

Wir leben Fundraising – mit Freude und im Dialog.

Herzlich willkommen





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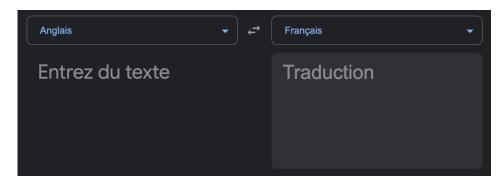


Artificial Intelligence













 A system that performs tasks that would require intelligence if performed by humans





Artificial Intelligence and Philanthropy

- > As AI is transforming society, it is bound to transform philanthropy
- It is not a matter of "if", but of "when" and "how" philanthropic organisations will adopt AI and confront its ethical impact
- > But (too) little awareness and attention from the sector so far:
 - For use by philanthropy
 - Impact on society and the communities they serve
- > Philanthropy operates with private logics to promote common good, a privileged position to guide AI towards the latter





Al and Philanthropy: two areas of focus

 Al for Philanthropy: developing tools that support philanthropic organizations' operations and strategies

 Philanthropy for AI: Leveraging philanthropic organizations' potential to ensure the ethical and inclusive development of Artificial Intelligence





A promising form of AI for Philanthropy: Natural Language Processing

 Decision tree classification of foundations in International Classification of Nonprofit Organizations (INCPO – International.) categories data = foundations' names - Litofcenko et al., 2019

 Several methods for classifying foundations in National Taxonomy of Exempt Entities (NTEE – U.S.) categories – Ma et al., 2021





Supporting Philanthropy Strategic Planning with NLP

- In what and in how many areas do POs operate?
- According to which Type do these work (Donors vs. Operating)?
- > Are different Types of POs using a similar language?
- > What motives determine POs engagement?
- > To which extent are the U.N. SDGs addressed by POs?





Philanthropy in Switzerland – a use case on AI for Philanthropy

> About 17.000 POs in Switzerland



> No comprehensive database of those i com 13'293



Using AI requires (big) Data

- Collected Mission Statements from ≈ 11.000 Philanthropic Organizations
- > Pre-processed and cleaned the data:
 - Translation to English
 - Calculate importance of each word through TF-IDF method
- Identified 8485 unique and meaningful words from 10755 POs



Foundation 1 Foundation 2	Jugendförderung in der Gemeinde und Kirchgemeinde Weiterbildung von Jugendverantwortlichen in den Vereinen								
Google translation									
Foundation 1	Promotion of youth in the community and parish								
Foundation 2	Further training of youth leaders in the clubs								
Lowercase & Word Tokenization									
Foundation 1	"prom	otion" "	of" "y	outh" '	'in" "th	ne" "con	nmunity'	' "and" "parish"	
Foundation 2	"further" "training" "of" "youth" "leaders" "in" "the" "clubs"								
I readers in the clubs									
Stop Words Removal									
▼									
Foundation 1	"promotion" "youth" "community" "parish"								
Foundation 2	Foundation 2 "training" "youth" "leaders" "clubs"								
	Fname ‡	word [‡]	n [‡]	total ‡	tf [‡]	idf ‡	tf_idf		
	Foundation 1	community	1	4	0.25	0.6931472	0.1732868		
	Foundation 1	parish	1	4	0.25	0.6931472	0.1732868		
	Foundation 1	promotion	1	4	0.25	0.6931472	0.1732868		
	Foundation 1	youth	1	4	0.25	0.0000000	0.0000000		
	Foundation 2	clubs	1	4	0.25	0.6931472	0.1732868		
	Foundation 2	leaders	1	4	0.25	0.6931472	0.1732868		
	Foundation 2	training	1	4	0.25	0.6931472	0.1732868		
	Foundation 2	youth	1	4	0.25	0.0000000	0.0000000		





