

Build emotional connection
with your customers at scale

PSYCHOLOGY & AI



Combining text analytics with psychology

PSYCHOLOGY AI

TEXT ANALYTICS
that is better than any
other market solution



Applying latest language
processing technology based
on Deep Learning & AI

PSYCHOLOGY
that is unique and
extremely actionable



Applying proprietary algorithms
that understand human
psychology behind language

By harnessing the power of AI, we managed to
teach the machine to understand



Opinions



Needs



Emotions



Motivation



Personality

in any written text



WHO WE ARE

A diverse team with leading industry experts in Deep Learning & Natural Language Processing at the forefront of AI development since 2010.

+70 employees including

+29

deep learning experts
psychologists
data scientists
AI engineers

from 32 nationalities

+80 research papers

9 PhDs

5 international locations

US UK Germany Spain N. Macedonia



Collaboration with professors,
researchers in Europe & US



ROBERT KOCH INSTITUT



Key Management Team Profiles

We are a **50** people team out of which **29** are working on the tech.



Khaleeq Aziz

Co-Founder & CEO
Research Consultant at GfK
Consumer insights
Aston University – Master Forensic Psychology - specialization : psychological profiling.

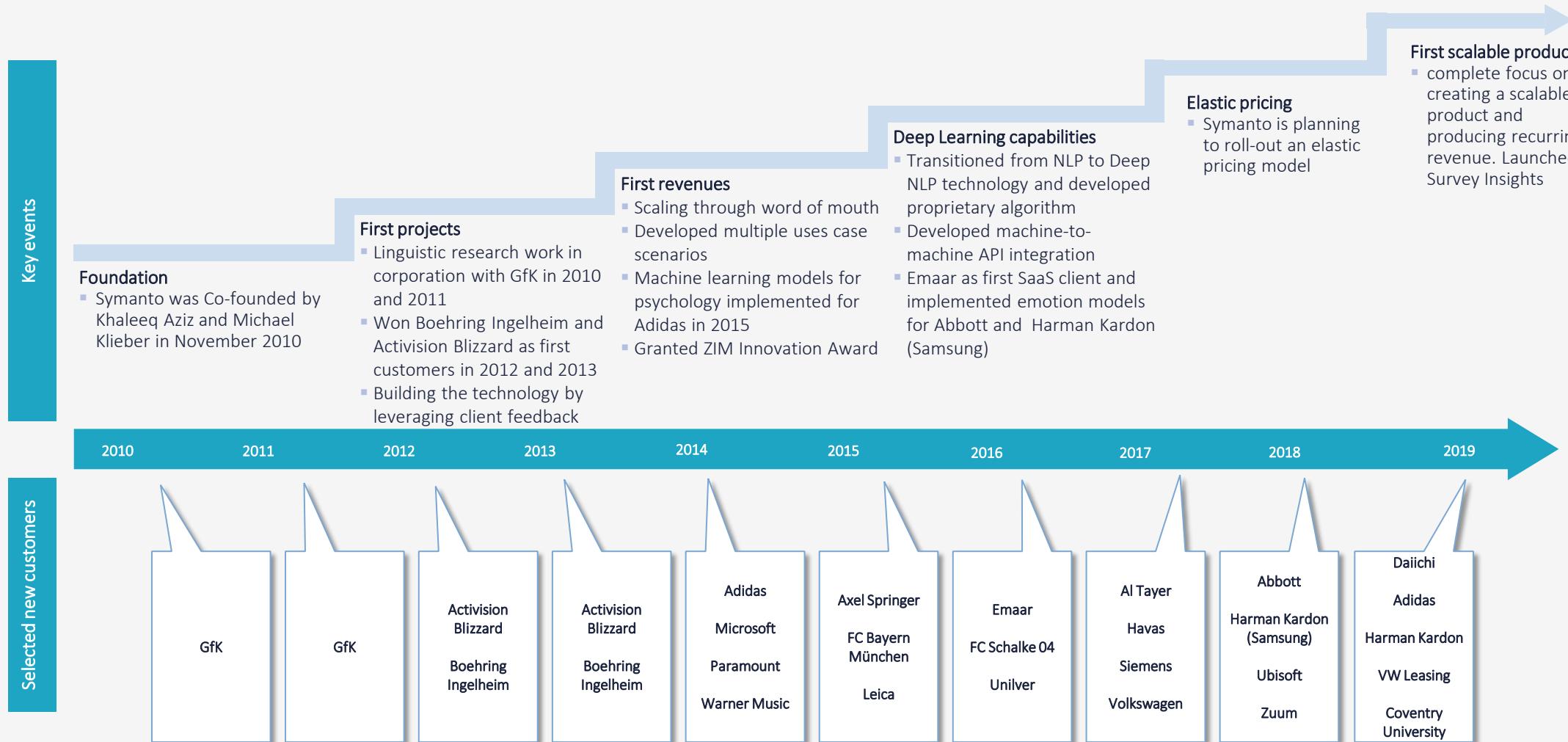
"Being able to shape the future is exactly what motivates me every minute of my day. I believe our mission to bring the human aspect of psychology to AI will mean that AI will play a seamless and important role in our everyday lives very soon."

Top notch management team and board members

<p>Marc Franco Director of Research</p> <p>PhD in Pattern Recognition and Artificial Intelligence CERI 2018 award to the best doctoral thesis, MAVIR 2013 award to the best master thesis</p>	<p>Francisco Rangel Head of Product</p> <p>Former CTO of Autoritas (AI-based digital transformation) PhD in Computer Sciences(Profiling in social media) Author of more than 40 scientific publications and Co-author of several books</p>	<p>Abdullah Kaya COO</p> <p>Former CEO of TTNET (Turk Telekom), investment banker at Merrill Lynch UK, MBA at MIT Sloan</p>
<p>Hans-Peter Ripper Director of Marketing</p> <p>25+ years of experience in consumer, retail and B2B with regional (EMEA) sales and marketing roles in Microsoft, BA from DHBW Mannheim</p>	<p>Yuwon Song Director of Sales</p> <p>10+ years of experience in market research, account management, sales and business development. Former consultant at puls Markforschung GmbH.</p>	<p>Yusuf Demirag Director of Engineering</p> <p>15 years of experience in computer engineering & architecture, BSc in Computer Science (Bilkent, Ankara) and MS in Media Informatics (Christian Albert University, Kiel)</p>

Overview of key milestones in Symanto's history

Over the last few years, Symanto has successfully developed into a globally leading player for applied Artificial Intelligence.



