EARIN

http://elektron.elka.pw.edu.pl/~jarabas/EARIN.html

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EARIN
Jarosław Arabas

Introduction

Intelligence

Property of:

- Humans?
- Animals?
- Plants?
- Chemical particles?
- Computers?
- Washing machines?
- ….

Intelligence

- Ability to predict
- Ability to plan
- Ability to adapt
- Ability to classify
- Ability to communicate
- Ability to cooperate

Intelligence

- How to recognize intelligence?
  - Behavior
  - Thinking

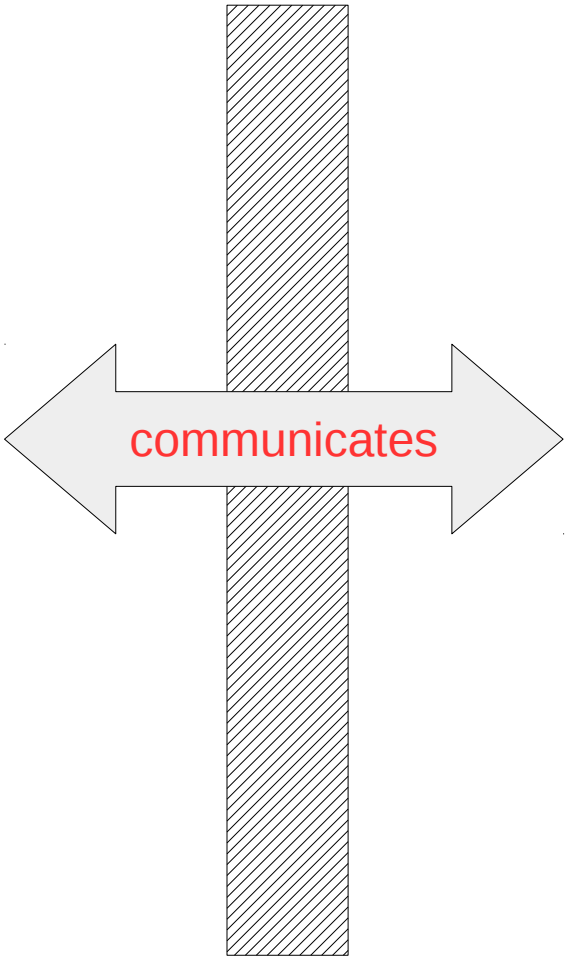
Artificial Intelligence

Computers can

- predict
- plan
- adapt
- classify
- communicate
- cooperate

Turing test

Human



?

A human cannot guess whether on the other side is a human or a computer

Turing test

Artificial Intelligence

Computers can

act reasonably — **weak AI**

think reasonably

act like humans

think like humans — **strong AI**

EARIN

- Weak AI
- Basic course
- Three units
  - Problem solving by searching
  - Inference in predicate logic
  - Building models from data
- Additional unit
  - Decision making support

EARIN

- Three units
  - Problem solving by searching
  - Inference in predicate logic
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Computers can

- predict
- plan
- adapt
- classify
- communicate
- cooperate

Example application fields

- Playing games
- Autonomous car
- Mobile robots
- Speech recognition
- Recognition of written text
- Recommending systems
- Fraud detection
- Search engines
- Industrial control systems
- Computer Aided Design

Example application fields

Deep Blue versus Garry Kasparov - Wikipedia, the free encyclopedia - Mozilla Firefox

https://en.wikipedia.org/wiki/Deep_Blue_versus_Garry_Kasparov#The_1997_rematch

deep blue kasparov

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Deep Blue versus Garry Kasparov

From Wikipedia, the free encyclopedia

Deep Blue versus Garry Kasparov was a pair of six-game chess matches between chess champion Garry Kasparov and an IBM supercomputer called Deep Blue. The first match was played in Philadelphia in 1996 and won by Kasparov. The second was played in New York City in 1997 and won by Deep Blue. The 1997 match was the first defeat of a reigning world chess champion to a computer under tournament conditions.

The 1997 match was the subject of a documentary film, *The Man vs. The Machine*.[1]

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3 1997 rematch
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3.3 Game 3
3.4 Game 4
3.5 Game 5
3.6 Game 6
4 See also
5 References
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This article uses algebraic notation to describe chess moves.

