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CYBER SCIENCE

POLAND: STATE OF THE ART OF CHATBOTS

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@hpar3s@infosec.exchange

Agenda

- 01 Opening remarks
- 02 AI && Poland
- 03 State of the art: chatbots ()
- 04 Closing remarks





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PART 1

Open remarks





UNIVERSITY OF SILESIA
IN KATOWICE



Silesian University
of Technology



Silesian Centre for Legal Engineering,
Technology, and Digital Competence
CYBER SCIENCE

4

NASK



Uniwersytet
Ekonomiczny
w Katowicach



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<https://us.edu.pl/centra-badawcze/cyberscience/>



5

The Silesian University of Technology (SUT) was founded in 1945 as a scientific and didactic base for the most industrialized region in Poland and Europe



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<https://www.polsl.pl>



Priority Research Areas



Computational Oncology and Personalized Medicine



Artificial Intelligence and Data Processing



Materials of the Future



Smart Cities and Future Mobility



Process Automation and Industry 4.0



Climate and Environmental Protection,
Modern Energy



Adrian Kapczyński, Ph.D.
Man of Faith, Tech & Science | CISA, CISM, Ph.D.





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PART 2

AI && Poland





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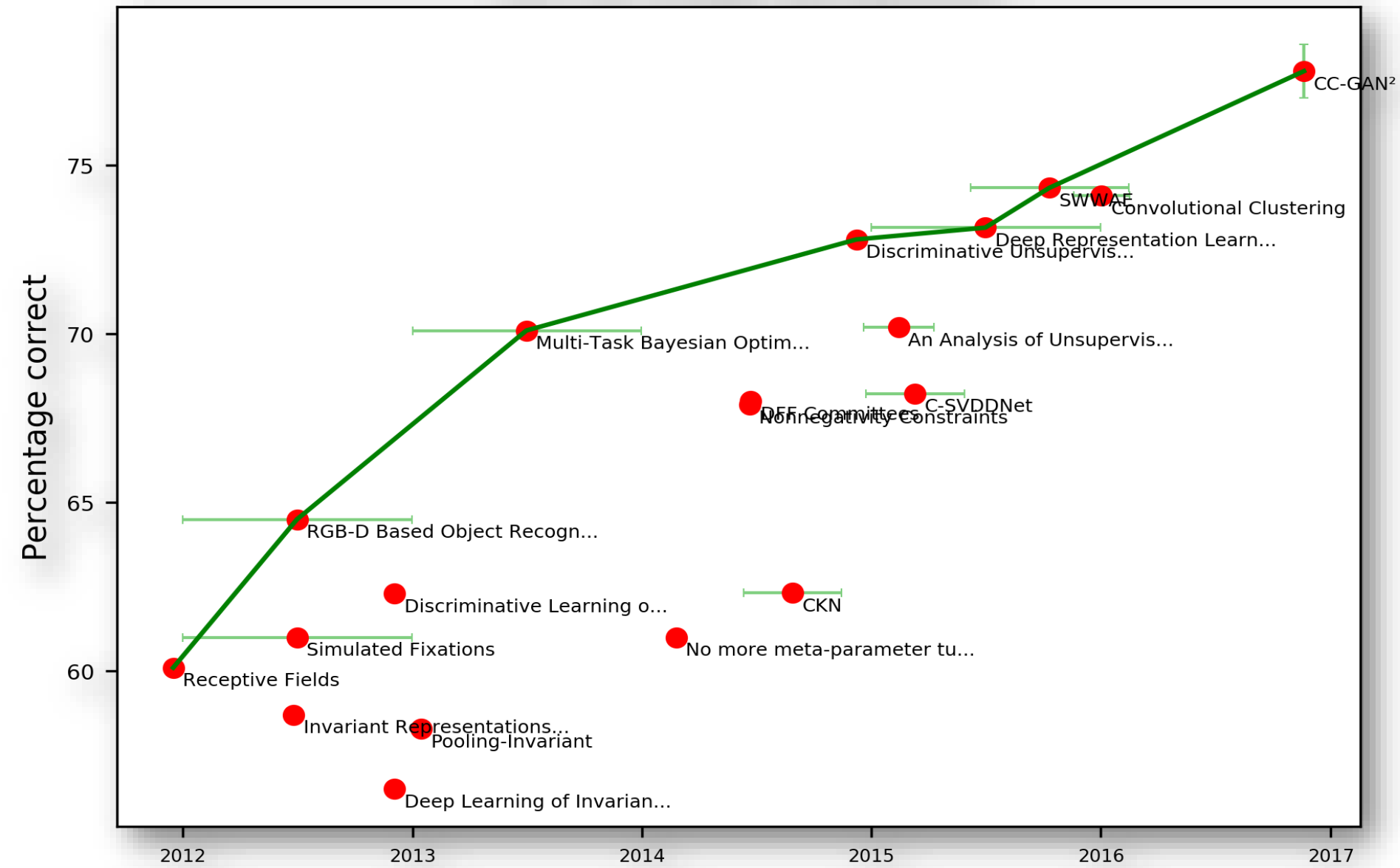