... in over 50 projects in 17 languages.

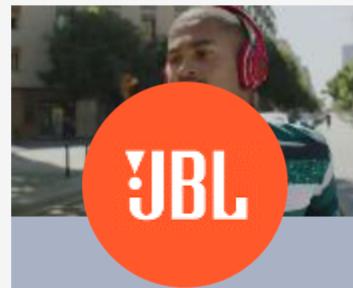


We've helped many clients throughout different industries to drive business value ...

I N S I G H T S MARKET | BRAND | AUDIENCE



Segment & market insights for personal care products
Launch of 2 new brands and **market leader** within 6 months

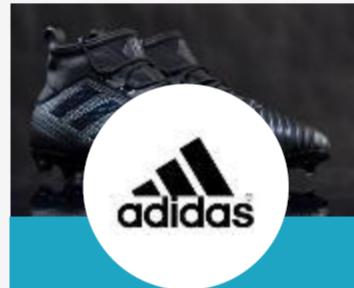


Brand equity analysis for strategic brand positioning
Brand Love index increased by 10 points after social media campaign

COMMUNICATION OPTIMIZATION



Rebuild TRUST through resonating messaging
Online banner CTR increased **from 0,1% to 6,9%**



Consumer profiling & targeted CRM campaign
Newsletter opening rate increased +30% and sales increased +160%

C U S T O M E R E X P E R I E N C E



Efficient analysis of millions of customer feedback from different divisions
NPS increased by **over 20 points**

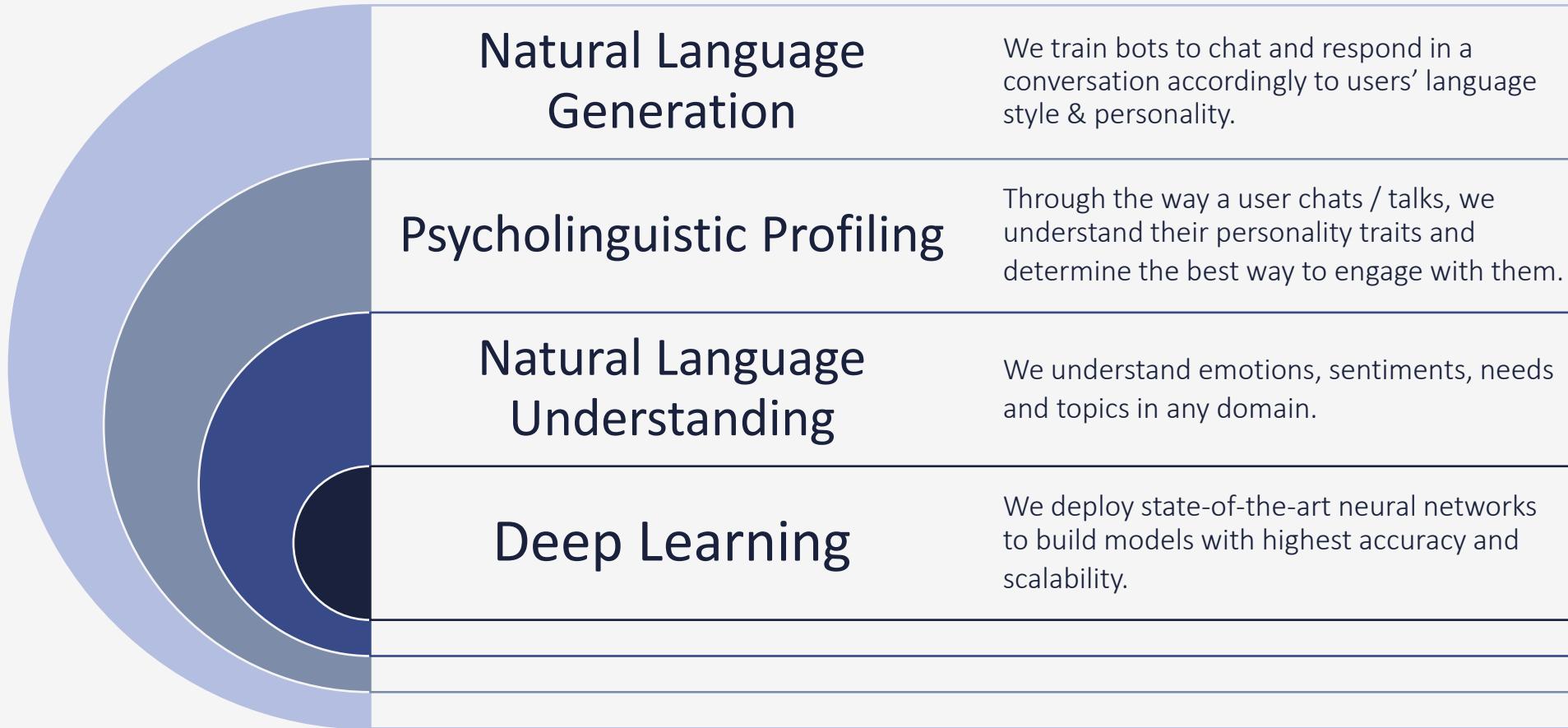


Deep analysis of customer feedback in multiple languages and Profiling for marketing purpose
Significant increase of CSAT

Core tech

Our Core Technology

Deep Learning in the backbone of our technology



How does our Core Technology make us different?
What does this mean?

LEVEL



symanto

I really enjoyed the food there.

LEVEL



symanto

I really enjoyed the food there.



💡 *grading sentiment*

I really enjoyed the food there.

💡 *topic & sentiment relation*

LEVEL



symanto

The food wasn't cheap.

