

A Brief Analysis about Missing Migrants

COMM7330 Basic Programming for Data Science

by Jeff Dean's Friends

Date of recording: 2019/12/07



Agenda

- Introduction
 - Background & Motivation
 - Dataset Selection
- Analysis
 - Amount
 - Trend
 - Map & Regions

We are *Jeff Dean's Friends*

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Presenters

All of us



Introduction

- Background & Motivation
 - United Nation's promotion
 - Migrants' tragedies in recent years
 - To raise people's awareness
- Dataset Selection
 - Opensource
 - Structural
 - Timeline & Coordinate

[Dataset Link: Missing Migrants Project by Stefano Nocco](#)



Review & Expectation

- Existing works
 - [Missing Migrants Project](#)
 - [The Sad Tale of Migrants](#)
- Research Questions
 - What is the number that migrants missed or dead considering dimensions like ‘time’, ‘gender’ and ‘cause’?
 - What’s the trend? Better or worse?
 - Global distribution



Dataset

	Region of Incident	Reported Date	Reported Year	Reported Month	Number Dead	Minimum Estimated Number of Missing	Total Dead and Missing	Number of Survivors	Number of Females	Number of Males	Number of Children	Cause of Death	Location Description	Information Source	Location Coordinates	Migration Route	URL	UNSD Geographical Grouping	Source Quality
0	Mediterranean	28-Mar-19	2019	Mar	NaN	2.0	2	36.0	NaN	2.0	NaN	Presumed drowning	Off the coast of Chios, Greece	Hellenic Coast Guard via IOM Greece	38.362368696592, 26.172509473654	Eastern Mediterranean	NaN	Uncategorized	5
1	Mediterranean	26-Mar-19	2019	Mar	4.0	NaN	4	11.0	3.0	NaN	1.0	Presumed drowning	Off the coast of Ayvacik district, Çanakkale p...	Turkish Coast Guard via IOM Turkey	39.441975591614, 26.378816195919	Eastern Mediterranean	http://bit.ly/2YmiPAN	Uncategorized	5
2	Mediterranean	26-Mar-19	2019	Mar	1.0	NaN	1	NaN	NaN	NaN	NaN	Presumed drowning	Body recovered on Playa del Tarajal, Ceuta, Sp...	Ceuta al día, El Pueblo de Ceuta	35.871901875921, -5.343037665842	Western Mediterranean	http://bit.ly/2uyj7qQ , http://bit.ly/2uwj5zC	Uncategorized	3
3	Mediterranean	26-Mar-19	2019	Mar	1.0	NaN	1	NaN	NaN	NaN	NaN	Presumed drowning	Body recovered on beach near Tetouan, Morocco ...	El Pueblo de Ceuta	35.635115912988, -5.275650103548	Western Mediterranean	http://bit.ly/2uwj5zC	Uncategorized	1
4	Central America	25-Mar-19	2019	Mar	1.0	NaN	1	NaN	NaN	1.0	NaN	Fall from train	Train tracks in Teacalco, Tlaxcala, Mexico	Megalópolis, Línea de contraste	19.334475177429, -98.069823987538	NaN	http://bit.ly/2uvDIvH , http://bit.ly/2TXAFLS	Central America	3
...
5328	US-Mexico Border	16-Jan-14	2014	Jan	1.0	NaN	1	NaN	NaN	1.0	NaN	Shot	near Douglas, Arizona	Ministry of Foreign Affairs Mexico	31.344700000000, -109.545000000000	Central America to US	http://bit.ly/1qflw00	Northern America	5
5329	Europe	16-Jan-14	2014	Jan	1.0	0.0	1	2.0	NaN	1.0	NaN	Hyperthermia	Border between Russia and Estonia	EUBusiness (Agence France-Presse)	59.155100000000, 27.858600000000	NaN	http://bit.ly/1rTFTJR	Northern Europe	1
5330	US-Mexico Border	14-Jan-14	2014	Jan	1.0	NaN	1	NaN	NaN	NaN	NaN	Unknown (skeletal remains)	Pima County	Pima County Office of the Medical Examiner	32.058118300000, -111.623576100000	Central America to US	NaN	Northern America	5
5331	US-Mexico Border	12-Jan-14	2014	Jan	1.0	NaN	1	NaN	NaN	NaN	NaN	Unknown (skeletal remains)	Pima County	Pima County Office of the Medical Examiner	32.058118300000, -111.623576100000	Central America to US	NaN	Northern America	5
5332	US-Mexico Border	6-Jan-14	2014	Jan	1.0	NaN	1	NaN	NaN	1.0	NaN	Unknown (skeletal remains)	Pima County	Humane Borders Arizona Open GIS Initiative	32.058118300000, -111.623576100000	Central America to US	http://humaneborders.info/	Northern America	5