PART 2.1

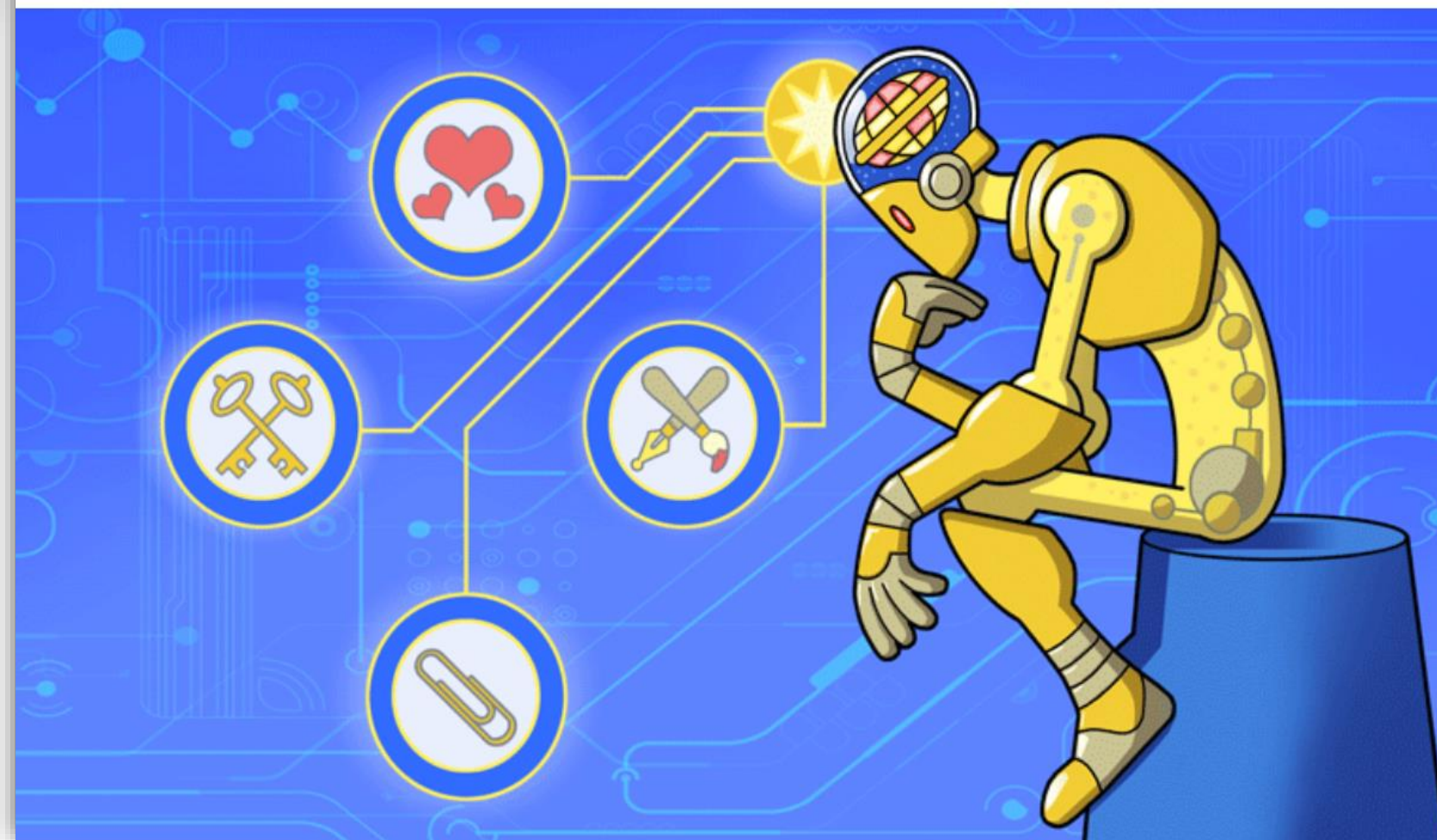
Introduction



STL-10 Image Recognition

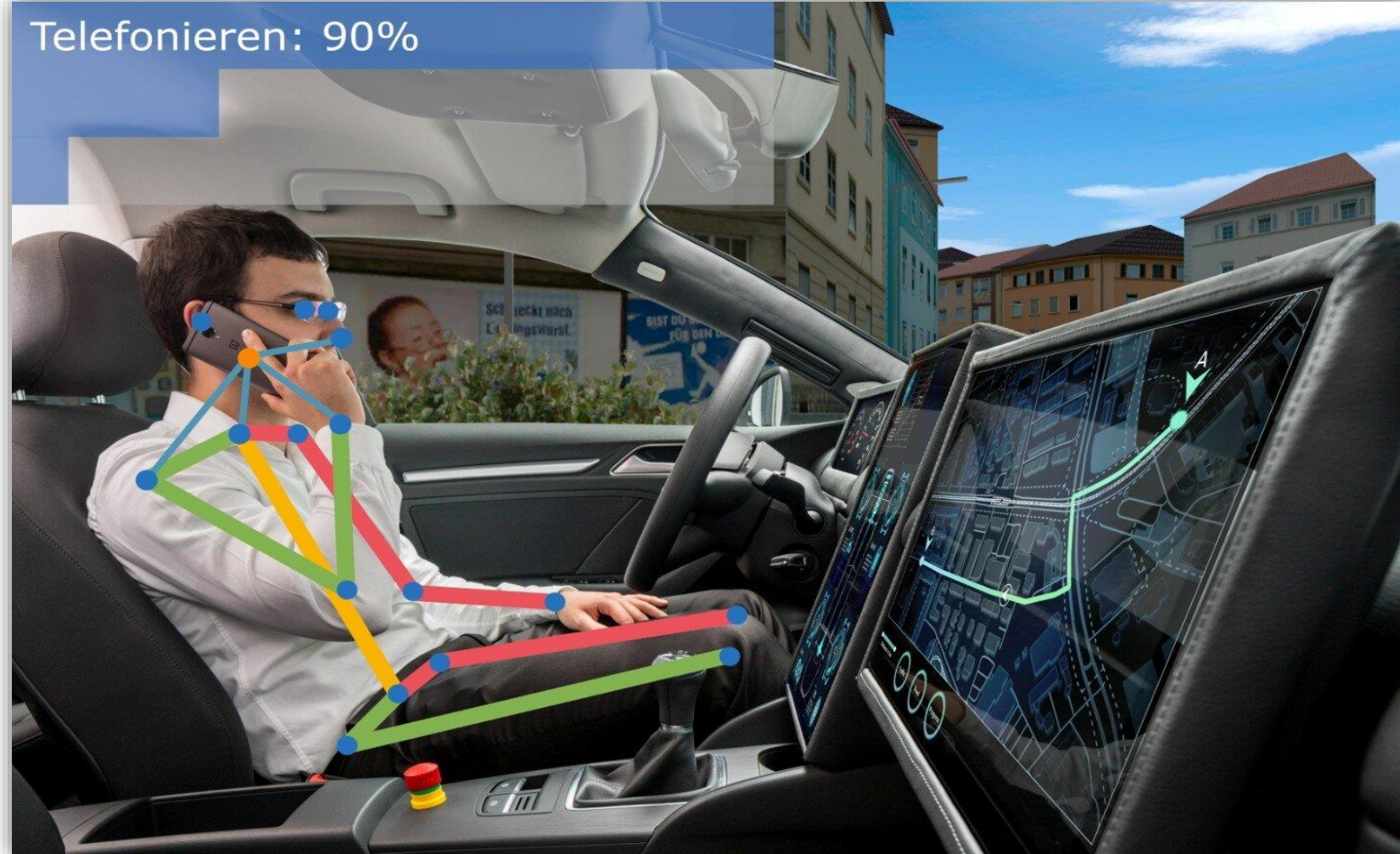
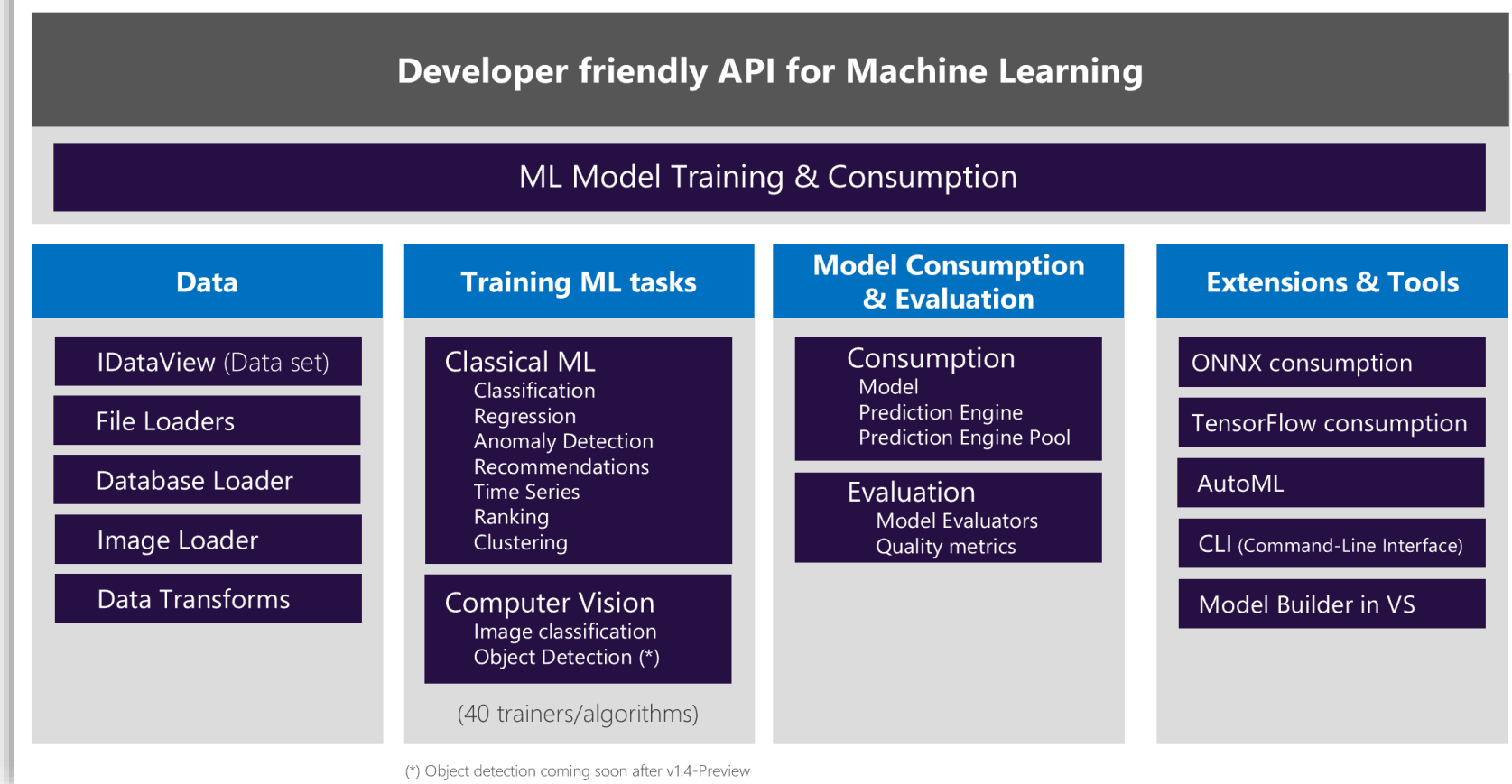