Our approach in a nutshell

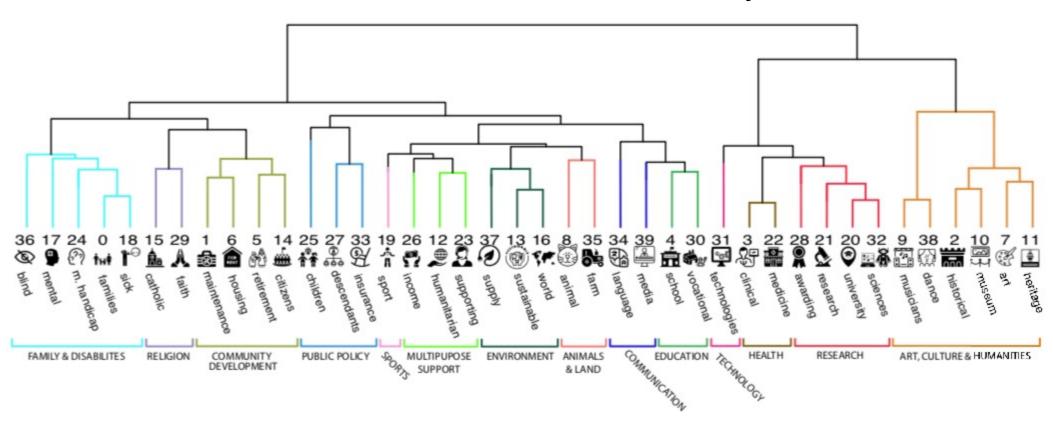
- Natural Language Processing employing Machine and Deep Learning algorithms to analyze Philanthropic Communications
- > Unsupervised Learning to:
 - Cluster organizations in Areas of Activity;
- > Supervised Learning to:
 - Categorize an organization as Donors or Operating
 - Determine overlap in communication used by Donors and Operating
 - Determine Motives driving POs: Moral Values and Emotions
 - Identify engagement of POs with the SDGs