LEVEL



symanto

The food wasn't cheap.
= expensive

LEVEL



symanto

The food wasn't cheap.

LEVEL



symanto

💡 *negation*

The food wasn't cheap.

LEVEL



symanto

The drinks were peng!

LEVEL



symanto

The drinks were peng!

LEVEL



symanto



no pre-defined keywords

The drinks were peng!
= excellent

LEVEL



symanto

It looks like an apple.

LEVEL



symanto

It looks like an apple.

LEVEL



symanto

It looks like an apple.

LEVEL



symanto



synonyms

It looks like an apple.
= appearance

LEVEL



symanto

It looks like an apple.



LEVEL



symanto

That was crazy!!!

LEVEL



symanto

That was crazy!!!
The food was out of this world!

LEVEL



symanto

“positive”
↓

That was crazy!!!

The food was out of this world!

LEVEL



symanto

That was crazy!!!
We had to pay almost 200 EUR
and they didn't accept cards!

LEVEL



symanto

“negative”



That was crazy!!!

We had to pay almost 200 EUR
and they didn't accept cards!

THE BENEFITS OF OUR CORE TECHNOLOGY



No pre-defined topics

Polo | Golf | Tiguan | Erdbeerkörbchen | Passat



THE BENEFITS OF OUR CORE TECHNOLOGY



More accurate than
counting keywords

Keyword counting = negative

@teleclasher get the jbl noise canceling headphones. much cheaper than bose and more durable. i used to be a bose fan but was really disappointed in my over priced, frail headphones they suckered me into buying.

AI technique = positive

Keyword counting = other

also, my vizio soundbar died on me two weeks ago, so last week i got a new jbl system at nfm because credit is neat af, and it's like being in a fucking movie theater in here because bass for dayyyssssss. also wireless surround speakers are the fucking shit.

AI technique = positive

EMOTIONS PSYCHOLOGY

Why do they matter?

How do you like your mobile phone?

I'm **positive**
negative towards my iPhone.

emotional
Personality trait

battery
negative



Never ever buy this phone!
The battery drains way too
fast!!! I can't even use the
phone for one day without
charging it during the day!!

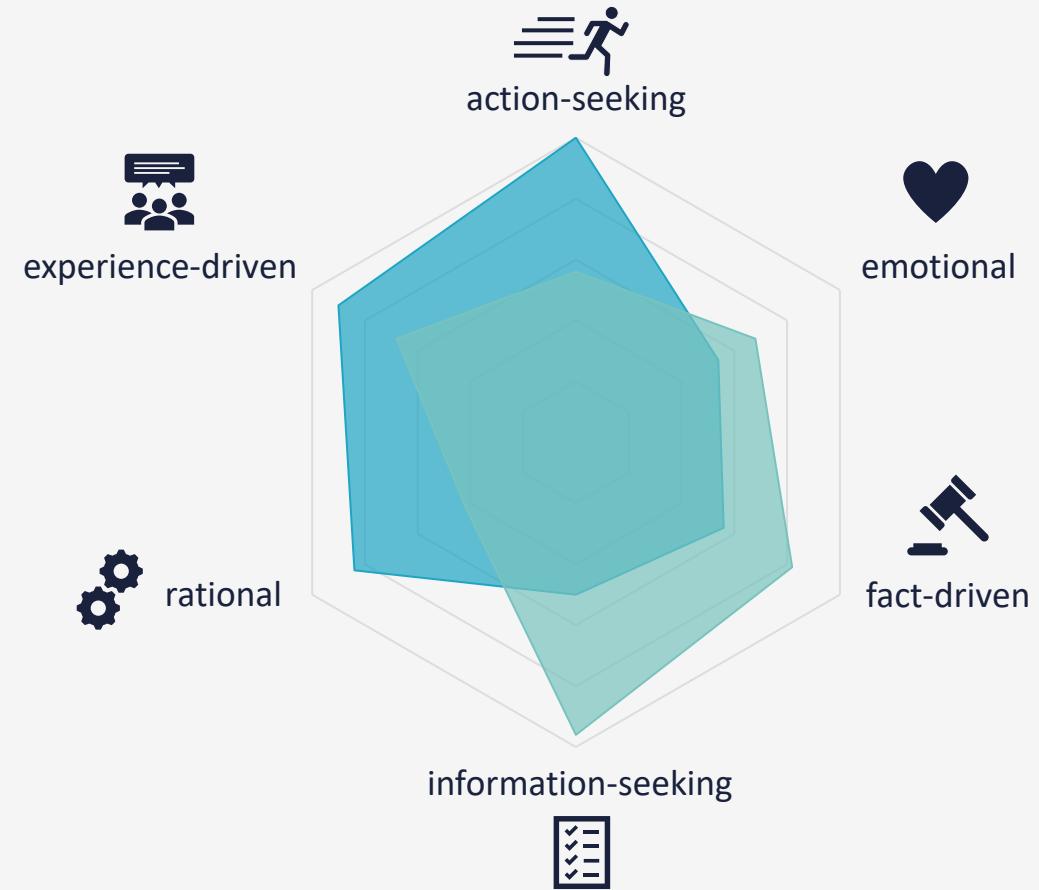
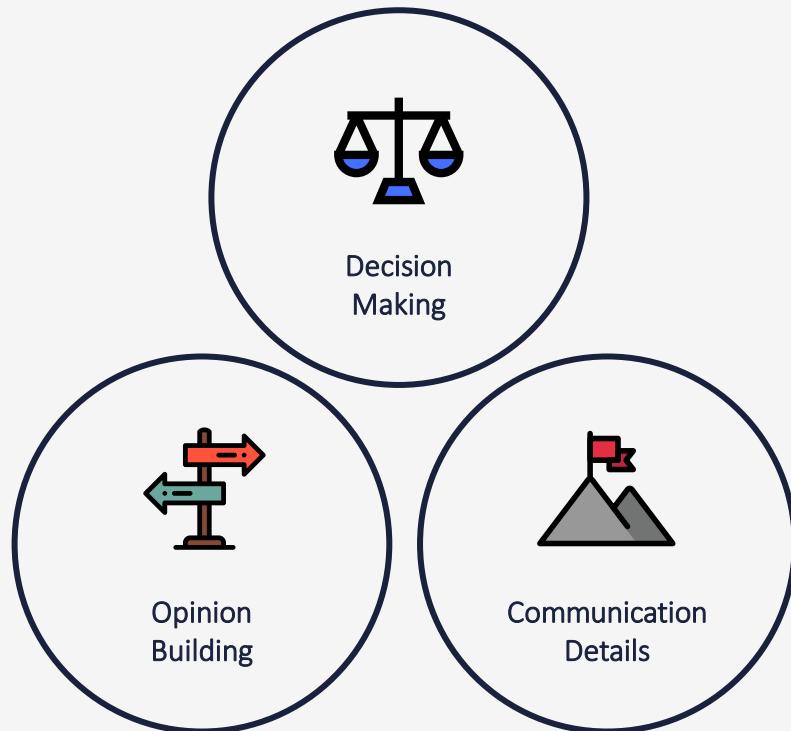
angry 😠