AI Progress Measurement



11

ML.NET components



AI Can Stop Mass Shootings, and More

Selmer Bringsjord • Naveen Sundar Govindarajulu • Michael Giancola

Rensselaer AI & Reasoning (RAIR) Lab

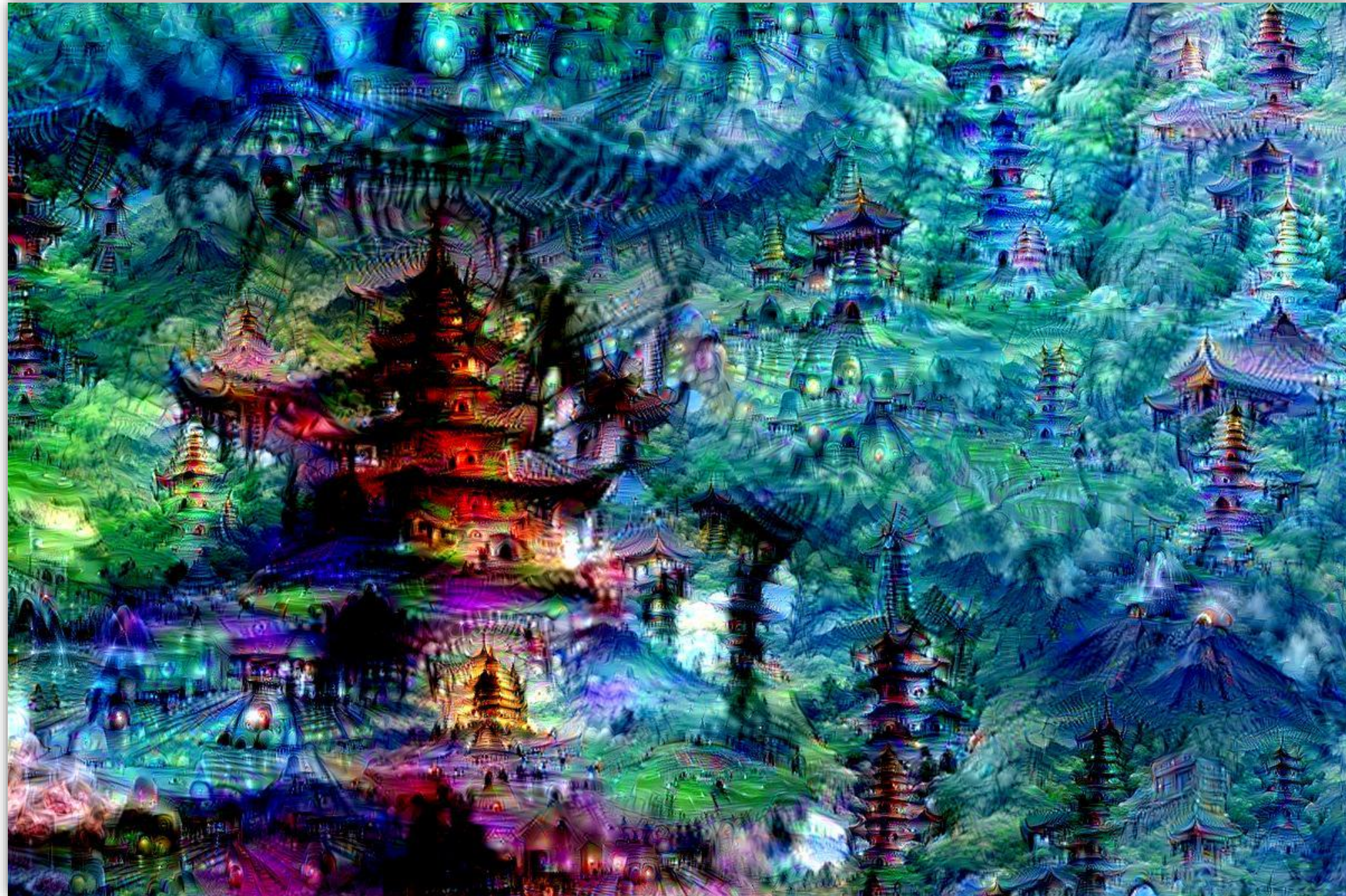
Department of Cognitive Science; Department of Computer Science

Rensselaer Polytechnic Institute (RPI); Troy NY 12180 USA

selmer.bringsjord@gmail.com • naveensundarg@gmail.com • mike.j.giancola@gmail.com

12







master deepdream / dream.ipynb

Go to file



jli Add comments on how to enable Caffe GPU operations.

Latest commit 4732a3d on 12 Aug 2015 History

5 contributors



578 lines (578 sloc) 809 KB

Code Raw Blame

Deep Dreams (with Caffe)

This notebook demonstrates how to use the [Caffe](#) neural network framework to produce "dream" visuals shown in the [Google Research blog post](#).

It'll be interesting to see what imagery people are able to generate using the described technique. If you post images to Google+, Facebook, or Twitter, be sure to tag them with **#deepdream** so other researchers can check them out too.

Dependencies

This notebook is designed to have as few dependencies as possible:

- Standard Python scientific stack: [NumPy](#), [SciPy](#), [PIL](#), [IPython](#). Those libraries can also be installed as a part of one of the scientific packages for Python, such as [Anaconda](#) or [Canopy](#).
- [Caffe](#) deep learning framework ([installation instructions](#)).
- Google [protobuf](#) library that is used for Caffe model manipulation.

```
In [2]: # imports and basic notebook setup
from cStringIO import StringIO
import numpy as np
import scipy.ndimage as nd
import PIL.Image
from IPython.display import clear_output, Image, display
from google.protobuf import text_format

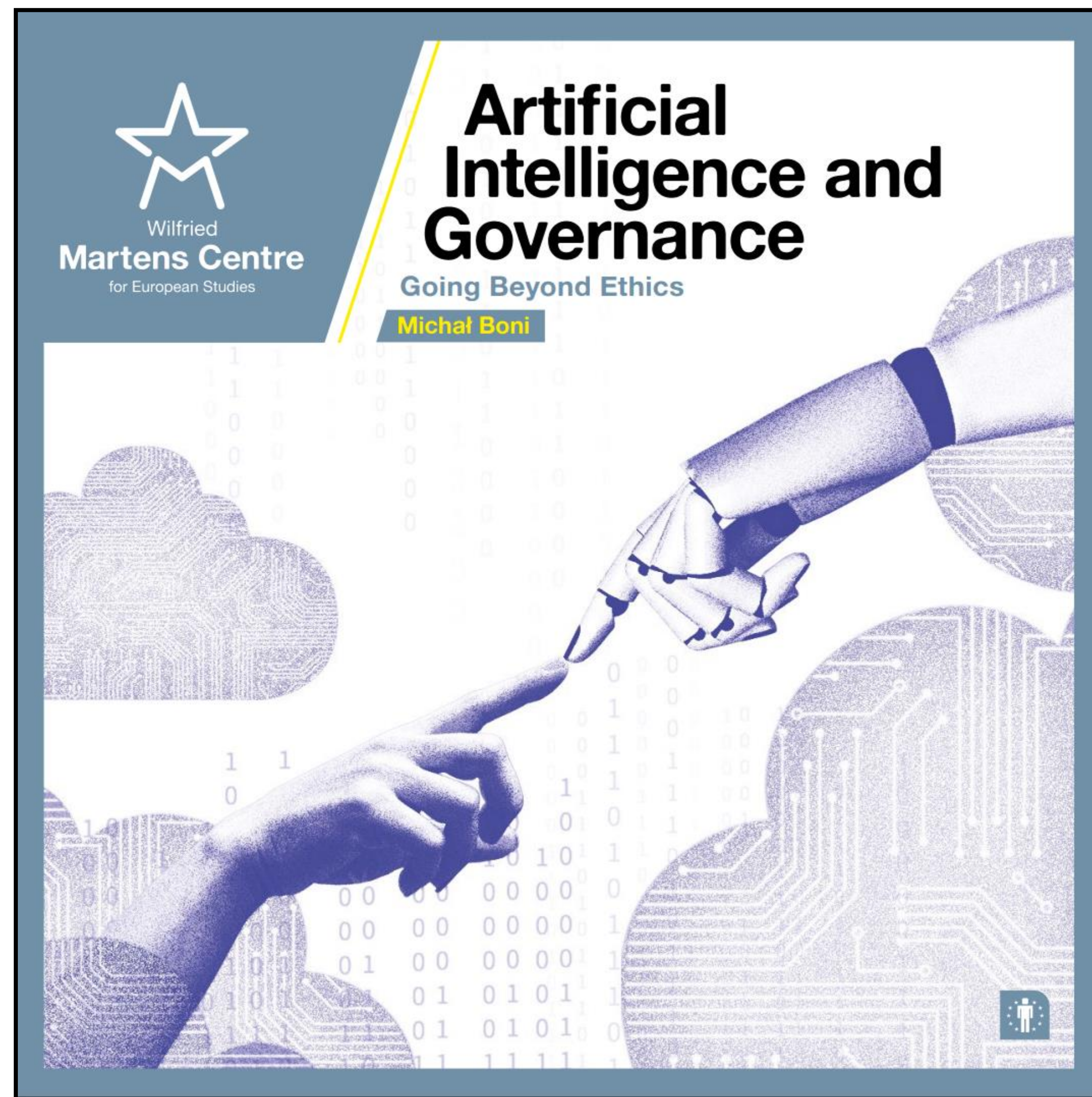
import caffe

# If your GPU supports CUDA and Caffe was built with CUDA support,
# uncomment the following to run Caffe operations on the GPU.
# caffe.set_mode_gpu()
# caffe.set_device(0) # select GPU device if multiple devices exist

def showarray(a, fmt='jpeg'):
    a = np.uint8(np.clip(a, 0, 255))
    f = StringIO()
    PIL.Image.fromarray(a).save(f, fmt)
    display(Image(data=f.getvalue()))
```



