

LANGUAGE NAMESPACE

Laboratory for Computational Language Interoperability

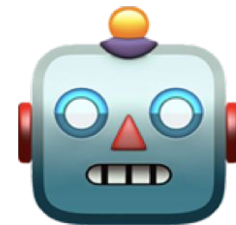
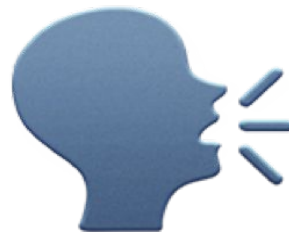
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Welcome @ Language Namespace

We develop technologies for interoperable natural language processing (NLP)

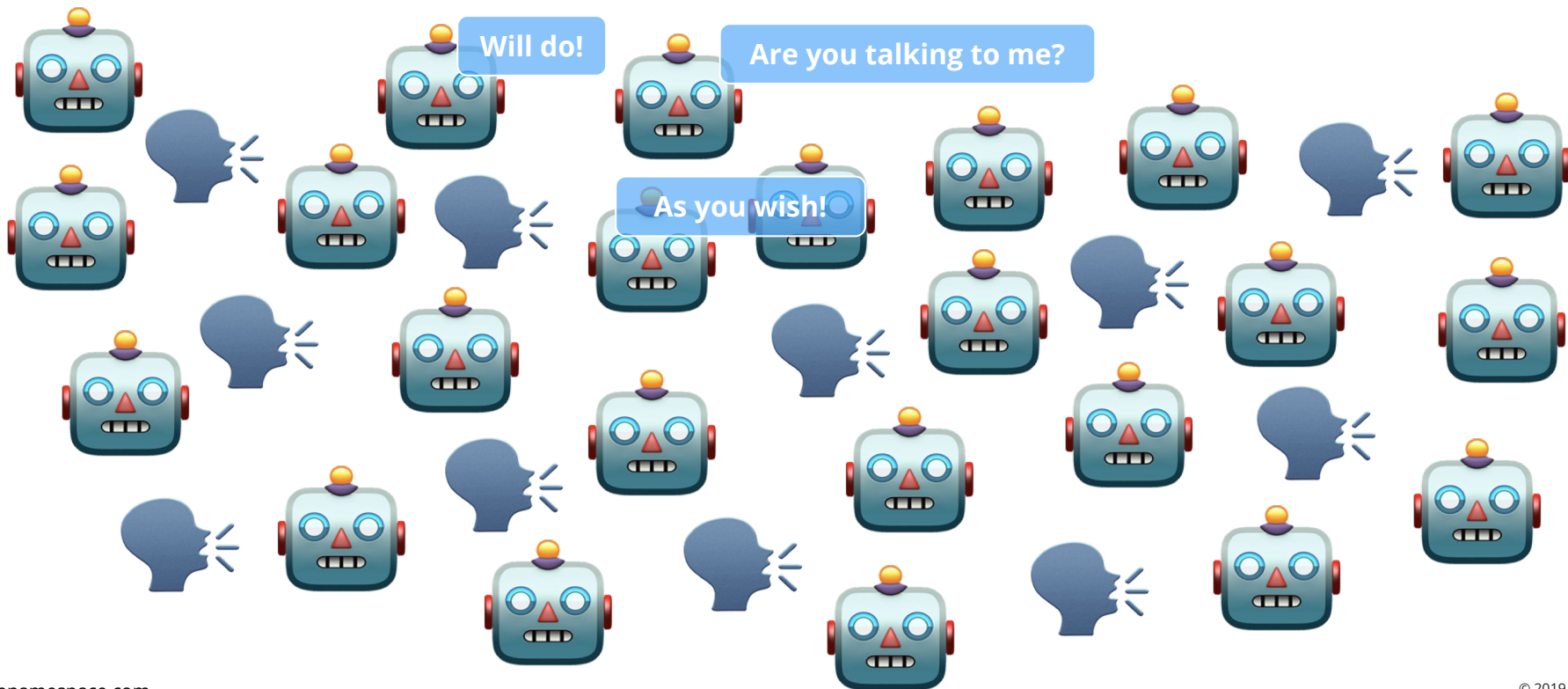
80%



of all consumer interactions will be initiated by bots
in the year 2022 Gartner

Problem: How will AIs talk about users who talk to them?