In what areas do POs operate

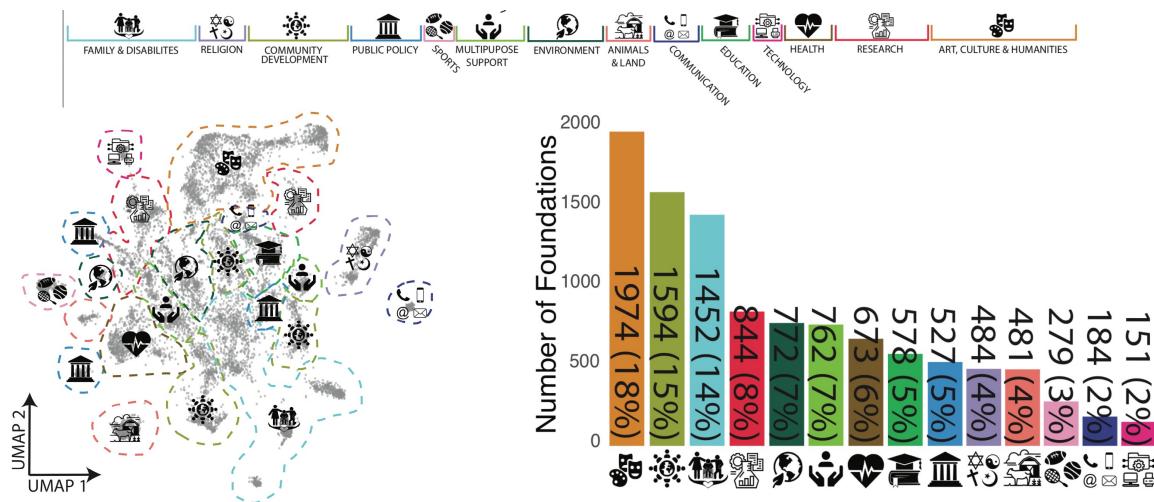
40 different Areas of Activity







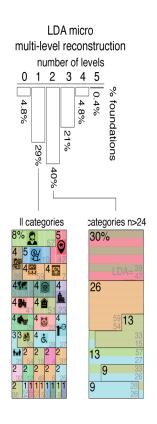
In what areas do POs operate

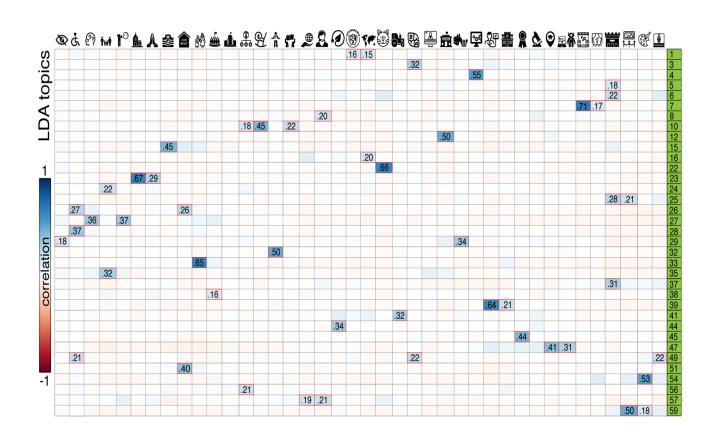






How engaged is a PO in a given area of activity







1° - 66% LDA topic 12 – education macrodomain

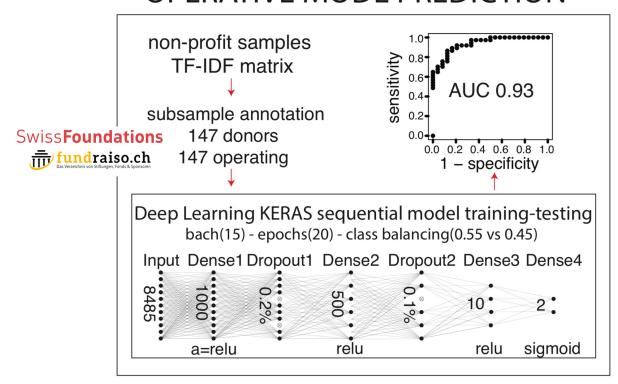
2° - 25% LDA topic 21 – family macrodomain