Michał Boni



FOUR KEY POLICY OBJECTIVES FOR ARTIFICIAL INTELLIGENCE IN EUROPE

SET ENABLING CONDITIONS FOR AI DEVELOPMENT AND UPTAKE IN THE EU

- Acquire, pool and share policy insights
- Tap into the potential of data
- Foster critical computing capacity

MAKE THE EU THE RIGHT PLACE; EXCELLENCE FROM LAB TO THE MARKET

- Collaboration with stakeholders, Public-private Partnership on AI, data and robotics
- Research capacities
- Testing and experimentation (TEFs), uptake by SMEs (EDIHs)
- Funding and scaling innovative ideas and solutions

ENSURE AI TECHNOLOGIES WORK FOR PEOPLE

- Talent and skills
- A policy framework to ensure trust in AI systems
- Promoting the EU vision on sustainable and trustworthy AI in the world

BUILD STRATEGIC LEADERSHIP IN THE SECTORS

- Climate and environment
- Health
- Strategy for Robotics in the world of AI
- Public sector
- Law enforcement, immigration and asylum
- Mobility
- Agriculture

Investments: Horizon Europe, Digital Europe, Recovery and Resilience Facility

an
mission



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PART 2.1

AI && Poland



State of Polish AI 2021

 aipoland

digitalpoland


 SENSES



PHOTO: GUSTAVO



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<https://digitalpoland.org/en/publications/download?id=df54480f-f689-4d5d-8629-31277b864611>

AI POLAND

AIPoland is an initiative of the Digital Poland Foundation, which aims to promote the Polish AI ecosystem and enable cooperation between Polish and foreign entities in various areas, including business, science and policy.

digitalpoland

IOSENSES

 **ENKY**
CONSULTING

235

Companies

44

R&D centres
and Universities

10

Public
institutions

Category: Law



Law Society events

November 26, 2020

Artificial Intelligence Ethics
[GovTech Festival]



Law Society

November 26, 2020

Freedom in the AI era



Law Technologies events

November 20, 2020

The future is data [GovTech
Festival]



Janusz Kacprzyk

[FOLLOW](#)

Professor of Computer Science, [Systems Research Institute](#), Polish Academy of Sciences

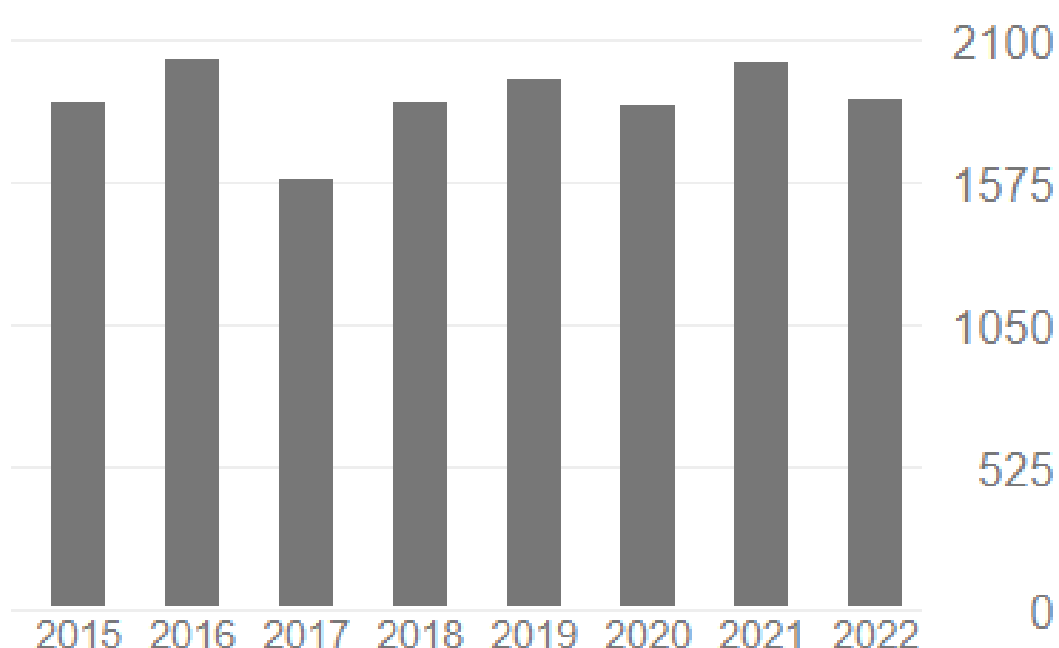
Verified email at ibspan.waw.pl

[artificial intelligence](#) [computational intelligence](#) [decision making](#) [control and robotics](#)
[systems modeling](#)

TITLE	CITED BY	YEAR
The Power and Potentials of Flexible Query Answering Systems: A Critical and Comprehensive Analysis T Andreasen, G Bordogna, G De Tré, J Kacprzyk, HL Larsen, S Zadrozny Available at SSRN 4292638		2022
Digital Interaction and Machine Intelligence: Proceedings of MIDI'2021–9th Machine Intelligence and Digital Interaction Conference, December 9-10, 2021, Warsaw, Poland C Biele, J Kacprzyk, W Kopeć, JW Owsiniński, A Romanowski, M Sikorski Springer Nature		2022
Complex Systems: Spanning Control and Computational Cybernetics: Foundations: Dedicated to Professor Georgi M. Dimirovski on his Anniversary P Shi, J Stefanovski, J Kacprzyk Springer Nature		2022
Ranking of Alternatives Described by Atanassov's Intuitionistic Fuzzy Sets–A Critical Review E Szmidt, J Kacprzyk, P Bujnowski 2022 IEEE International Conference on Fuzzy Systems (FUZZ-IEEE), 1-7	2	2022

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	All	Since 2017
Citations	33204	11188
h-index	79	47
i10-index	370	151



Public access [VIEW ALL](#)