5333 rows × 19 columns

Scatter Plot: Year-Region-Dead Number

by Wang Minghao

● Method

- Plot selection
- Pre-processing
 - Clean
 - Dimension reduction
- Pivot table
 - Sum
 - Abstract
- Scatter plot

● Results

- Three-dimension plot
- In general:
 - Quite scattered
 - No clear trend
- In details:
 - Few migrants dead in Central Asia
 - Most migrants died or missed in 'Mediterranean', 'North Africa' and 'US-Mexico Border'
 - The most peak values appear in 2016 and 2018, 4 times each year

	sum					
	Total Dead and Missing					
Reported Year	2014	2015	2016	2017	2018	2019
Region of Incident						
Caribbean	73	68	115	170	41	32
Central America	116	110	180	93	77	43
Central Asia	0	0	0	0	52	0
East Asia	9	15	3	1	3	0
Europe	20	137	63	97	116	9
Horn of Africa	265	135	235	173	274	70
Mediterranean	3283	4054	5143	3139	2299	311
Middle East	41	14	100	98	145	8
North Africa	90	825	1504	1013	567	28
North America	0	0	0	1	0	0
South America	0	2	33	0	30	27
South Asia	2	22	14	221	27	0
Southeast Asia	814	789	187	301	102	10
Sub-Saharan Africa	268	74	92	555	560	0
US-Mexico Border	306	339	401	417	441	60



Bar Chart: Gender-Age-Migrants Number

by Wang Yanwen

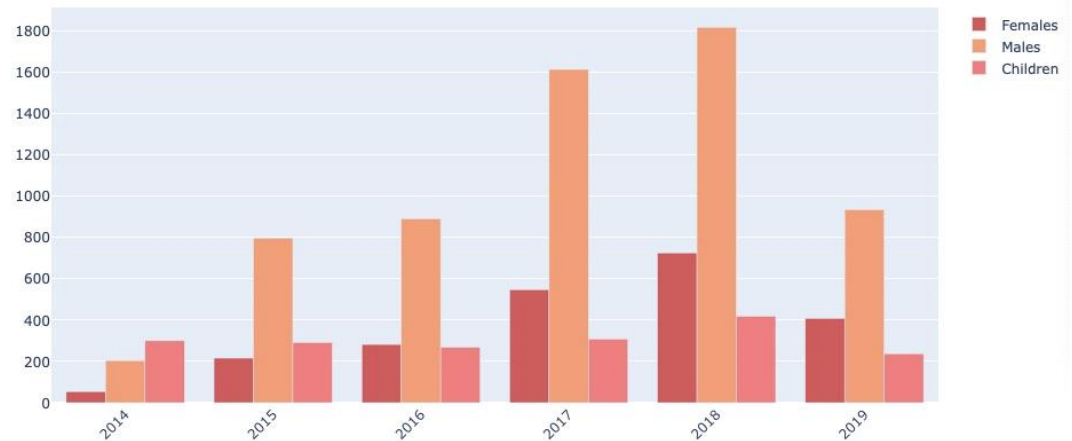
● Method

- Plot selection
- Pre-processing
 - Omit records without gender or age
- Library & core methods
 - plotly.express()
 - plotly.graph_objects()

● Results

- By gender
 - Men are the most
 - About 3 times of women and children during 2015-2019
- By year
 - 2018, all reach top
 - Women fewest: 2014
 - Children fewest: 2019