*experience-driven
influence-seeking*
Communication style

Personality Traits & Communication Style - Psychographics

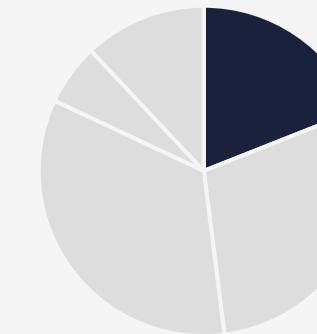
Based on Carl Gustav Jung's Psychological Types and the Communication model of Schulz von Thun, we've developed the personality and communication style identification model based on 6 dimensions which delivers essential information for optimized messaging that significantly improves consumer engagement.



Cluster A

Cluster B

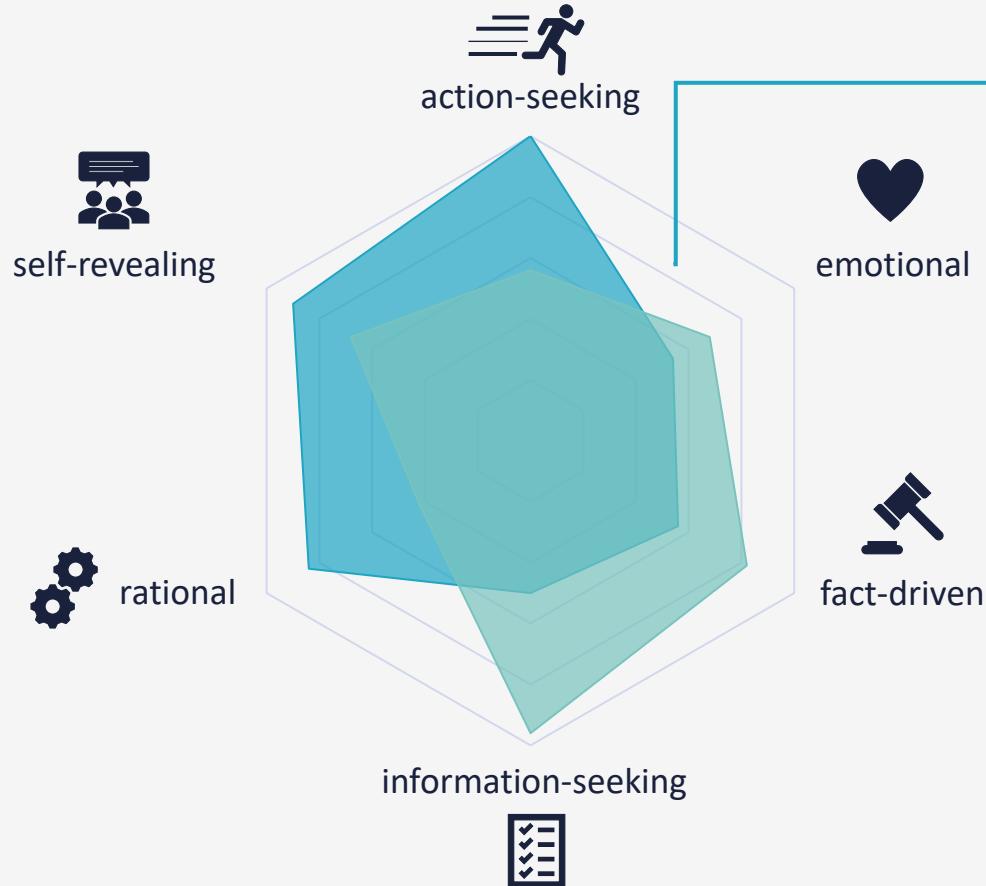
Cluster C



TOPICS
SENTIMENT
EMOTIONS
MOTIVATION
PERSONALITY

HOW TO COMMUNICATE WITH THEM

From Profiling to Segmentation to Messaging



SEGMENTS

NEWBIE: rational & action-seeking

ENTHUSIAST: emotional & action-seeking & experience-driven

HOBBYIST: rational & information-seeking & fact-driven

LOYALIST: emotional & information-seeking & self-revealing



Example of suggestions for messaging loyalists

- Emotional:
 - Convey emotions in your message with the use of adjectives and adverbs
- Information-seeking:
 - Provide information
 - Get straight to the point
 - Avoid crowded sentences that do not address answers
- Self-revealing:
 - Use direct YOU
 - Avoid formal
 - Avoid passive

THE BENEFITS OF OUR CORE TECHNOLOGY



1. No pre-defined topics
2. Higher accuracy & more context
3. Understanding the person behind
4. Knowing how to resonate
5. Going beyond sentiment

Standing out

CORE PSYCHOLOGY AI TECHNOLOGY

Comparing against current alternatives

Tools



Lexicon-base approach (counting words):

- Lack context.
- It does not handle negation.
- Only explicit mentions.

Psycholinguistic models



Static models (The personality remains fixed for the rest of your life):

- Lack of adaptation to circumstances.
- Shallow representations of the actual personality.
- It does not take into account the way the person interacts.