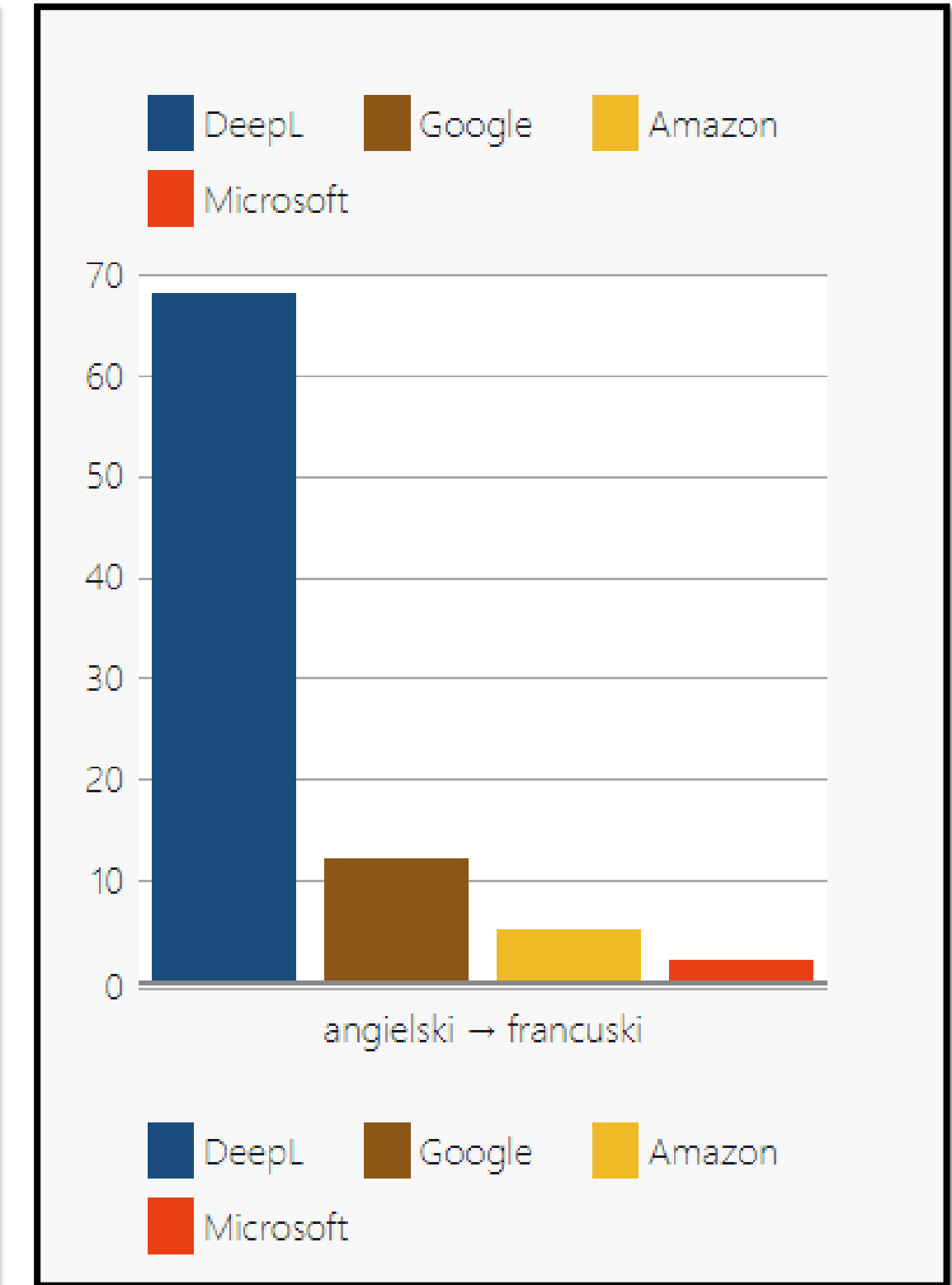
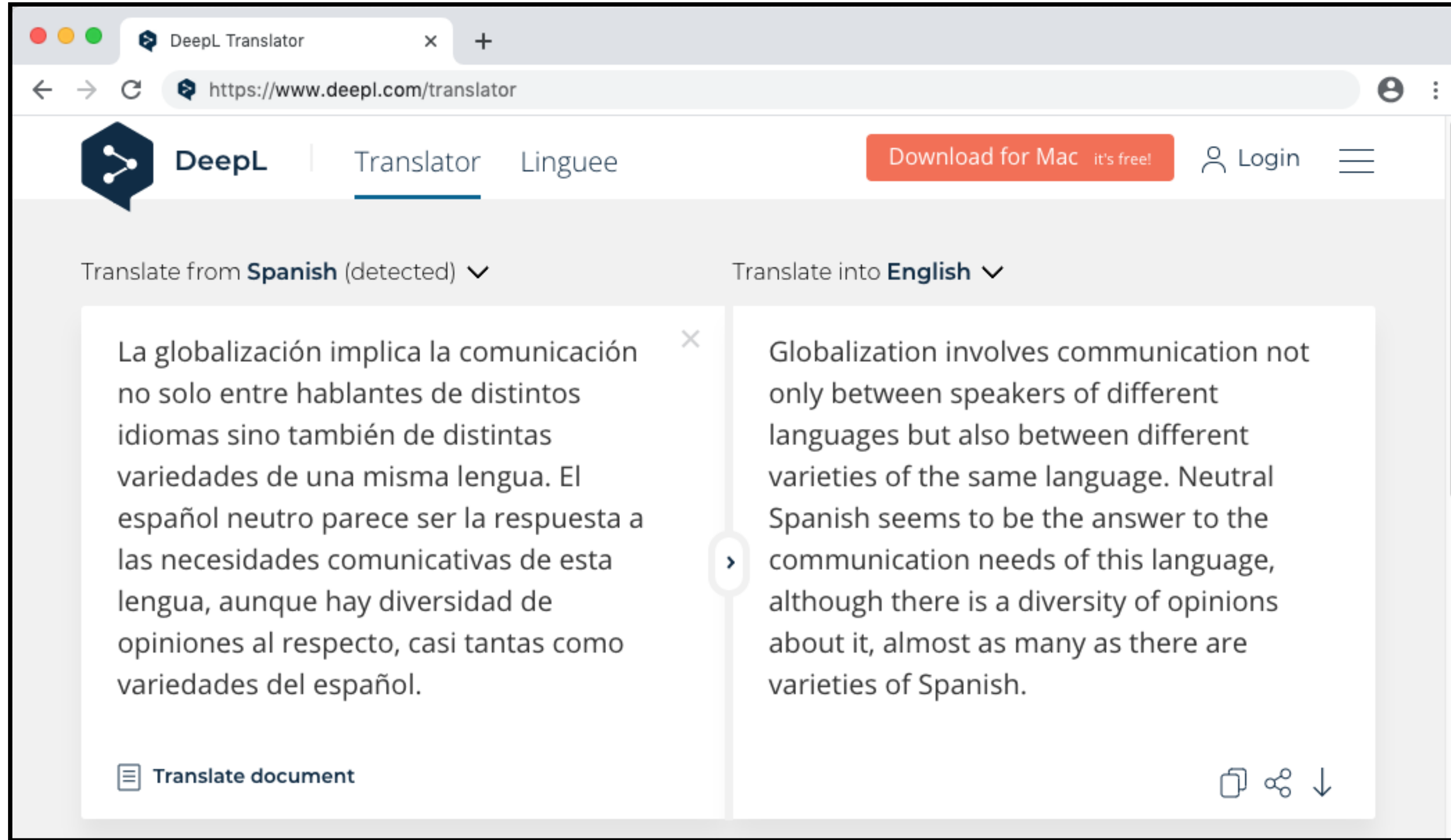
7 articles	8 articles
not available	available

Based on funding mandates





DeepL





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PART 3

State of the art: chatbots





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PART 3.1

Introduction



THE HISTORY OF CHATBOTS

25

1966 ELIZA



Mimicked human conversation by matching user prompts to scripted responses—it was able, at least for a time, to pass the Turing artificial intelligence test.

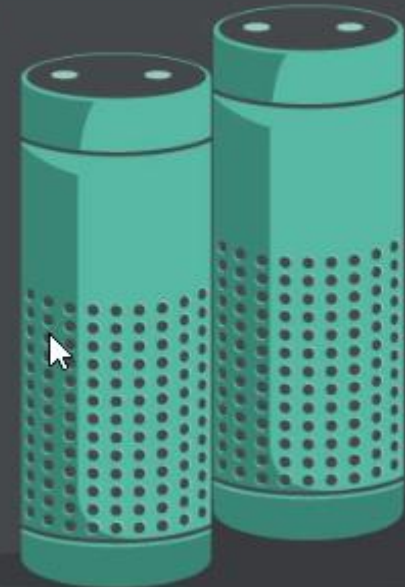
2010 SIRI

An intelligent (and cheeky) personal assistant, part of Apple's iOS which features a natural language UI to answer questions and perform Web service requests. Siri would pave the way for all later AI bots and PAs.



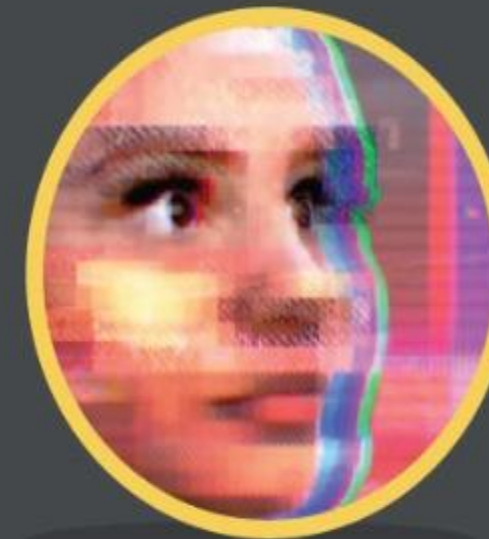
2015 ALEXA

A voice service inhabiting the Amazon Echo device, Alexa's capable of voice interaction -she uses natural language processing algorithms to receive, recognize, and respond to voice commands.



2016 TAY

Designed to mimic the speech and habits of a teenage American girl, Microsoft's chatbot Tay rapidly developed a vicious paranoia that made HAL 9000 look positively mellow. She was shut down after a mere 16 hours of existence, and hasn't been heard from since...





