insurgency

# Tools



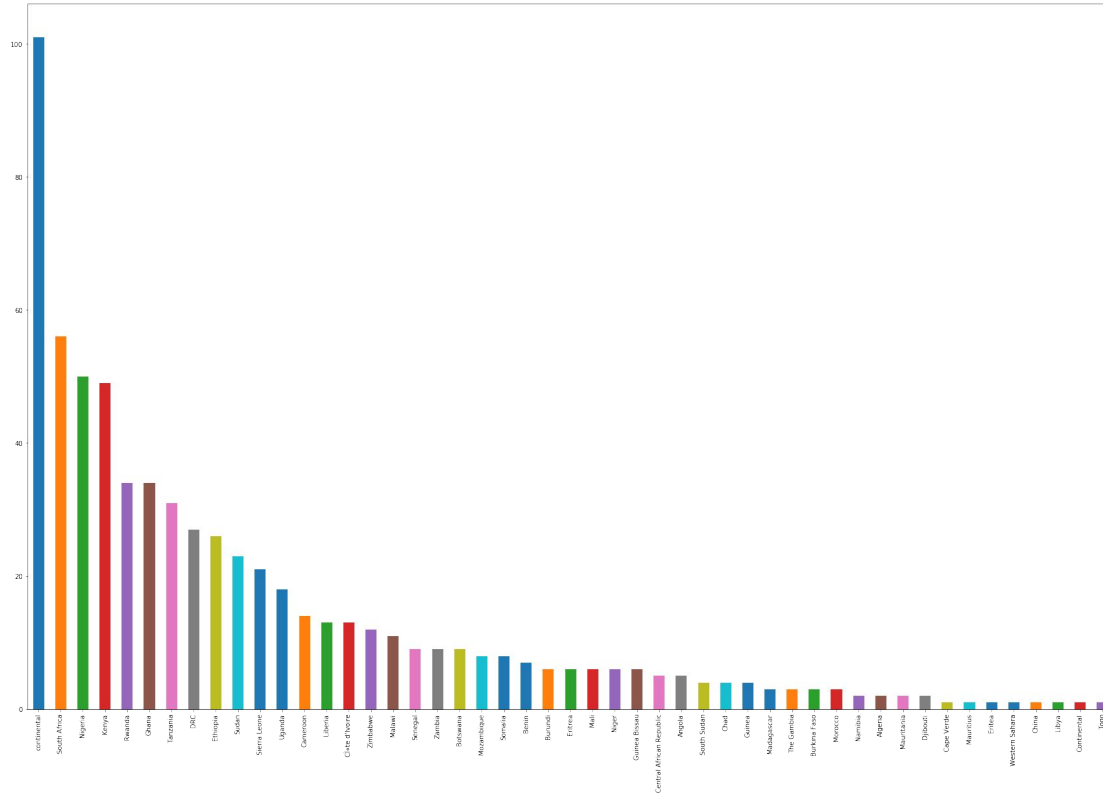
Bokeh



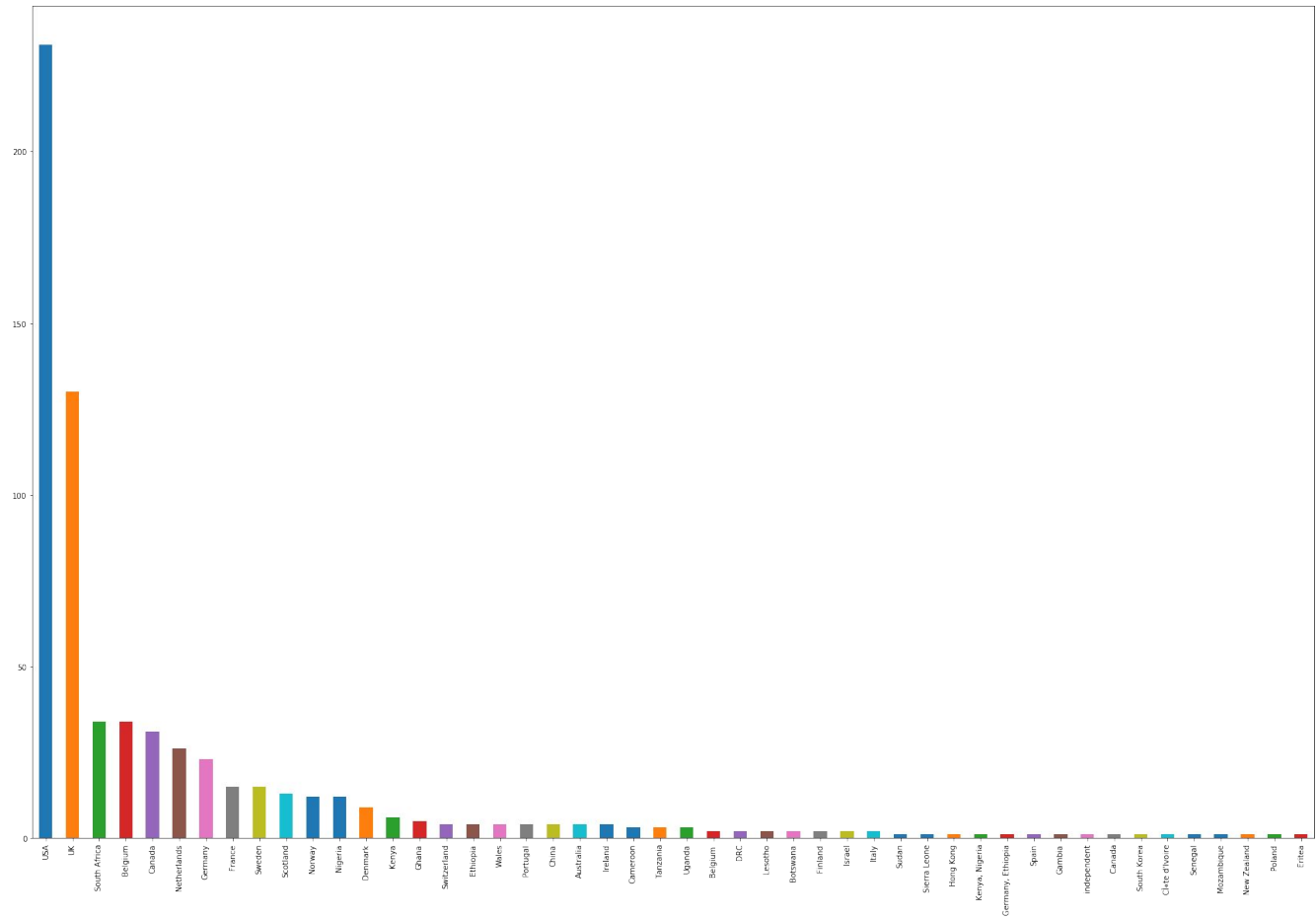
NumPy

# The Goal of Visualization

## 1. Geographically, what are the countries and regions that were mostly studied?



Top 3:  
South African,  
Nigeria, Kenya



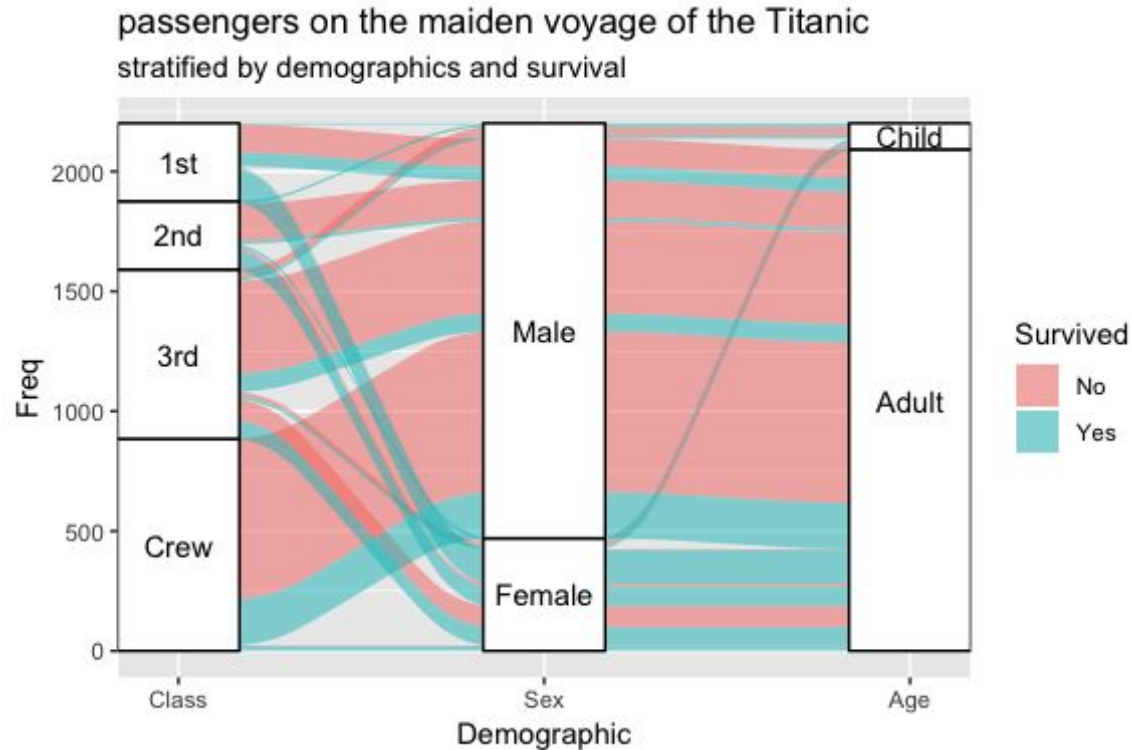
Top 3 Authors' Countries:  
US, UK, South Africa

## 2. To visualize the hierarchy of the topics discussed in the articles

An awkward example:



# What it could be like... (figure not relevant)



# Demo of Bokeh

# Future Directions

- Directly import data from Google Sheets
- Add more interactive features
- Visualize geographic information on a map
- More time series