Reported Year	Web ID	Number Dead	Minimum Estimated Number of Missing	Total Dead and Missing	Number of Survivors	Number of Females	Number of Males	Number of Children	Source Quality
2014	9766468	1726.0	3563.0	5289	5553.0	54.0	204.0	300.0	827
2015	32943987	4045.0	2539.0	6584	8115.0	216.0	797.0	291.0	2284
2016	54925720	4059.0	4011.0	8070	17407.0	282.0	890.0	268.0	3367
2017	53418250	3734.0	2545.0	6279	6424.0	547.0	1613.0	308.0	4075
2018	78651433	3234.0	1703.0	4937	9273.0	725.0	1817.0	418.0	4640
2019	46347451	2029.0	1069.0	3098	4383.0	408.0	934.0	237.0	2785



Bar Chart: Monthly Dead Number

by Liu Zhaoxing

● Method

- Plot selection
- Pre-processing
 - Delete ',' in numbers
 - Convert to numeric values
- Add a mean value line

● Results

- In general:
 - Average numbers went up in 2014-2016
 - Average numbers went down in 2016-2019
 - Things went much better especially in 2018 and 2019
- In details:
 - Quite scattered among different months

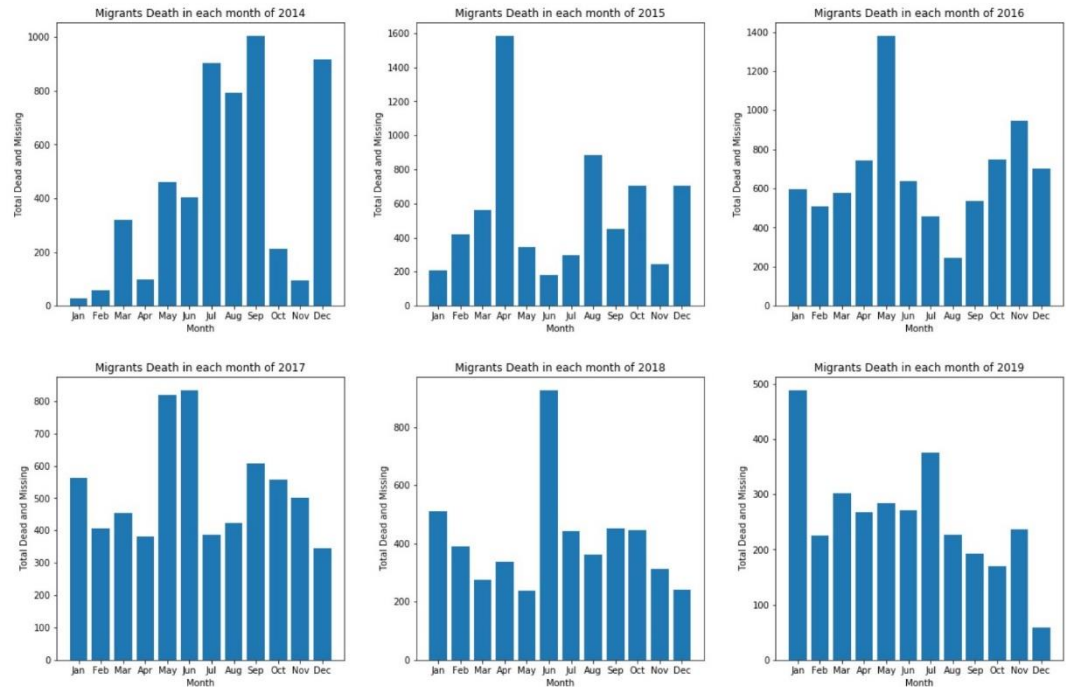


Table & Funnel: Cause of Death-Dead Number

by Cheng Yu

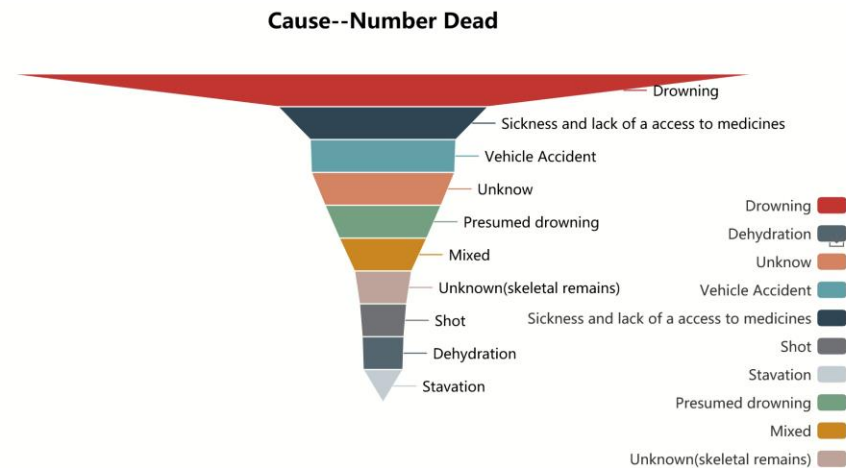
● Method