Hello, I am Akinator

Think about a real or fictional character. I will try to guess who it is

akinator®

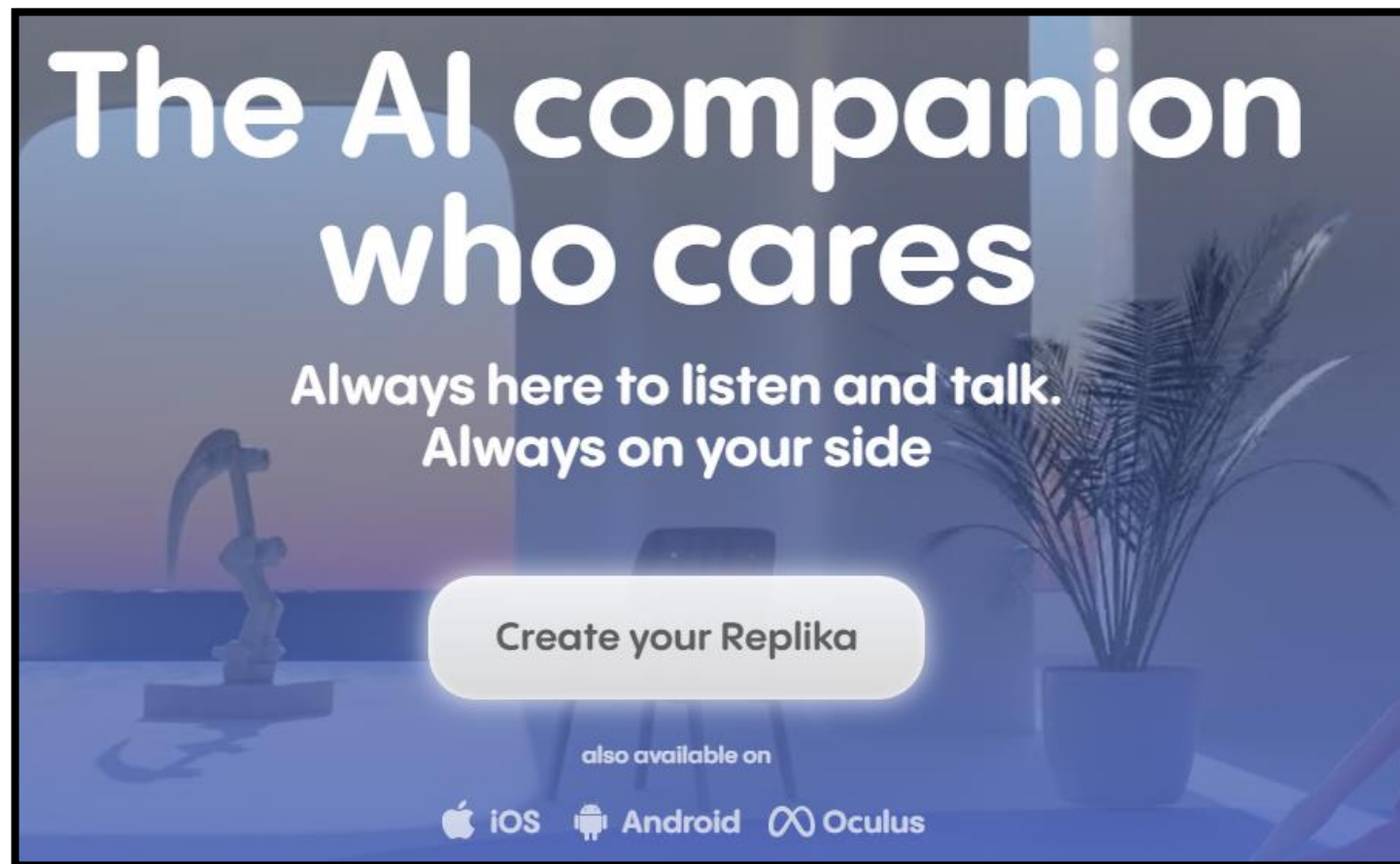
Download on the App Store

♦♦ PLAY ♦♦

GET IT ON Google Play

1232 people are playing right now.
1046573905 games played 80519 today.





TECHNOLOGY

The Google engineer who thinks the company's AI has come to life

AI ethicists warned Google not to impersonate humans. Now one of Google's own thinks there's a ghost in the machine.



By [Nitasha Tiku](#)

June 11, 2022 at 8:00 a.m. EDT



Compare and Choose the Right Chatbot Technology

User Reviews. Quick-Start Tutorials. Guidance by Industry & Application.

Browse All Chatbot Categories



Sales Enablement Chat



Real Estate Chatbots



Ecommerce Chatbots



AI Chat



Web Chat



Messenger Chat



Customer Support Chat



Live Chat Software



Enterprise Chatbots



SMS Marketing



Marketing Bots



Chatbot Builders

ChatGPT

ChatGPT is based on GPT-3.5, a language model that uses deep learning to produce human-like text.

🔍 Search for apps, categories, ...

Products

 ChatGPT ▼

Collections

New

Popular

Open-source

Upcoming

Requested



Developer Tools
ChatGPT Android

[View details](#)



Developer Tools
ChatGPT API (unofficial)



Browser Extensions
ChatGPT Chrome Extension



Browser Extensions
ChatGPT for Google



Developer Tools
ChatGPT for VSCode



Chatbots
ChatGPT Telegram bot

30





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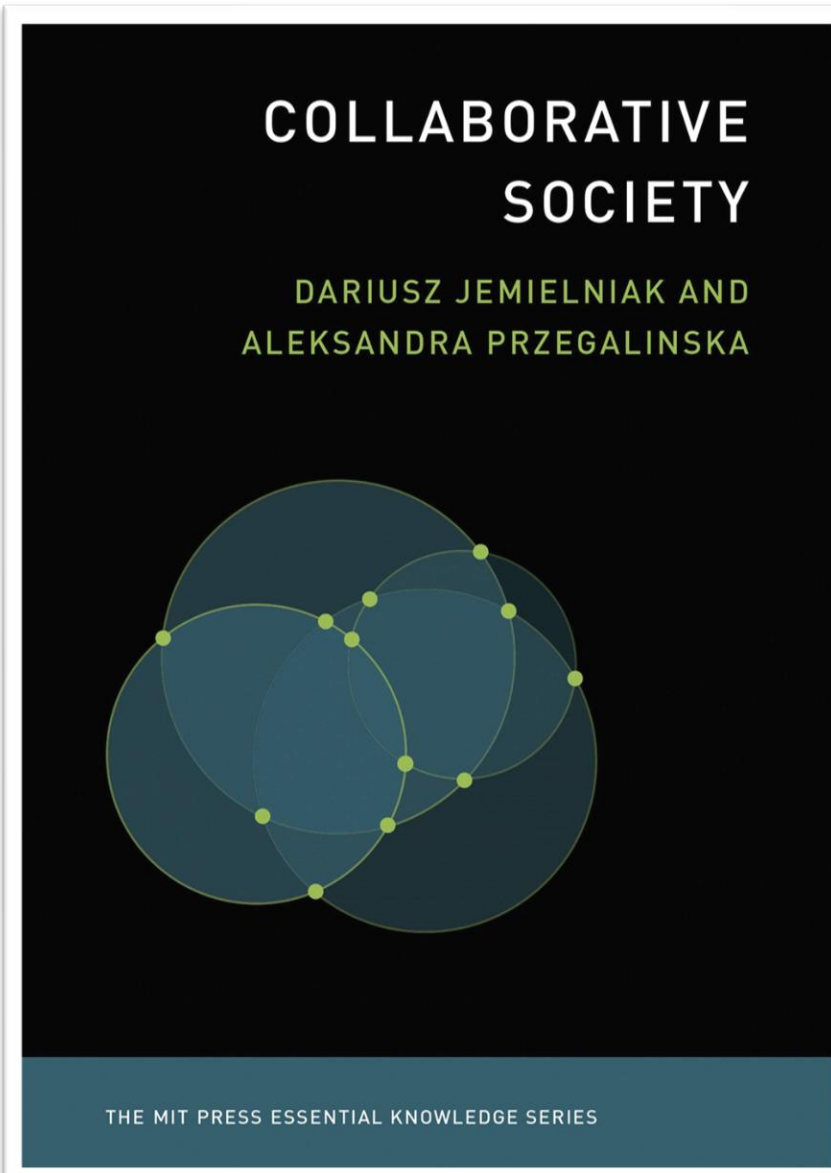
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PART 3.2

Chatbots x Poland





Prof. Aleksandra Przegalińska-Skierkowska

Department of Management in the Network Society
Vice-Rector for International Cooperation and ESR

✉ aprzegalinska@kozminski.edu.pl



CV

Professor Aleksandra Przegalińska-Skierkowska is a philosopher and researcher of new technologies development, especially green and sustainable technology, humanoid artificial intelligence, social robots, and wearable technologies. She received Ph.D. in 2014 from the Institute of Philosophy at the University of Warsaw. She graduated from The New School for Social Research in New York, where she researched identities in virtual reality, with particular focus on *Second Life*.



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<https://www.kozminski.edu.pl/en/community/card/prof-aleksandra-przegalinska-skierkowska>

The screenshot shows the 'gov.pl' website interface. The main content area is titled 'Dokumenty' and contains a section 'Lista zgłoszeń spełniających kryteria oceny formalnej'. Below this, there is a list of documents with their titles and file sizes:

- Lista rankingowa pozytywnie ocenionych pod względem formalnym ARTIQ (0.43MB)
- Informacje dotyczące Instytucji Hostującej znajdują się w pliku nr 1 wersja POL (1.03MB)
- Informacje dotyczące Instytucji Hostującej znajdują się w pliku nr 1 wersja ENG (1.03MB)
- Informacje dotyczące Instytucji Hostującej znajdują się w pliku nr 2 wersja POL (0.85MB)
- Informacje dotyczące Instytucji Hostującej znajdują się w pliku nr 2 wersja ENG (0.75MB)
- Informacje dotyczące Instytucji Hostującej znajdują się w pliku nr 3 wersja POL (0.95MB)
- Informacje dotyczące Instytucji Hostującej znajdują się w pliku nr 3 wersja ENG (0.69MB)
- Informacje dotyczące Instytucji Hostującej znajdują się w pliku nr 4 wersja POL (1.02MB)

A list of the research project within competitions:

- RENOIR: Reverse Engineering of Social Information Processing. Manager: Prof Janusz Hołys, source: EU Horizon 2020, amount 5.5 MLN PLN
- Machine Learning-based systems for the automation of systematic literature reviews in food safety domain, manager: Prof Radosław Pytlak, source: Norway Grants, amount: 5.2 MLN PLN
- „Simulation and analysis methods of logistics networks for postal operators”, manager: Dr Rafał Biedrzycki, NCBiR, WUT participation 2.6 MLN PLN
- „APAKT - Online child abuse reacting system emphasizing child pornography”, manager: Prof Włodzimierz Kasprzak, NCBiR, 12.3 MLN PLN (WUT participation 2.3 MLN PLN)
- HOMER: Human Oriented autoMated machinE leaRning, manager: Prof Przemysław Biecek, source: NCN, amount: 2.0 MLN PLN;
- NL4XAI: Interactive Natural Language Technology for Explainable Artificial Intelligence, manager at WUT: Prof Katarzyna Budzyska, source: Horizon 2020, amount: 13.0 MLN PLN (WUT participation: 1 MLN PLN);
- Robotic Applications for Delivering Smart User Empowering Applications – RAPP”, manager: Prof Cezary Zieliński, 7th FP EU, amount: 8.0 MLN PLN (WUT part: 1 MLN PLN).