Symanto Psychographics

Deep Learning-base approach:

- More than just counting words.
- Goes beyond than just explicit mentions.
- It takes into account the whole context.
- It handles negation.

Dynamic model:

- Usage of linguistic signals as the manifestation of personality.
- Psychological state of the user (in the specific moment of the interaction).
- Dynamic and instant changes.
- Represented as the combination of one personality trait and four communication styles.

CORE PSYCHOLOGY AI TECHNOLOGY

Comparing against current market leader



IBM Watson™ Personality Traits

symanto
psychology ai

Underlying theory	Personality as a complex construct	Models the behavioural dimension
Profiling technique	Big 5 Personality Traits (static)	Combination of personality traits and communication style to create more dynamic profile of a person
Idiosyncratic bias	Personality reflection on language may depend on gender, age, cultural idiosyncrasies	Language reflects a situational behaviour
Training data	Twitter	Combination of Twitter, reviews, blogs, essays, etc.
Underlying technology	Open-vocabulary approach may be biased depending on the users' level of the language (e.g., non-native English speakers with elliptic pronouns in their language)	Deep-learning allows dealing with the context
Required text length	Requires more than 3500 words of a person to make reliable prediction of their personality traits	Works with shorter text (such as one single Tweet or one sentence), enabling a much broader spectrum of use cases
Available languages	5 languages (English, Spanish, Arabic, Japanese, Korean)	11 languages (English, Spanish, Arabic, German, French, Italian, Turkish, Dutch, Russian, Portuguese, Chinese)

Our offer

EXTENDED SOLUTIONS

Expanding product offering up and down the value chain

INSIGHTS PLATFORM



Self-service text analytics platform to quickly & flexibly generate relevant insights

For the curious, hands-on insights professionals



STANDARDISED PROJECTS



Quick full reporting of essential insights

For the big-picture strategist



API



Text analytics modules as API to further develop own products & to provide relevant insights

For digital solution providers and inhouse analysts



Symanto - Symanto-Default APIs

Collections

[Popular APIs](#)[Free Public APIs for Developers](#)[Coronavirus COVID-19 APIs](#)[Top Weather APIs](#)[Flight Data APIs](#)[View All Collections](#)

Categories

[Data](#)[Sports](#)[Finance](#)[Travel](#)[Entertainment](#)[View All Categories](#)

Sentiment Analysis

Detect whether a text is positive or negative.

8.8 ⏱ 1,022 ms ✓ 100%



Aspect Based Sentiment Analysis

Detect topics, topic category of each topic, and then analyze the sentiment towards each of the topics

8.6 ⏱ 1,241 ms ✓ 100%



Ekman Emotion Analysis

Detect the emotion expressed in the text.

7.9 ⏱ 505 ms ✓ 100%



Communication Style

Detect the communication purpose and style of the text.

7.7 ⏱ 470 ms ✓ 100%



Personality Traits

Predict the personality traits based on written text.

8.6 ⏱ 546 ms ✓ 100%



Language Detection

Identify the language of the input text.

8.2 ⏱ 205 ms ✓ 100%



Brand Recommendation

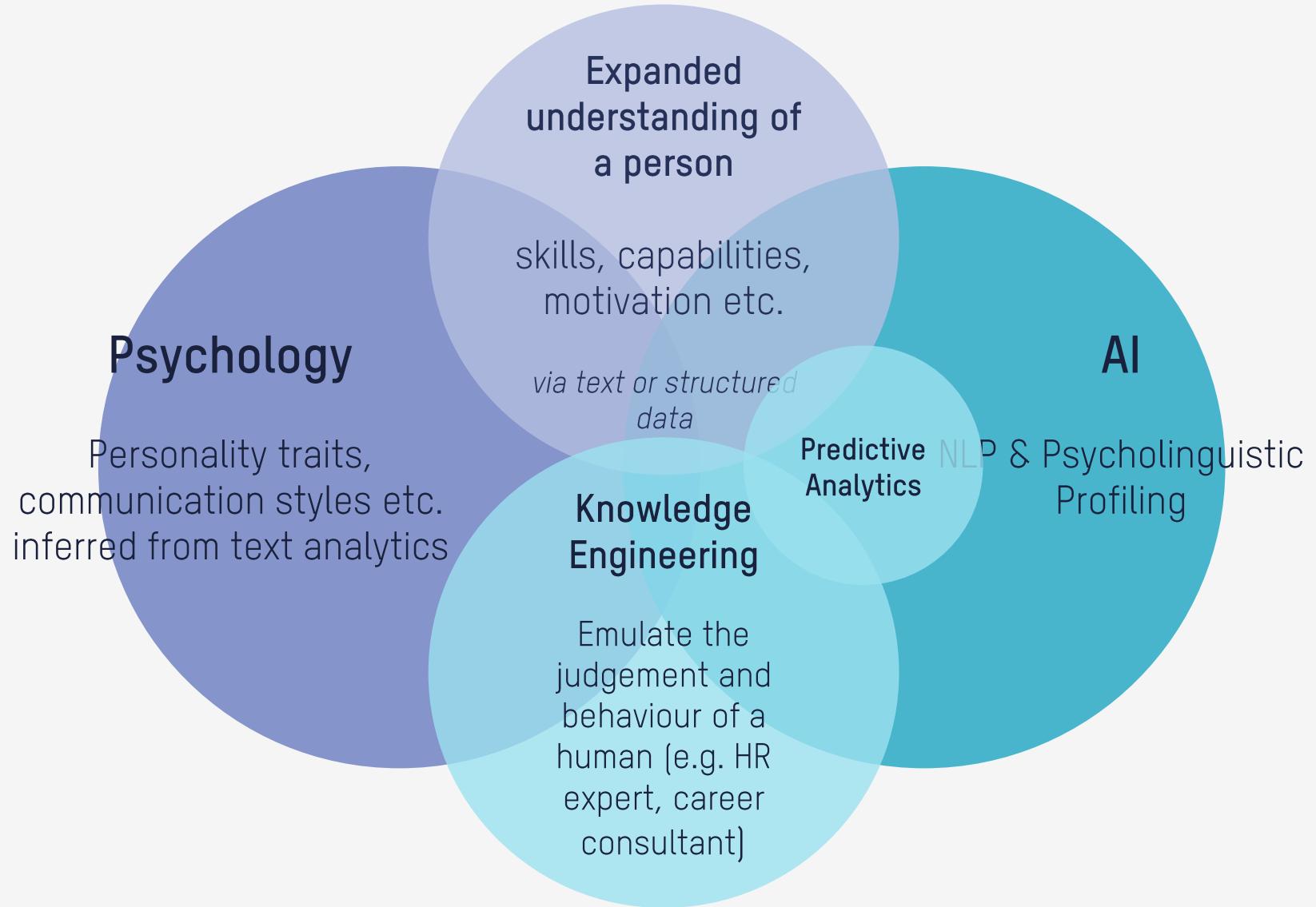
The perceived influence a social post may have on others.