- Plot selection
- Group migrants' amount by cause of death
- Library & core function
 - pyecharts
 - funnel

● Results

- Drowning is the most cause, and the amount of drowned people is almost equaling to the amount caused by all other causes.
- Sickness, vehicle accident are other two big causes.

Number Dead	
Cause of Death	
Drowning	6663.0
Sickness and lack of access to medicines	1843.0
Vehicle Accident	1529.0
Unknown	1292.0
Presumed drowning	1003.0
Mixed	726.0
Unknown (skeletal remains)	517.0
Shot	414.0
Dehydration	406.0
Starvation	347.0



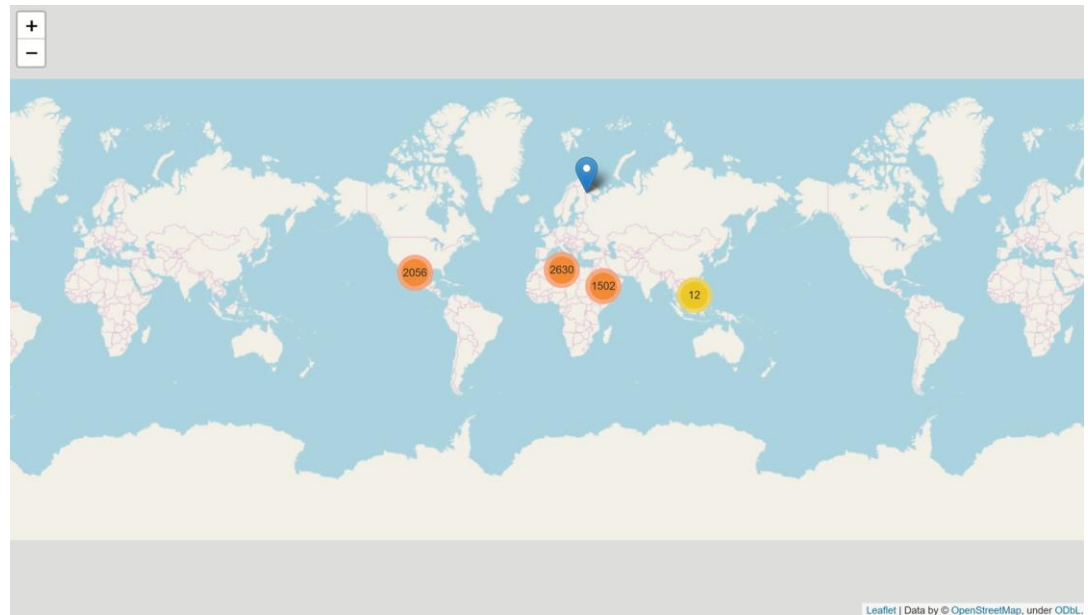
[funnel webpage](#)



Map: Region-Cause of Death- Dead Number

by all group members

- Method
 - Plot selection
 - Pre-processing
 - Split latitude and longitude
 - Library & core methods
 - folium
 - geopandas
- Results
 - A beautiful interactive map!
 - Different color, different scale
 - Landmarks: more details



[Map webpage](#)



Discussion

- Go Further
 - Map's fluency
 - Add some dynamic trail of migrants
 - May combine more datasets

Thank you for listening!

We hereby express our thanks everyone's hardwork!