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Interactive Natural Language Technology for Explainable Artificial Intelligence

Supporting the right to explanation by AI powered systems

INTERACTIVE NATURAL LANGUAGE TECHNOLOGY FOR EXPLAINABLE ARTIFICIAL INTELLIGENCE

NL4XAI is the first European Training Network (ETN) on Natural Language (NL) and Explainable Artificial Intelligence (XAI), coordinated by the Centro Singular de Investigación en Tecnoloxías Intelixentes (CITIUS), Universidade de Santiago de Compostela. The NL4XAI network is funded by the Horizon 2020 research and innovation programme, through a Marie Skłodowska-Curie grant, in the framework of the European Union's bet for Explainable Artificial Intelligence.

This network brings together 18 beneficiaries and partners from 6 different countries (France, Malta, Netherlands, Poland, Spain, and United Kingdom), representing both academic and non-academic sectors. They work together with the aim of making Artificial Intelligence self-explaining and contributing to translate knowledge into products and services for economic and social benefit.

The goal is to produce intelligent machines able to explain their behavior and decisions through interactive explanations in NL, just as humans naturally do. Eleven Early Stage Researchers (ESRs) face different but complementary research challenges to accomplish this goal. The NL4XAI network offers a unique research environment providing ESRs with an excellent structured training programme.



The screenshot displays the SentiOne dashboard. On the left is a dark sidebar with navigation options: PROJECTS (24), LISTEN (Mentions, Dashboard, Alerts, Reports), REACT (Threads, Authors, Supervisor, Service Reports), and SETTINGS (Labels, Accounts, Users). The main area is titled 'TOPIC Reviews' and includes filters for 'New', 'In Service', 'Closed', and 'Ignored'. A search bar and a 'Tags: Important' dropdown are visible. A list of reviews from various sources (facebook.com, instagram.com, twitter.com, youtube.com, and Company LLD) is shown, each with a date of 27/08/2019 - 10:59. The Instagram post is highlighted with a blue border. A 'Thread Details' panel is open on the right, showing the post content, an 'Influence Score: 9/10' bar, engagement metrics (13 144 likes, 5 233 comments), and a 'Response content' text area with a 'Reply' button. A tooltip 'Assign Thread' is positioned over the 'TS' icon of the Instagram post.

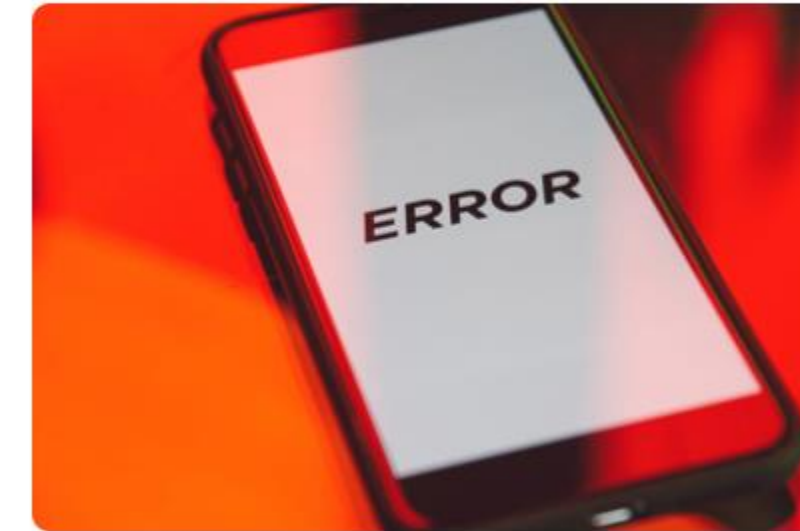




User identification and authorization



Activating sales and verifying leads



User support, including tickets and complaints



Calendar management: making, confirming and cancelling appointments and reservations



Conducting the soft debt collection process



Surveying and researching customer satisfaction/feedback





WE WILL PROVIDE YOU WITH AN INTUITIVE AND COMPATIBLE SYSTEM
TO IMPROVE YOUR SALES PERFORMANCE

DISCOVER IT NOW!



CUSTOMER
LOYALTY GUARANTEED

Having up to 100 calls a day, downloading data from many systems and the ability to quickly understand the customer's needs is a real challenge for the consultant. The repetitive and monotonous nature of the work, with high levels of stress, leads to burnout. The result is a 22% employee turnover, loss of customers and growing recruitment costs. Autonomous Digital Assistant is a response to the lack of skilled consultants in the labour market and to the risk of losing up to 25% of customers due to a connection wait time longer than 4 seconds.

CUSTOMER ENGAGEMENT

- › Video Chat
- › Customer Experience
- › Biometric Video Identification
- › AI - AALIA

EMPLOYEE ENGAGEMENT

- › Omnichannel Desktop
- › Workforce Management
- › Artificial Intelligence



ARTIFICIAL INTELLIGENCE



MACHINE LEARNING



NATURAL LANGUAGE PROCESSING



understanding natural language thanks to advanced NLP algorithms powered by IBM Watson Assistant

understanding the meaning behind the request with intents and entities

supporting 13 languages



Thanks to such engine, amongst other chatbot features, Actionbot enables:

- ✓ a quick analysis of the channel's content to navigate the user and interact with him
- ✓ constant analysis and learning on previous conversations with customers and their activities in a channel
- ✓ adjusting chatbot reactions to customers' actions
- ✓ automatic forms pre-filling to ease customer's experience, shorten the transaction process and reduce drop-outs

What can NLP chatbots bring to your company?

- ★ imitate natural conversation
- ★ provide instant support
- ★ improve user experience
- ★ increase conversion rate
- ★ lower implementation cost



chatbots & web accessibility





hellobot

A voice bot can have a different personality, it can be named differently, it can speak with the voice of an actor, someone famous or a digital voice.

The personalization process is included in our standard offer.

However, a voice bot is primarily about flawlessly making and receiving phone calls in accordance with the scheduled schedule

and conversation scenario.

See how much HelloBot can do.



Connections

Make and receive calls with virtually no limits



Analytics

Analysis of the interlocutor's statements literally online



Intelligence

Leading an intelligent conversation in accordance with the script and knowledge base



inquisitiveness

Full understanding of the interlocutor or asking questions in case of ambiguity



Bot development

The artificial intelligence module ensures continuous learning



Reporting

Current and continuous reporting of results and calls



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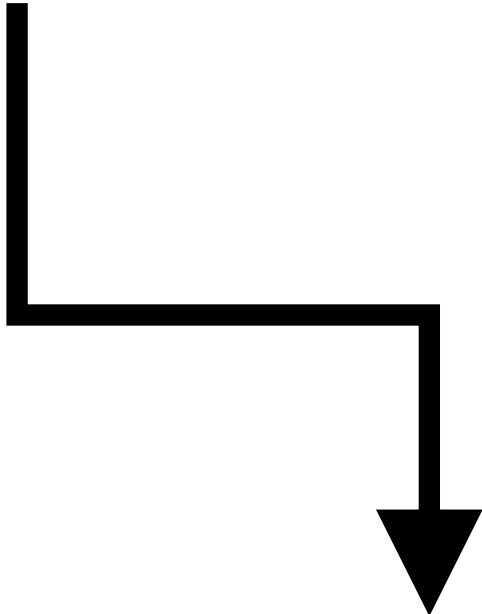