Deep Blue vs. Kasparov chess matches

Deep Blue
IBM chess computer

Garry Kasparov
World Chess Champion

First match

- February 10, 1996: takes place in Philadelphia, Pennsylvania
- Result: **Kasparov**–Deep Blue (4–2)
- Record set: First computer program to defeat a world champion in a *classical game* under tournament regulations

Second match (rematch)

- May 11, 1997: held in New York City, New York
- Result: **Deep Blue**–Kasparov (3½–2½)
- Record set: First computer program to defeat a world champion in a *match* under tournament regulations

Summary [edit]

The 1996 match

Game #	White	Black	Result	Comment
1	**Deep Blue**	Kasparov	1-0	
2	**Kasparov**	Deep Blue	1-0	
3	Deep Blue	Kasparov	½–½	Draw by mutual agreement

The 1997 rematch

Game #	White	Black	Result	Comment
1	**Kasparov**	Deep Blue	1–0	
2	**Deep Blue**	Kasparov	1–0	
3	Kasparov	Deep Blue	½–½	Draw by mutual agreement

Languages: Català · Cymraeg · Español · فارسی · 한국어 · 日本語 · Norsk bokmål · Português · ไทย · 中文

Menu | Terminal | Deep Blue vers... | EARINL16 | wyklad2.odp - ... | wyklad1.odp - ... | 09:42

Example application fields

Google car – which drives WITHOUT a steering wheel – to hit public roads this summer | Tech | Life & Style | Daily Express - Mozilla Firefox

Interia - Polska i św... | Wiadomości, infor... | greek oracle - Goo... | Google Image Res... | Teddy Tietz Cartoo... | pythia - Google Se... | google car - Googl... | Google car – which...

www.express.co.uk/life-style/science-technology/577426/Google-Self-Driving-Car-Without-Steering-Wheel-Public-Roads

google car

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Firefox has prevented the outdated plugin "Adobe Flash" from running on www.express.co.uk. Continue Blocking | Allow...

A word from the Editor: Coping with a relative who suffers from...

Are we CRAZY? UK faces Russia & ISIS & OUR military is in...

PM's 'brilliant' EU deal isn't all it's cracked up to be, blasts...

David Cameron has just become the best advert for leaving the EU...

Stop the bullying, Dave, says Nick Ferrari

Google car – which drives WITHOUT a steering wheel – to hit public roads this summer

GOOGLE'S most radical self-driving car to date – a pod-like two-seater which can drive without the need for pedals or a steering wheel – will join the traffic on public roads this summer.

By AARON BROWN

PUBLISHED: 10:05, Fri, May 15, 2015 | UPDATED: 10:27, Fri, May 15, 2015

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The bulbous self-driving vehicle does not require a steering wheel to drive

The Californian search giant claims its latest vehicle is the first to be built from scratch for the purpose of self-driving

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Menu | Terminal | Google car – w... | EARINL16 | wyklad2.odp - ... | 1 2 | 09:37

Example application fields

Speech Recognition Technology On The Move | Emerging Technologies | Voice Recognition Solutions | Digital Dictation Services | Speech IVR & Telephony Solutions - Mozilla Firefox

www.em-t.com/articles/speech-recognition-technology-move

speech recognition

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Simply Speak! emerging technologies

Home | Healthcare | Enterprise | Etisalat ICT

Enter keyword

Home » Speech Recognition Technology On The Move

Speech Recognition Technology On The Move

It is no surprise that speech recognition software, is taking off at such a high pace in the world today. Everyone wants to excel and exceed their ability to communicate, store and retrieve some sort of data or media. Worldwide, everyone is mobile or going mobile. It is such a convenient and easier means of staying in touch and getting tasks accomplished.

Our modern environment is a very busy visual place with many hands on applications, which at times can slow us down when it comes to taking care of business. Having voice control and voice command as a means of functioning operations for data input and record keeping is essential. This technology also includes voice dialing, search options as well as the ability to control all the other features of handsets.

Mobile **speech recognition technology** is the answer to the global problem of hand set use and the hazards that can develop from the use of handsets when the mind really should focus wholeheartedly on other imperative matters, such as operating a vehicle. In fact, this is one of the leading reasons for the marketing push surrounding the development of mobile speech recognition software.

The reason for this marketing push of mobile speech recognition technology directly relates to the global outcry for restricting use of handheld controls while operating a moving vehicle. This outcry for a just means of eliminating hazards while operating a vehicle is evident in various countries, including some states in the United States, Chile, and Australia, the Philippines and Britain as well as many others.