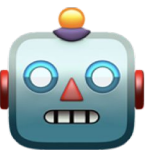
If 5+ AIs listen to every user at the same time, NLPs have to agree about contents



Challenge 1: AIs are biased, every AI has a different skill set

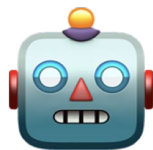
Natural language is differently interpreted by every voice technology

Hey smart home AI, I am hungry, call me a Pizza!



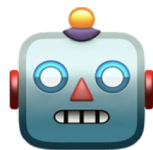
Google

This user
looks for a
Pizza



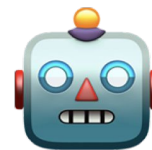
Nuance

This user is in
Hungary and
looks for a
telephone



Bosch

Sorry, I did not
get that

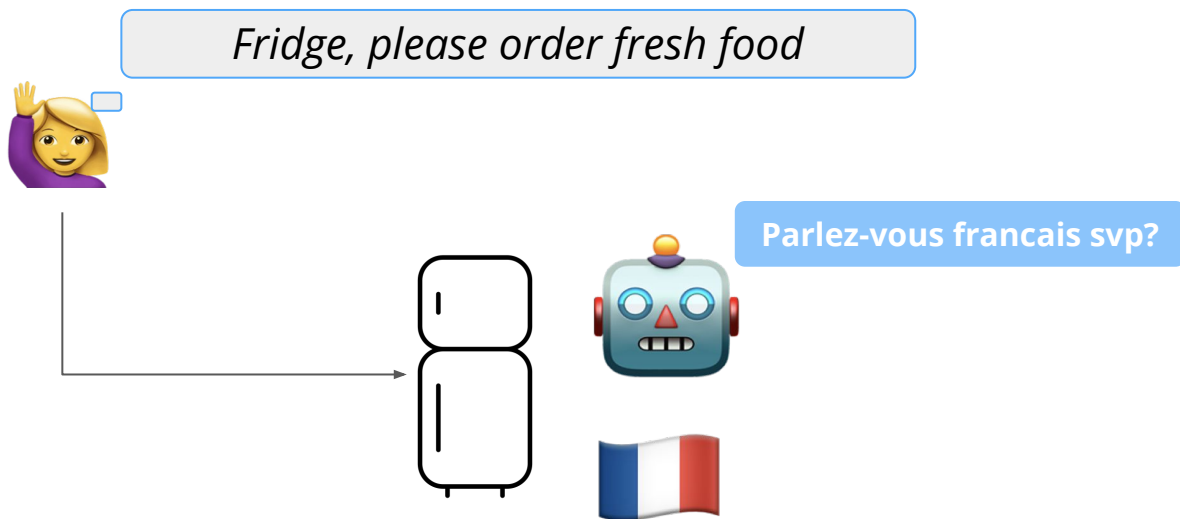


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100 AIs =
100 Opinions

Challenge 2: AIs are only local & niche intelligent

OEMs have to integrate different NLPs for each market & use case



Solution: A unified language between AIs

NLPs use a shared language to exchange information about spoken inputs



AI, I need a ride to the Airport!

Let us agree, how we tell it to each other!

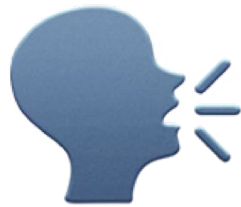


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Hardware & NLPs can be faster localized for different markets