PART 4

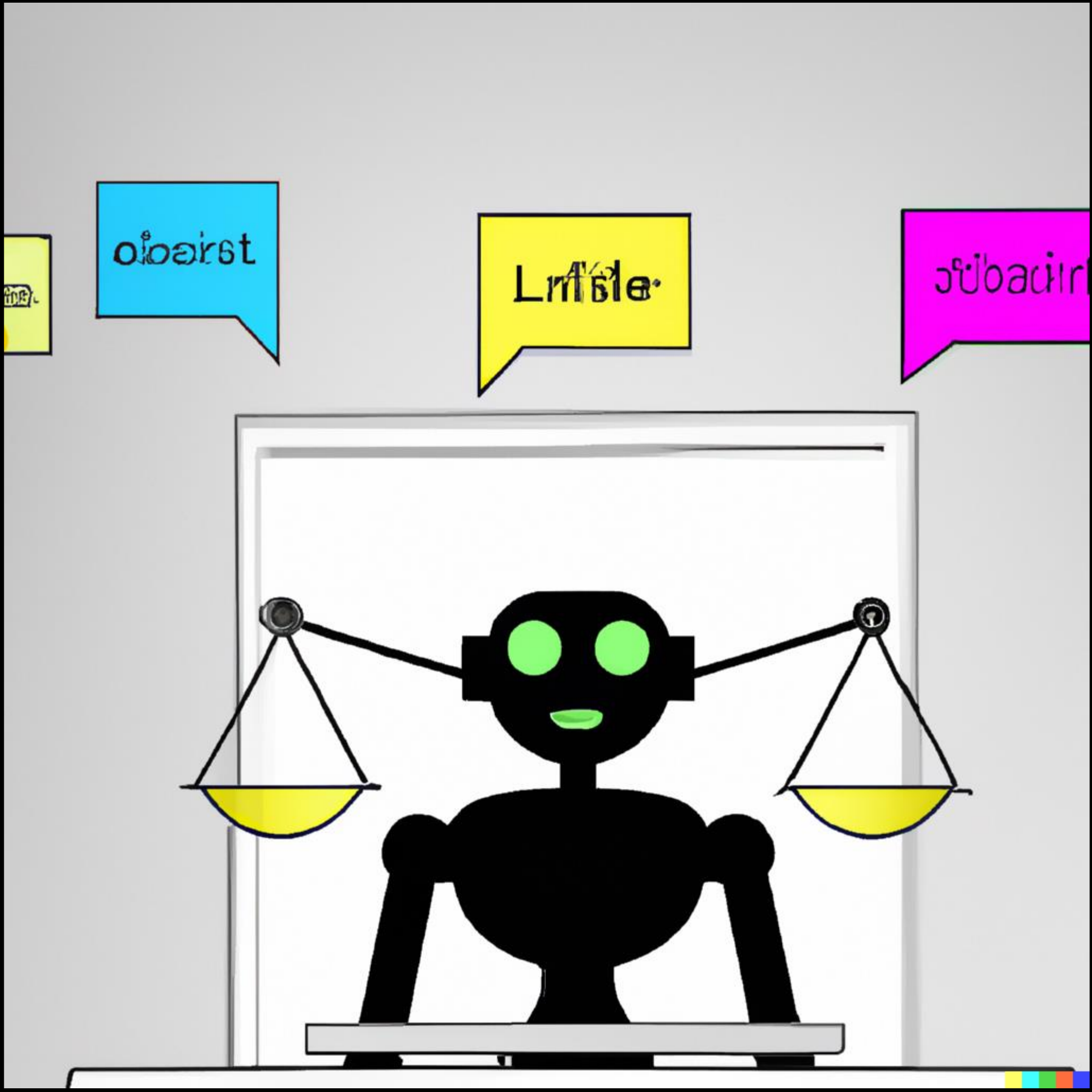
Closing remarks



DALL-E 2: Open AI's tool that is revolutionizing digital photo creation



Chatbots applied in the justice field



+ New Thread

ChatGPT



Examples

"Explain quantum computing in simple terms" →

"Got any creative ideas for a 10 year old's birthday?" →

"How do I make an HTTP request in Javascript?" →



Capabilities

Remembers what user said earlier in the conversation

Allows user to provide follow-up corrections

Trained to decline inappropriate requests



Limitations

May occasionally generate incorrect information

May occasionally produce harmful instructions or biased content

Limited knowledge of world and events after 2021

Free Research Preview: ChatGPT is optimized for dialogue. Our goal is to make AI systems more natural to interact with, and your feedback will help us improve our systems and make them safer.

Dark Mode

OpenAI Discord

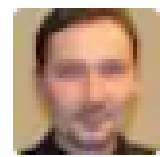
Updates & FAQ

Log out

41



OpenAI

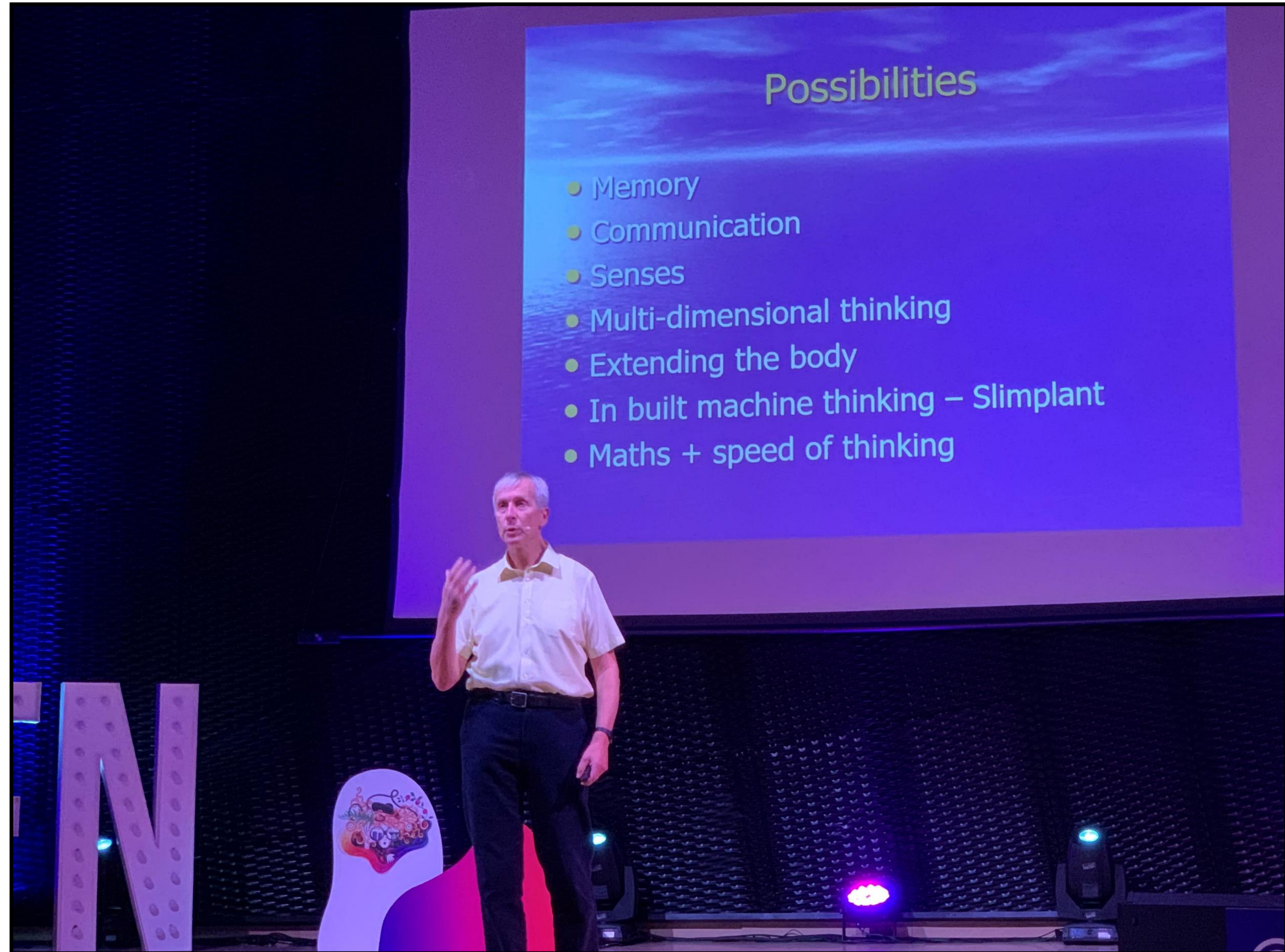


How artificial intelligence, for example chatbots, can be used in the justice field?



Artificial intelligence, including chatbots, can be used in the justice field in a number of ways. For example, AI can be used to help automate and streamline legal processes, such as by analyzing legal documents or providing legal research assistance. Chatbots can also be used to help individuals understand their legal rights and options, and to guide them through the legal process. In addition, AI can be used to assist in the detection and prevention of legal crimes, such as fraud or financial crimes. Overall, the use of AI in the justice field has the potential to improve the efficiency and effectiveness of the legal system.







Hypponen's Law:
If it's smart, it's vulnerable

THANKS!



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twitter.com/polsl



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