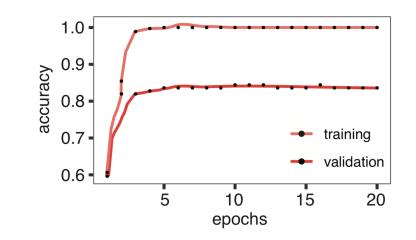


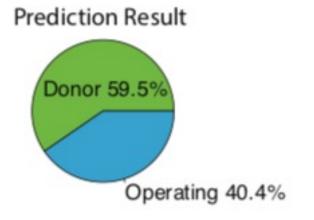


Classifying Type of POs

OPERATIVE MODE PREDICTION



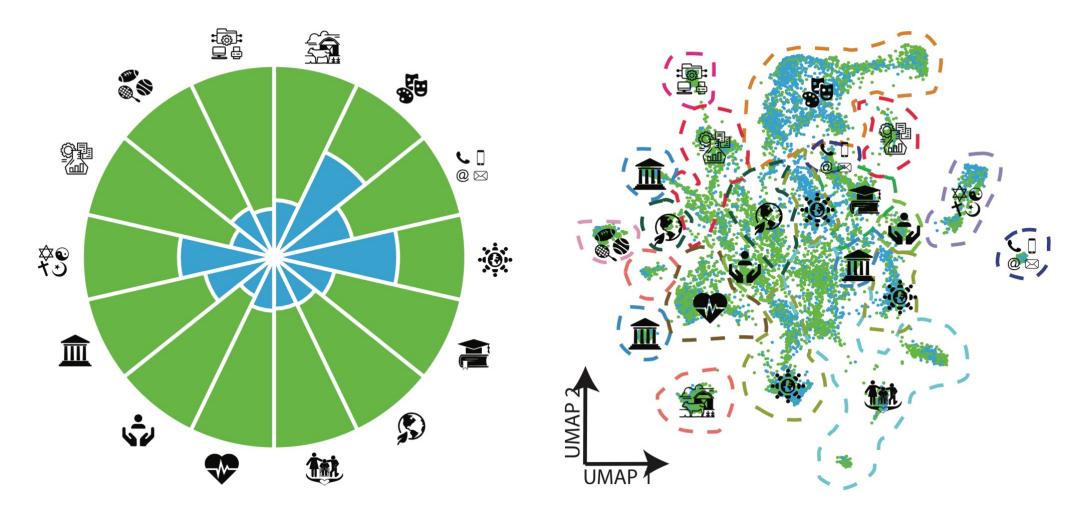








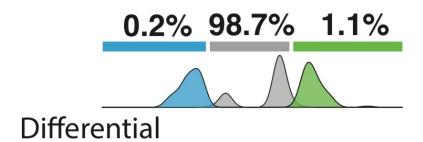
Type of POs Across Areas of Activity



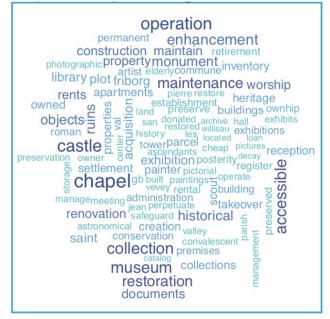




Large overlap in language used by different POs



requests developing poverty deprived situations supports orphanages visually technology responsibility ecology terprograms granting science heart to the decides biodivity of coutstanding outstanding outstanding outstanding outstanding of scholarships sustainable prison projects roof scholarships sustainable prison families holistic individuals projects roof improving gifted realize result to the proj



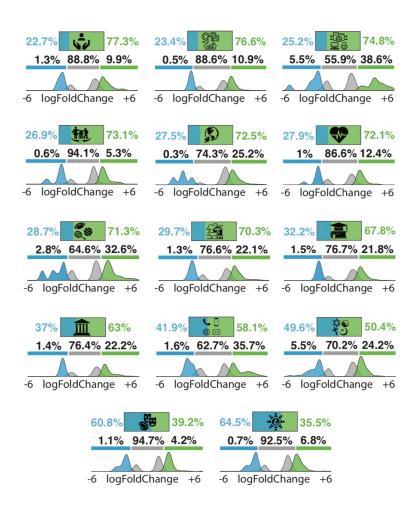
Overlapping 100 Most Generic Words

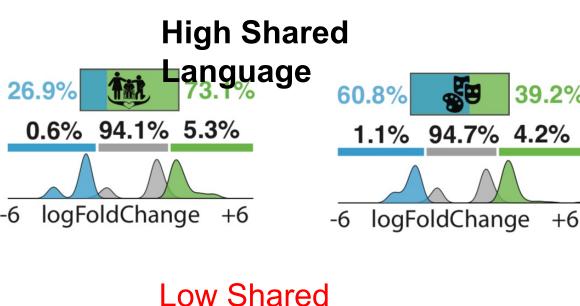
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steering sophisticated minorities appearance hedges creators madagascar spouse facing options vegetables encumber endeavor northwestern emergence to facilitates secretariat facilitates secretariat complementary birthday functioning exclusive extimulate prejudice set consistent residence rescue opiniformative aesthetics lovingly stages rebuilt husband rain dated thematic unused advised to define technique validation applicable extended consistency color illnesses compensated essays boarding country write pension reimbursement
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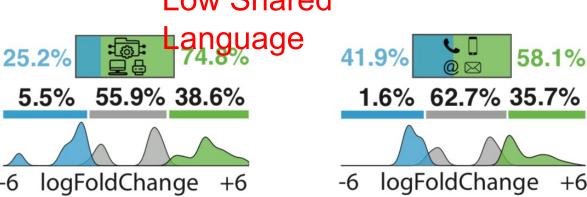




Language Overlap Differs by Type of Activity











"Related Dialect" Spoken in 6/14 areas of activity

Related Dialects = 85% or more words shared across two languages (Eberhard, D. et al, 2020)