The operational use of such mobile technology is a straightforward and practical approach to solving the problems related to the use of hands while operating other applications, again for instance, such as operating a moving vehicle. Interestingly, studies show that the use of such mobile devices will triple within the next five years.

Datamonitor, an independent market analyst, predicts that the value globally of mobile advance speech recognition applications will increase from the 2009 totals of more than $32 million to more than $99 million in the year 2014. Datamonitor also anticipates the growth of ASR in-vehicle telematics to increase from more than $64 million to more than $208 million in the next five years. They also anticipate that popular app retailers will allow other smaller companies that specialize in *speech recognition technology*into the marketplace and the increase use of other embedded and hybrid speech recognition applications.

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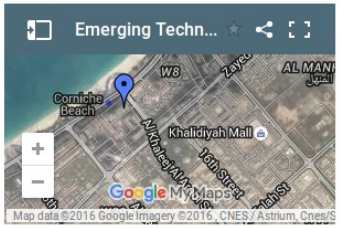
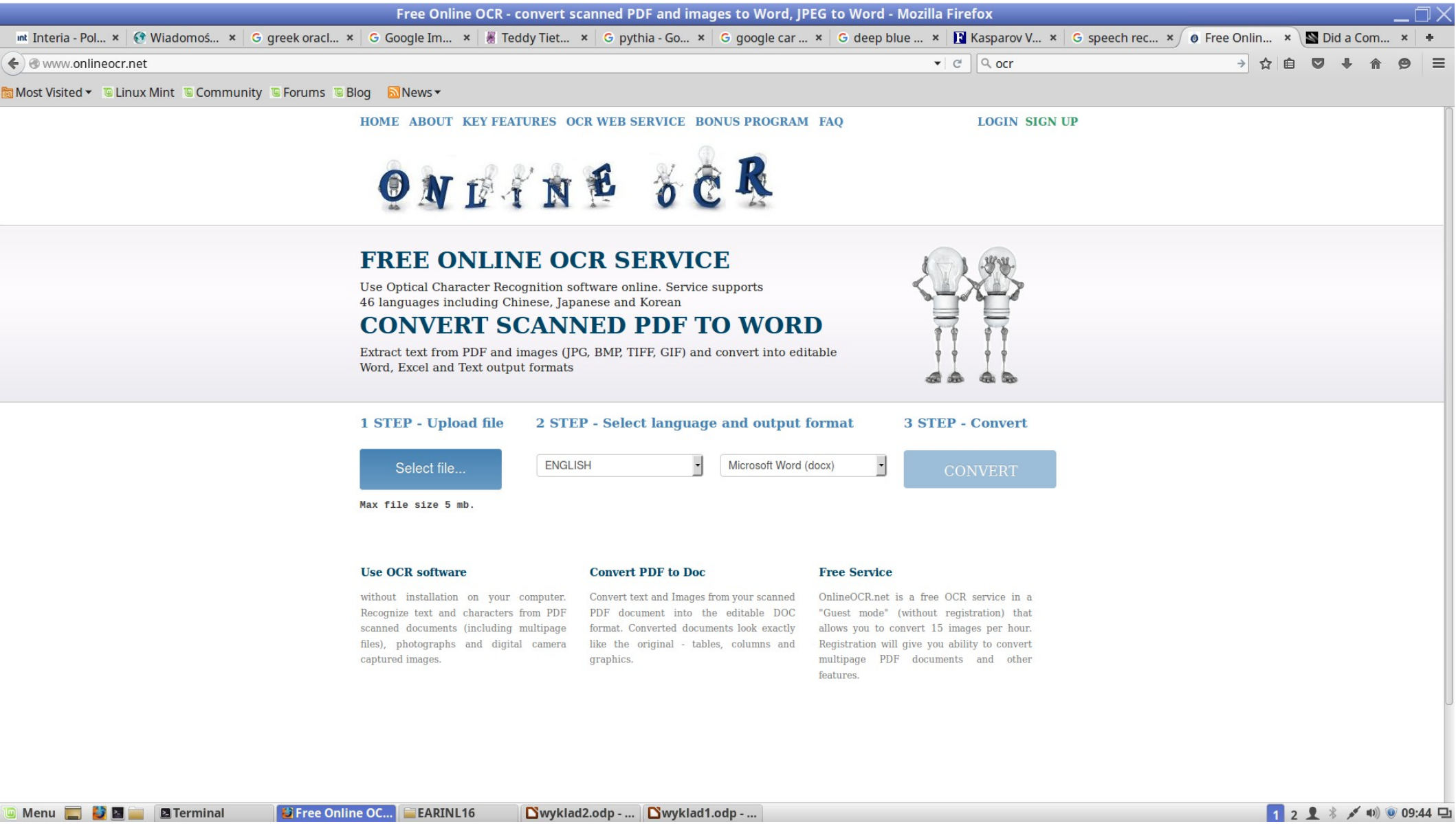