1st Product: A shared grammar to process spoken intents

Voice-based user requests ∅ dispatched by simplified & standardized language



Natural Language

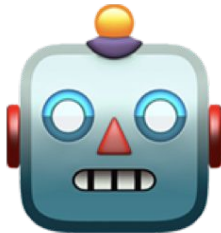


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Intent Catalog



Machine Language



- | | | | |
|------------------|------------------------|--------------|---------------|
| ACCOUNTANT | CYCLE | HOBBY | RELIGION |
| APARTMENT | CYCLE COURIER | HOSTEL | RENOVATION |
| ASSISTANT | CYCLES SHOP | HOTEL | RENTALS |
| ASTRONOMY | DATE | HOUSE | REPAIRSHOP |
| BAND | DELIVERY | JANITOR | SALE |
| BANK | DOCTOR | JOB XYZ | SCHOOL |
| BARBER | DOG-SITTING | KINDERGARTEN | SCHOOL |
| BARBER | DONATIONS | LAUNDRY | SCOOTER |
| BOARD GAME | E-SCOOTER | LAWYER | SECURITY |
| BOOK CLUB | ENVIRONMENT PROTECTION | LEGO | SEX |
| CASH | EVENT | LOAN | SKILL XYZ |
| CAR | FASTFOOD | MINI BUS | SPORTS |
| CHARGING STATION | FLAT-SHARE | MOVERS | STARTUP |
| CHILDCARE | FLEA-MARKET | MUSIC | STREET |
| CINEMA | FOOD-SHARING | NOTARY | TAILOR |
| CITY | FOUND&LOST | NURSE | TAXI |
| CLEANER | GARAGE | OPERA | THEATRE |
| CLIMATE CHANGE | GARDENING | PAINTER | TIMBERMAN |
| CLOTHING SWOP | GAS STATION | PETSITTING | TOYS |
| CONCERT | GAY | PHONE REPAIR | TRAINER |
| COPYSHOP | GYM | PHOTOGRAPHER | TRAVELLING |
| COUSINE | HACKERSPACE | PLAYGROUND | UNIVERSITY |
| COWORKING | HAIRCUT | PSYCHOLOGIST | WORKERS UNION |
| CRAFTSMAN | HELPDESK | REFUGEE | WORKSHOP |

Partner: OEMs, NLPs, and research institutions

As consortium we initiate open access NLP technologies

Academia

OEMs

AI Startups



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Shared Scope

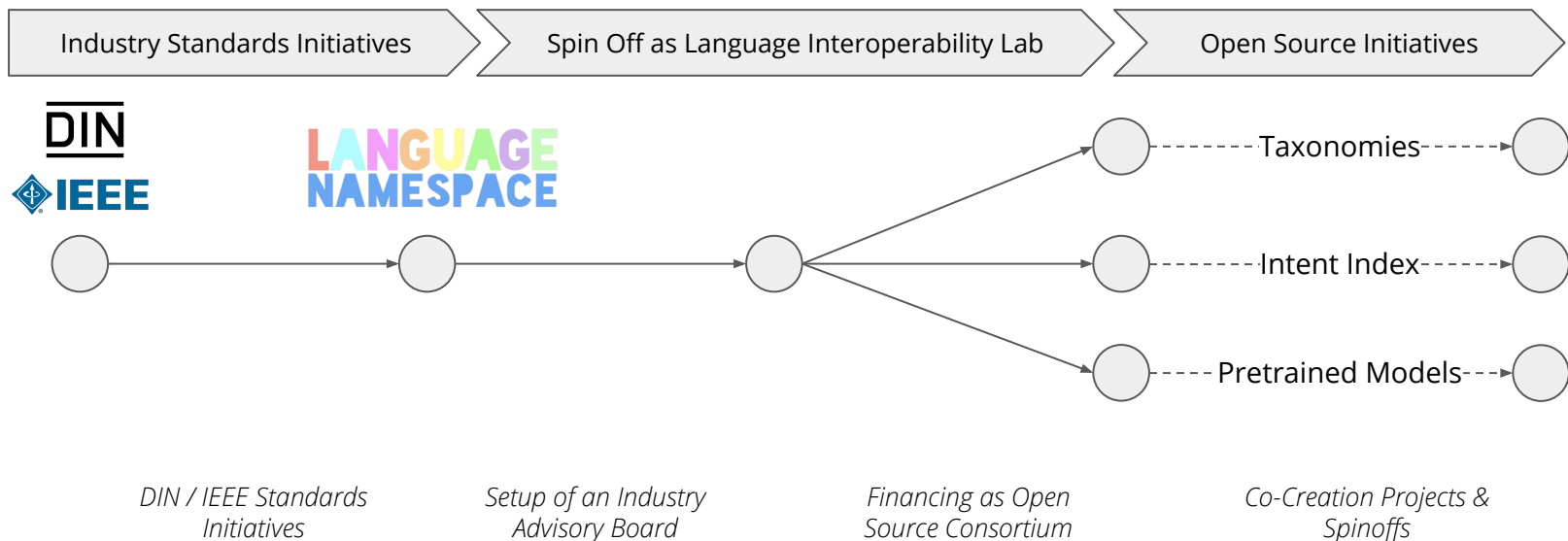
NLP Standardization

NLP Explainability Guidelines

NLP Intent Classifications

Opportunity: We develop the Esperanto of AI

After initiating industry standards, we now build an NLP industry lab



Model reference: Why do we work as multi-stakeholder lab?