89%





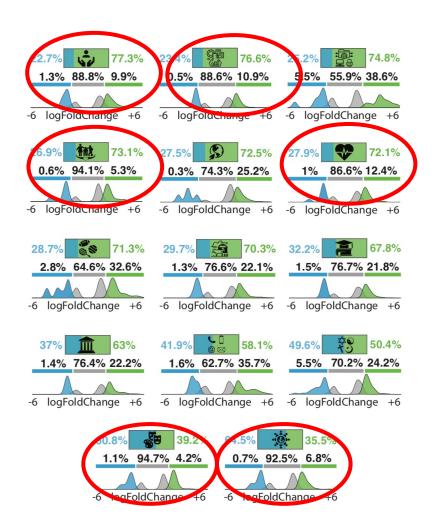
60%





27%

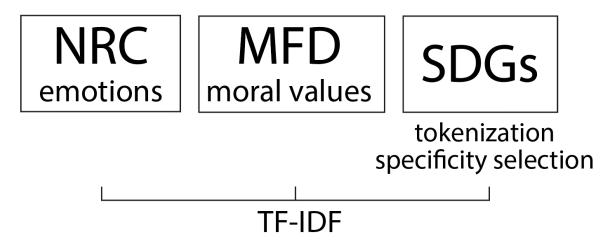








Investigating Motives: "supervised learning"



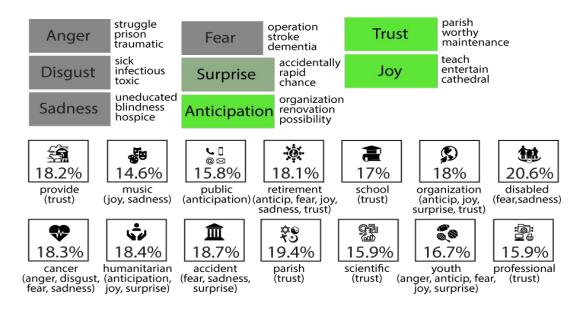
Defining salient words related to Emotions, Moral Values and the SDGs.

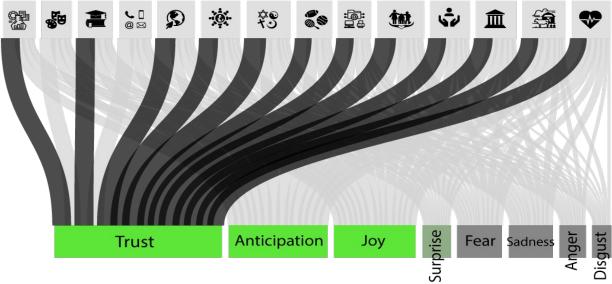
 Using these salient words to identify which organizations mention them in their mission statements to infer motives