8 ⏱ 2,546 ms ✓ 100%

<https://rapidapi.com/collection/symanto-symanto-default-apis>

Looking at the future

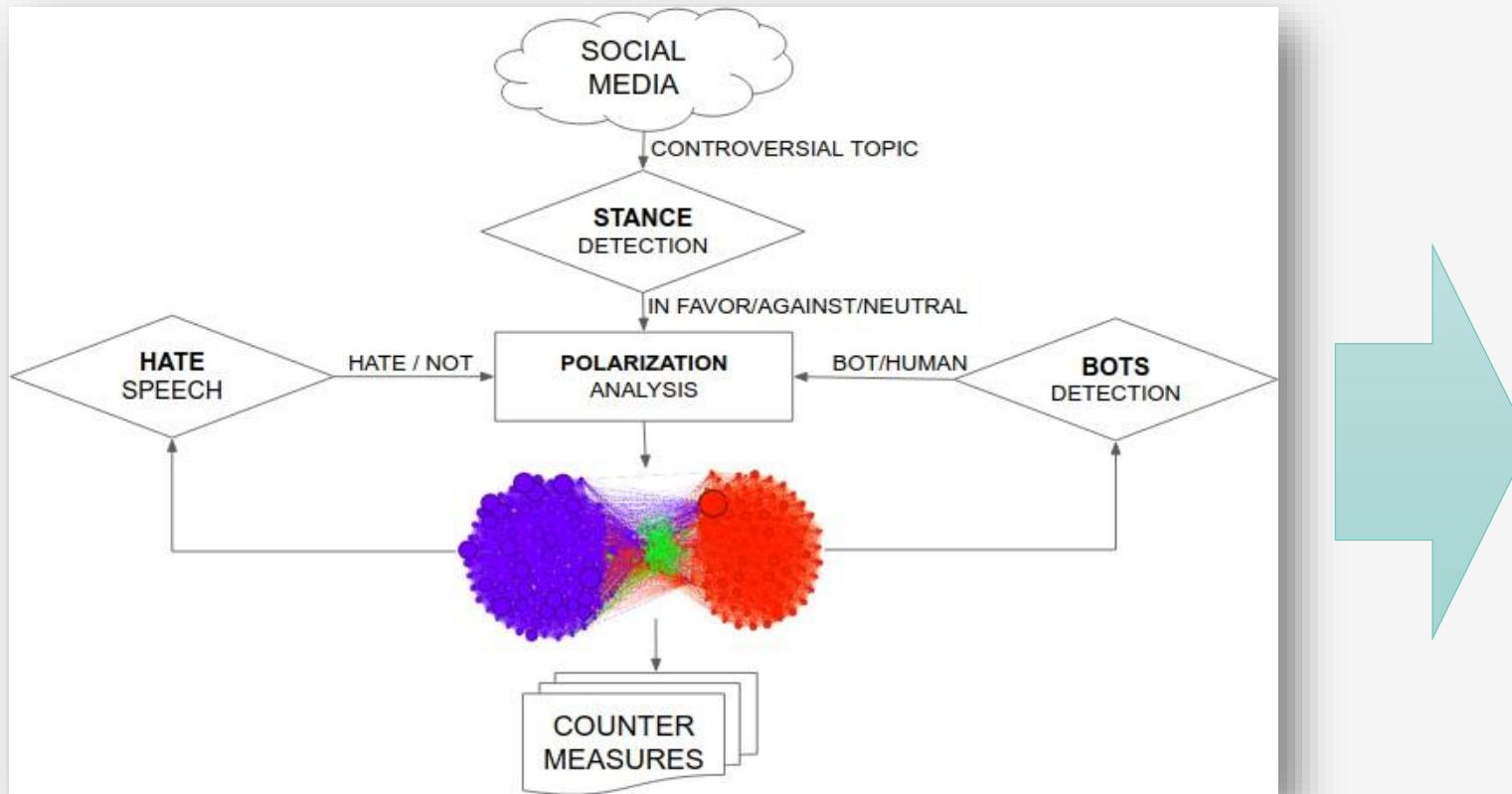
EXPANDING OUR DEFINITION OF PSYCHOLOGY AI



PSYCHOLOGY AI FOR THE SOCIAL GOOD

Proactive Profiling of HATE speech spreadeRS (CDTi - IDI-20210776)

R&D proposal



ENGLISH
GERMAN
SPANISH

+

METHODOLOGY TO
EXTEND TO OTHER
LANGUAGES

Product innovations

Finer-grained sentiments & emotions:

- Very positive vs. very negative
- Love vs. hate

Beyond sentiment:

- Promoter vs. detractor

Beyond textual analysis

- Audio transcription
- Extraction from images
- Social Network Analysis

Data cleaning

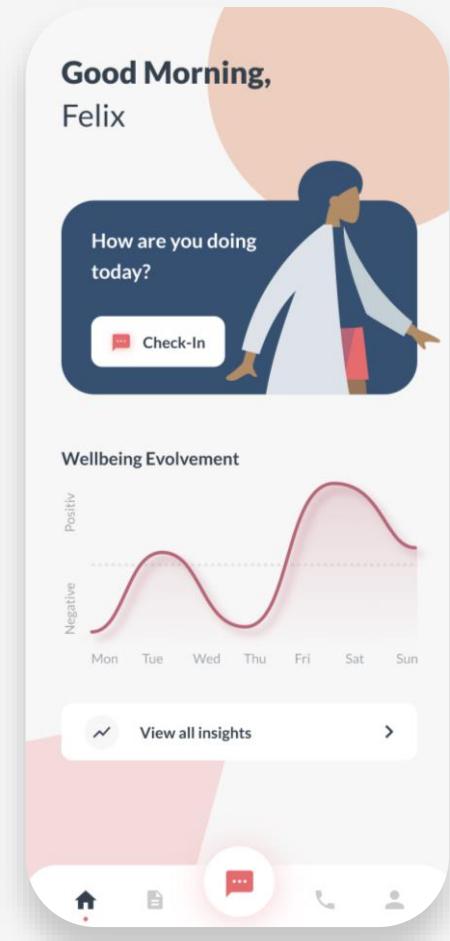
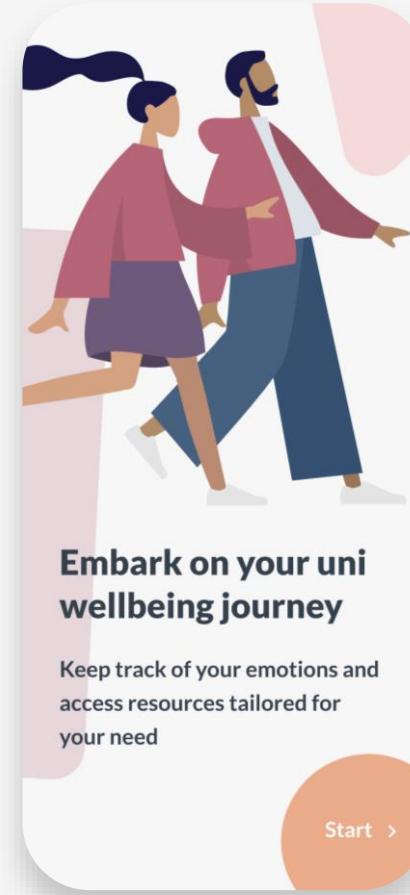
- Spam, bots and automatic-generated content

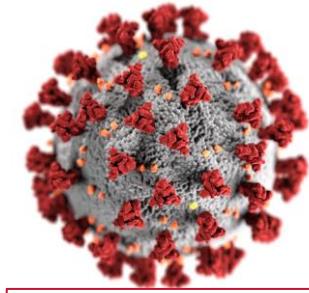
INTRODUCING SYMO

A unique AI-powered student wellbeing mobile app

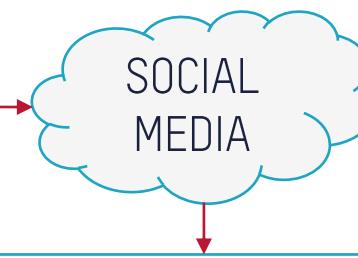
tailored for students to

- better understand, manage and improve their wellbeing
- access personalised resources and exercises to tackle the cause of stress and anxiety such as exam, financial issue, relationships
- find pathway to further support in crisis situation





PHYSICAL THREAT



NEW THREAT

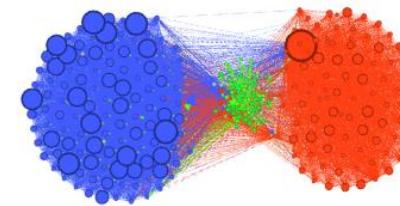
ATTITUDES AND BEHAVIORS

FAKE NEWS



DISINFORMATION

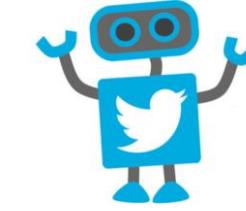
STANCE



POLARISATION



HATE SPEECH



BOTS



MENTAL HEALTH

Counter measures

Politics

Economics

Social

Technological

SOCIAL COEXISTENCE

SOME COLLABORATIONS AND COLLABORATIONS IN PROGRESS

We work together with universities all around the world to co-organise shared tasks and evaluation campaigns, as well as to participate in R&D projects. Some of the universities we have collaborated with or are establishing a collaboration are:



UNIVERSITAT
POLITÈCNICA
DE VALÈNCIA



Universität St.Gallen



UNIVERSITÄT
LEIPZIG



COLUMBIA COLLEGE
COLUMBIA UNIVERSITY in the CITY of NEW YORK

LATEST INTERNATIONAL SHARED TASK ORGANISATION (PAN@CLEF)

<https://pan.webis.de/>

<https://pan.webis.de/clef20/pan20-web/author-profiling.html>



Profiling Fake News Spreaders on Twitter

- ✓ Synopsis
- ✓ Task
- ✓ Award
- ✓ Data
- ✓ Evaluation
- ✓ Related Work
- ✓ Task Committee

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psychology ai



Francisco Rangel
Symanto Research



Paolo Rosso
Universitat Politècnica
de València



Bilal Ghanem
Symanto Research



Anastasia
Giachanou
Universitat Politècnica
de València



Fake news has become one of the main threats of our society. Although fake news is not a new phenomenon, the exponential growth of social media has offered an easy platform for their fast propagation. A great amount of fake news, and rumours are propagated in online social networks with the aim, usually, to deceive users and formulate specific opinions. Users play a critical role in the creation and propagation of fake news online by consuming and sharing articles with inaccurate information either intentionally or unintentionally. To this end, in this task, we aim at identifying possible fake news spreaders on social media as a first step towards preventing fake news from being propagated among online users.

After having addressed several aspects of author profiling in social media from 2013 to 2019 (bot detection, age and gender, also together with personality, gender and language variety, and gender from a multimodality perspective), this year we aim at investigating if it is possible to discriminate authors that have shared some fake news in the past from those that, to the best of our knowledge, have never done it.