View Larger Map

Menu | Terminal | Speech Recogn... | EARINL16 | wyklad2.odp - ... | wyklad1.odp - ... | 09:43

Example application fields



Example application fields

WIKIPEDIA
The Free Encyclopedia

Main page
Contents
Featured content
Current events
Random article
Donate to Wikipedia
Wikipedia store

Interaction
Help
About Wikipedia
Community portal
Recent changes
Contact page

Tools
What links here
Related changes
Upload file
Special pages
Permanent link
Page information
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Applications of artificial intelligence

From Wikipedia, the free encyclopedia

Artificial intelligence has been used in a wide range of fields including medical diagnosis, stock trading, robot control, law, remote sensing, scientific discovery perceived as AI: "A lot of cutting edge AI has filtered into general applications, often without being called AI because once something becomes useful enough a "Many thousands of AI applications are deeply embedded in the infrastructure of every industry."[2] In the late 90s and early 21st century, AI technology becam credited for these successes.

Contents [hide]

Computer science [edit]

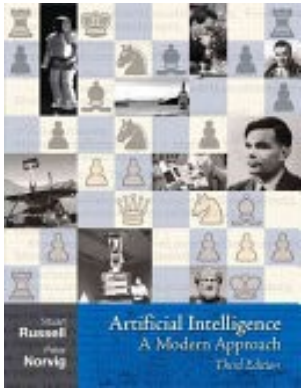
AI researchers have created many tools to solve the most difficult problems in computer science. Many of their inventions have been adopted by mainstream c
According to Russell & Norvig (2003, p. 15), all of the following were originally developed in AI laboratories: time sharing, interactive interpreters, graphical use
linked list data structure, automatic storage management, symbolic programming, functional programming, dynamic programming and object-oriented progra

Methods of AI

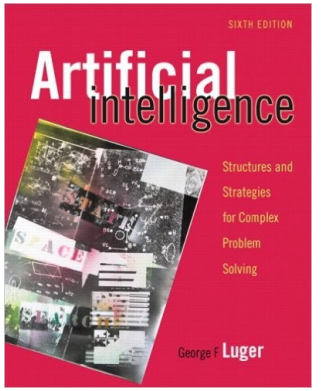
- Turing test is based on the interaction with the system (or on the system actions)
- No clear understanding what are AI methods and what are not
- Closely related areas (incomplete list)
  - Logic
  - Statistics
  - Calculus
  - Numerical methods

Textbooks

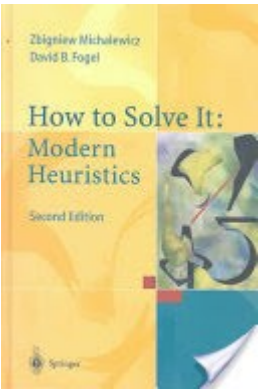
S. Russell, P. Norvig, *Artificial Intelligence: a Modern Approach,* Prentice Hall, 2010.
(search oriented perspective)



G. Luger, *Artificial Intelligence: Structures and Strategies for Complex Problem Solving*, Addison-Wesley, 2008.
(knowledge oriented perspective)



Z. Michalewicz, D. Fogel, *How to solve it: modern heuristics*, Springer, 2004.
(computational intelligence)



EARIN course

- Lecture
  - Problem solving by searching
  - Inference in predicate logic
  - Building models from data

    exam 55 points

Project

- Solving puzzles in R (15 points)
- Simple predicates in PROLOG (15 points)
- Using packages in R to build classifiers (15 points)

EARIN grading

- Min. 10 points from the exam to pass
- Grading rules:

  91-100 → 5

  81-90 → 4.5

  71-80 → 4

  61-70 → 3.5

  51-60 → 3