NLP technologies are experiments - industry big ships join R&D collaborations

Snapshot: September 2019



Facebook founds AI Language Research Consortium to solve challenges in natural language processing

KYLE WIGGERS @KYLE_L_WIGGERS AUGUST 28, 2019 1:06 PM

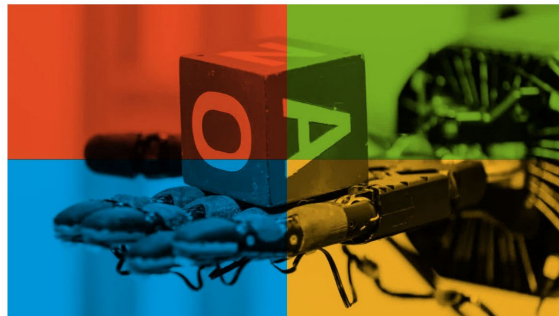


Roughly three months ago, Facebook launched calls for research proposals in three subfields of natural language processing (NLP), the cross-disciplinary study of linguistics and AI concerned with computer-language interactions. It specifically sought “robust” deep learning approaches for NLP and computationally efficient NLP in addition to neural machine translation for low-resource dialects, ultimately in the pursuit of advancing cutting-edge research in machine translation.

MIT
Technology
Review

Artificial Intelligence Jul 22

Microsoft is investing \$1 billion in OpenAI to create brain-like machines



Press release

Amazon and Leading Technology Companies Announce the Voice Interoperability Initiative

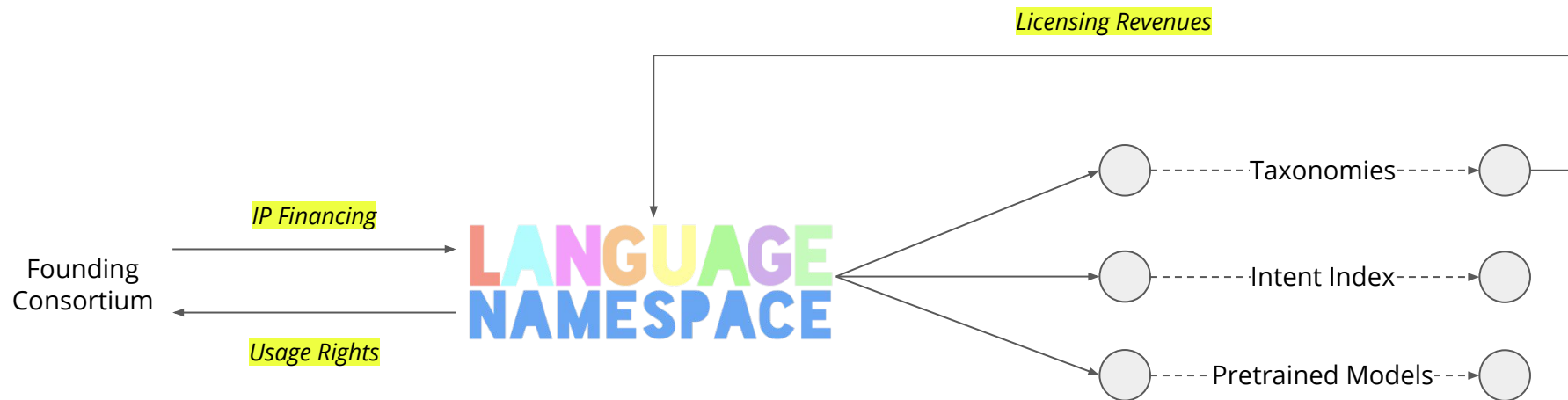
September 24, 2019 at 11:04 AM EDT

Amazon, Baidu, BMW, Cerence, ecobee, Microsoft, Orange, Salesforce, SFR, Sonos, Spotify, Sound United, Tencent, Verizon and more to promote customer choice by supporting multiple, interoperable voice services on a single device

With multiple, simultaneous wake words, customers can access multiple voice services by simply saying the corresponding wake word – from Alexa and Cortana to Orange’s Djingo, Salesforce’s Einstein, and more

Solutions providers like Intel, MediaTek, NXP and Qualcomm to develop hardware and reference solutions that support multiple wake word engines

Operating model: We develop a portfolio of NLP patents
Licensing revenues finance new research projects of Language Namespace



USP: Industry R&D collaborations on a neutral platform

LNS enables vendor agnostic NLP industry research collaborations