Emotions

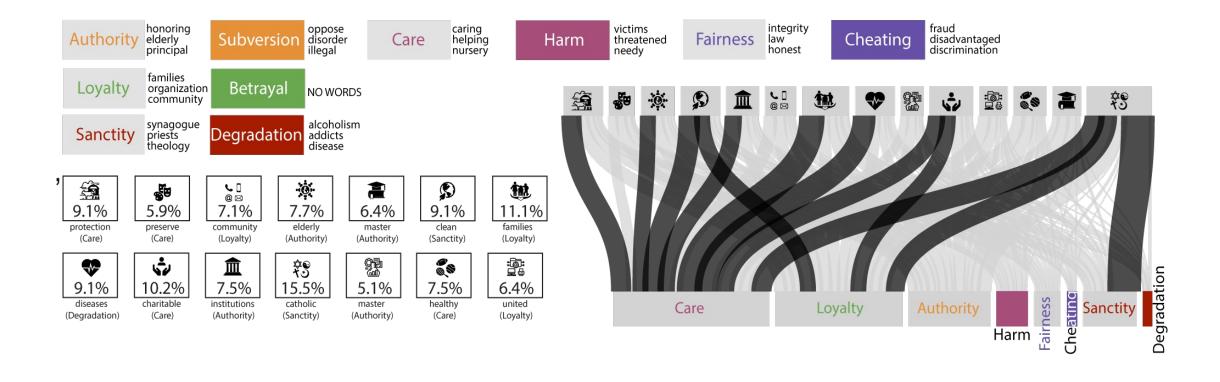








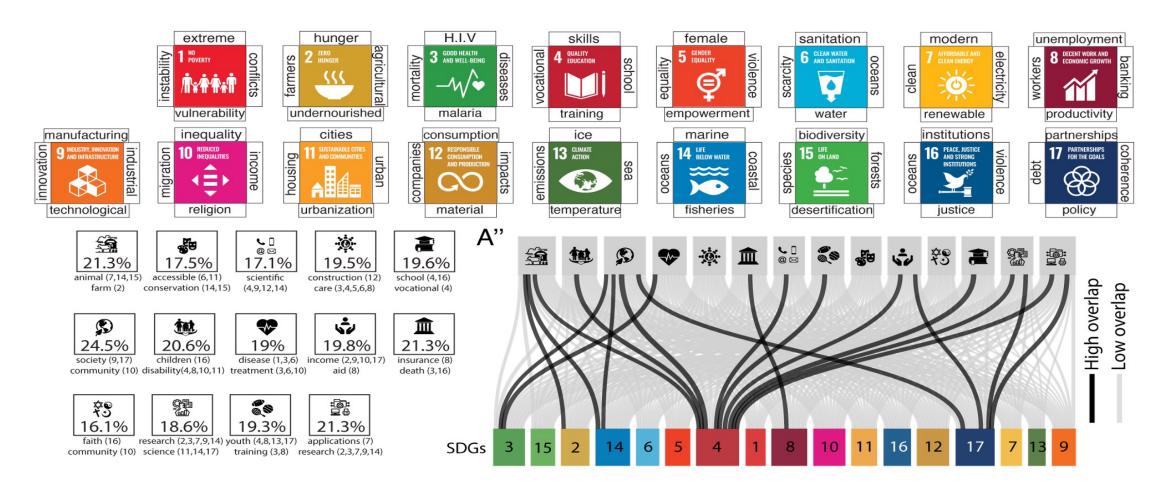
Moral Values







SDGs



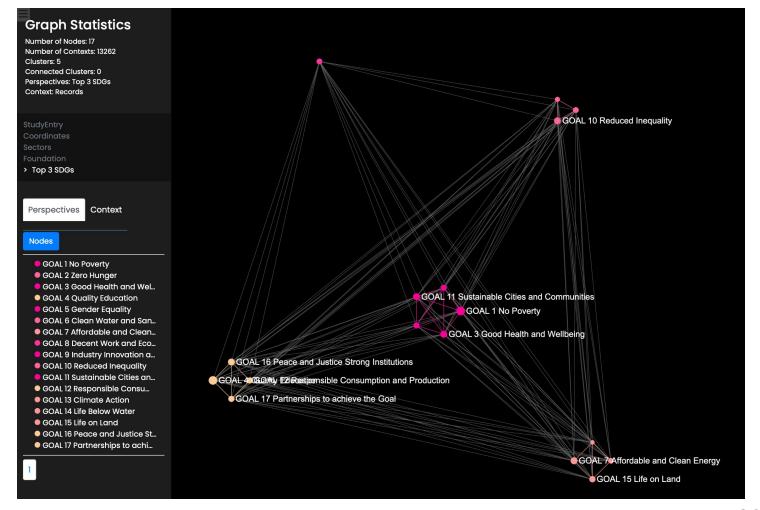




An interactive Tool Promoting Collaboration

Collaboration Spotting X: a tool developed at CERN to visualize relations between large data

More on this during the workshop







- All can empower philanthropic collaboration by mapping POs:
 - Areas & Types of Activity
 - Geographical Distribution
 - Motivations, emotions & moral values
 - Informing Strategic Thinking to align with SDGs
- > Key Advantages:
 - Can be used to find patterns too hard for humans to detect
 - Open Access, can benefit from inputs from anyone and easily replicable



Thanks!









Fragen und Anregungen?

Die Geschäftsstelle von Swissfundraising steht bei Fragen oder Anliegen immer gerne zur Verfügung.

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