CURRENT INTERNATIONAL SHARED TASK ORGANISATION (PAN@CLEF)

<https://pan.webis.de/>

<https://pan.webis.de/clef21/pan21-web/author-profiling.html>



Profiling Hate Speech Spreaders on Twitter

- ✓ Synopsis
- ✓ Task
- ✓ Related Work
- ✓ Task Committee

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psychology ai



Francisco Rangel

symanto GROUP



Paolo Rosso



Grétel Liz de la Peña

UNIVERSITAT
POLITÈCNICA
DE VALÈNCIA



Elisabetta Fersini



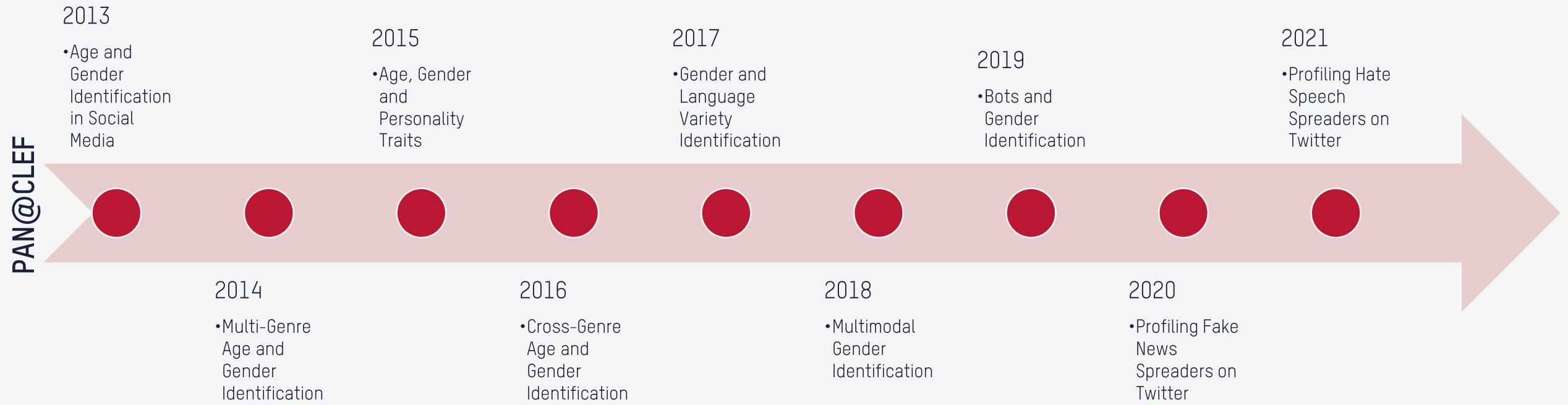
María Alberta Chulvi

UNIVERSITAT
POLITÈCNICA
DE VALÈNCIA

Hate speech (HS) is commonly defined as any communication that disparages a person or a group on the basis of some characteristic such as race, colour, ethnicity, gender, sexual orientation, nationality, religion, or other characteristics. Given the huge amount of user-generated contents on Twitter, the problem of detecting, and therefore possibly contrasting the HS diffusion, is becoming fundamental, for instance for fighting against misogyny and xenophobia. To this end, in this task, we aim at identifying possible hate speech spreaders on Twitter as a first step towards preventing hate speech from being propagated among online users.

After having addressed several aspects of author profiling in social media from 2013 to 2020 (fake news spreaders, bot detection, age and gender, also together with personality, gender and language variety, and gender from a multimodality perspective), this year we aim at investigating if it is possible to discriminate authors that have shared some hate speech in the past from those that, to the best of our knowledge, have never done it.

INTERNATIONAL SHARED TASK ORGANISATION: PAST AND FUTURE



Plan for 2021 onwards

Together with UPV, UNED and UPV/EHU, we plan to organise several international shared tasks regarding mental health / hate / frustration / etc. in crisis situations like COVID19:

- SemEval, addressing the problem in English and its varieties (e.g., US, UK, Australia, etc.)
- IberLEF, addressing the problem in Spanish and its varieties (e.g., Spain, Argentina, Mexico, etc.)
- FIRE, addressing the problem in Asian languages (e.g., Arabic, Chinese, Russian, etc.)

Other collaborations and memberships Science dissemination and business development



SPAIN AI

Consejo Spain
AI



The biggest network on AI in Spanish, with more than 17k people. We have become part of its Advisory Board with the aim at:

- Organising workshops, training, diffusion, etc.
- Bringing the AI to the schools and highschools
- Participating in regulatory and ethics committee
- Searching for fundings
- Internationalising the network

C

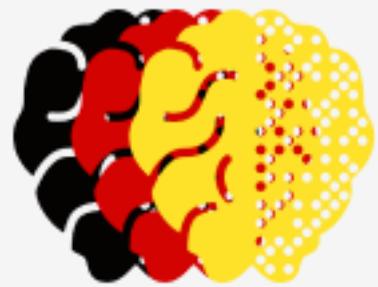
M

R

K



Asociación de Empresas y Profesionales de Internet de la Comunidad Valenciana



KI BUNDESVERBAND



COLEGIO OFICIAL DE
INGENIERÍA INFORMÁTICA
DE LA COMUNITAT VALENCIANA



Sociedad Española para el
Procesamiento del Lenguaje Natural



Plataforma Tecnológica Española
de Tecnologías Disruptivas

Data Privacy - Our work ethic



GDPR Compliant
Audit Completed

ISO 27000 (WIP)
Ethics Committee



Highest Standard

Our infrastructure and procedures adhere to German data privacy regulation and GDPR.



Anonymous by Design

We steer clear of personal data such as name, address, IP or income.



Client Endorsement

By our Microsoft Gold Partnership and our clients especially from pharma industry

THANK YOU VERY MUCH

Francisco Rangel

Head of Product

francisco.rangel@symanto.com

www.symanto.com

Pretzfelder Straße 15
90425 Nürnberg
Germany
follow us:

