



FAMI

Agenda

- AI in sport and our life
- AI in nutshell
- How we can use models?
- Building models and using them



AI helps in training

- measuring movement
- track biometric data
- detects anomaly
- proposes correct movement
- propose training programs





Visual tracking (Kinect 2)

- Body tracking
- Face tracking
- Voice recognition





Using controlers

Track body using sensors:

- VR equipment
- Boots with sensors
- Other sensors...





Sensor tracking

- Attach sensors
- Create routine
- Generate results
- Analyse results

12	169	53	
64	45	125	
0	0	0	23
	12 64 0	12 169 64 45 0 0	12 169 53 64 45 125 0 0 0

7

226







Training phase



Human tracking







Al in our life?



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FAAR

How problem was solved before?

- The problems were solved through observations, pattern finding and creation of solution
- Take simple example of 3 sport referees (pass or fail)

x1	x2	x 3	у
1	0	0	0
1	1	0	1
0	1	1	1
1	1	1	1
1	0	1	1





Solution?

• Take simple example of 3 sport referees



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New observations

• Take simple example of 3 sport referees



$$=egin{cases} 1, & ext{if} \left(x_1+x_2+x_3
ight)\geq 2\ 0, & ext{otherwise} \end{cases}$$



Wrong data

• Take simple example of 3 sport referees



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Wrong model

• Take simple example of 3 sport referees



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Insuficiend data

Take simple example of 3 sport referees

x1	x2	x3	у	
1	0	0	0	
1	1	0	1	
0	1	1	1	
1	1	1	1	E
1	0	1	1	
0	0	1	1	
0	1	0	1	
0	0	0	0	

$$y = egin{cases} 1, & ext{if} \left(x_2 + x_3 > 0
ight) \ 0, & ext{otherwise} \end{cases}$$

$$\left(0, \text{ otherwise} \right)$$





Conclusions

 The solution was as good as data provides so why not use all data???

OR

 Knowledge of rules could simplify process and data could be use to verify its usage (heuristics)



The same example but not the same

x1	x2	x3	у
1	0	0	0
0	5	2	0
3	5	1	0
4	5	5	1
3	0	6	0
6	6	6	1
2	3	2	0

- referee can score 0-6
- number of cases rise to $7^3 = 343$
- the result stays the same pass or fail



Can we asses the pass grade?



Data analysis

- Try to look at data from perspective
- The key is to find good one...















But what if we obtain other result?

• The y value depends on sum of scores



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The worst case scenario...



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AI – how it works?





AAAB

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Al step in

 "Easily" finds the optimal way to collect examples from one class (color)





















the European Union

Generate text acorging to SAO

Default (GPT-3.5)



Create decription for new webpage concerining soccer



Title: Dancing with the Beautiful Game: A Symphony of Soccer

In the heart of the digital realm, where dreams and passions entwine, we invite you to embark on a journey into the mesmerizing world of soccer, where the spirit of the game dances on the hallowed turf. Welcome to our sanctuary of soccer, a place where every kick of the ball tells a tale of triumph and heartache, where the pitch is a canvas for heroes and legends to etch their indelible mark.

Step onto the Field of Dreams: Imagine the scent of freshly cut grass, the gentle breeze caressing your face, and the roar of the crowd as you step onto the field. Here, the emerald



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n n

 \Box



Generate working programme

You

propose weekly workout programe considering squats, jog and other activities. 3 excersises a day three times a week

Day 1:

- 1. Squats: Start with a warm-up set of bodyweight squats, then perform 3 sets of 10-12 reps with a barbell or dumbbells.
- 2. Jogging: Go for a 20-30 minute jog at a moderate pace. Focus on maintaining a steady rhythm and good form.
- Day 2: 3. Plank: Finish with a plank exercise, holding core muscles and keeping your body in a :

 - 1. Lunges: Begin with walking lunges or stationary lunges, performing 3 sets of 10-12 reps per leg.
 - 2. Jump Rope: Incorporate 10-15 minutes of jump rope exercises, focusing on coordination and endurance.
 - 3. Push-ups: Complete 3 sets of 10-15 push-ups, ensuring proper form and control throughout each

Day 3:

- 1. Deadlifts: Warm up with light weights and then perform 3 sets of 8-10 reps with a barbell or kettlebells.
- 2. Cycling: Spend 30-45 minutes cycling, either outdoors or on a stationary bike, maintaining a moderate pace.
- 3. Plank with Leg Raises: Perform plank position with alternating leg raises, aiming for 3 sets of 10-12 raises per leg.



Adjusting plan

You

Add additional day saturday with fat burning excersises

- Interval Training: Perform high-intensity interval training (HIIT) consisting of alternating periods of intense exercise and recovery. For example, sprint for 30 seconds followed by a 1-minute brisk walk or jog. Repeat for 15-20 minutes.
- 2. Burpees: Incorporate 3 sets of 10-15 burpees. This full-body exercise is excellent for burning calories and increasing cardiovascular endurance.
- 3. Mountain Climbers: Complete 3 sets of 20-30 seconds of mountain climbers. This exercise targets multiple muscle groups while keeping your heart rate elevated.
- 4. Jumping Jacks: Include 3 sets of 30-60 seconds of jumping jacks. This classic cardio exercise helps to increase your heart rate and burn calories.
- 5. **Plank Twists:** Perform 3 sets of 10-12 plank twists per side. From a plank position, rotate your torso and touch your left hip to the ground, then return to the starting position and repeat on the right side. This exercise engages your core and obliques while also elevating your heart rate.
- Cool Down: Finish with a 5-10 minute cool-down consisting of stretching exercises to help reduce muscle soreness and improve flexibility.





Sentiment analysis (shorts)

There is a moment in "Shrek" when the despicable Lord Farquaad has the Gingerbread Man tortured by dipping him into milk This prepares us for another moment when Princess Fiona's singing voice is so piercing it causes jolly little bluebirds best of a bad situation, she fries their eggs. This is not your average family cartoon. "Shrek" is jolly and wicked, f vet somehow possessing a heart.

The movie has been so long in the making at DreamWorks that the late Chris Farley was originally intended to v the title role. All that work has paid off: The movie is an astonishing visual delight, with animation techniques that fantastical, both at once. No animated being has ever moved, breathed or had its skin crawl quite as convincingl movie doesn't look like a reprocessed version of the real world: it's all made up, right down to, or up to, Shrek's ti

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Shrek's voice is now performed by Mike Myers, with a voice that's an echo of his Fat Bastard (the Scotsman with "Austin Powers: The Spy Who Shaqqed Me"). Shrek is an ogre who lives in a swamp surrounded by "Keep Out" signs. He wants only to be left alone, perhaps because he is not such an ogre after all but merely a lonely creat. complex because of his ugliness. He is horrified when the solitude of his swamp is disturbed by a sudden invasic who have been banished from Lord Farguaad's kingdom.

Many of these creatures bear a curious correspondence to Disney characters who are in the public domain: The along with the Three Bears, the Three Blind Mice, Tinkerbell, the Big Bad Wolf and Pinocchio. Later, when Farqu Magic Mirror gives him three choices: Cinderella, Snow White ("She lives with seven men, but she's not easy") a chooses the beauty who has not had the title role in a Disney animated feature. No doubt all of this, and a little d ribs is more playful than serious. (Farquaad is said to be inspired by Disney chief Michael Eisner, but I don't see short stature corresponds not to the tall Eisner but, well, to the diminutive Katzenberg.) The plot involves Lord Fe Princess Fiona, and his reluctance to slay the dragon that stands between her and would-be suitors. He hires St which Shrek is happy to do, providing the loathsome fairy-tale creatures are banished and his swamp returned to mission. Shrek is joined by a donkey named the Donkey, whose running commentary, voiced by Eddie Murphy, provides some of the movie's best laughs. (The trick isn't that he talks, Shrek observes; "the trick is to get him to shut up.") The expedition to the castle of the Princess involves a suspension bridge above a flaming abyss, and the castle's interior is piled high with the bones of the dragon's previous challengers. When Shrek and the Donkey get inside, there are exuberant action scenes that whirl madly through interior spaces, and

revelations about the dragon no one could have guessed. And all along the way, asides and puns, in-jokes and contemporary references. and countless references to other movies.

Voice-overs for animated movies were once, except for the annual Disney classic, quickie jobs that actors took if they were out of work. Now they are starring roles with fat paychecks, and the ads for "Shrek" use big letters to trumpet the names of Myers, Murphy, Cameron Diaz (Fiona) and John Lithgow (Farguaad). Their vocal performances are nicely suited to the characters, although Myers' infatuation with his Scottish broque reportedly had to be toned down. Murphy in particular has emerged as a star of the voice-over genre.

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Much will be written about the movie's technical expertise, and indeed every summer seems to bring another breakthrough on the animation front. After the three-dimensional modeling and shading of "Toy Story," the even more evolved "Toy Story 2," "A Bug's Life" and "Antz," and the amazing effects in "Dinosaur." "Shrek" unveils creatures who have been designed from the inside out, so that their skin. muscles and fat move upon their bones instead of seeming like a single unit. They aren't "realistic," but they're curiously real. The artistry of the locations and setting is equally skilled -- not lifelike, but beyond lifelike, in a merry, stylized way.

Still, all the craft in the world would not have made "Shrek" work if the story hadn't been fun and the ogre so lovable. Shrek is not andsome but he isn't as ugly as he thinks: he's a guy we want as our friend, and he doesn't frighten us but stir our sympathy. He's so mensely likable that I suspect he may emerge as an enduring character, populating sequels and spinoffs. One movie cannot contain him

The sentiment of the review appears to be positive, with the reviewer praising various aspects of the movie "Shrek," including its visual delight, animation techniques, and the likability of the main character, Shrek. The reviewer appreciates the movie's unique and playful approach, making note of the sly in-jokes, contemporary references, and the clever use of familiar chooses the beauty who has not had the title role in a Disney animated feature. No doubt all of this, and a little d inspired by feelings DreamWorks partner Jeffrey Katzenberg has nourished since his painful departure from Disi convey a favorable and enthusiastic opinion of "Shrek."





Sentiment analysis 0-1

Once I got past Cyberpunk 2077's slow bui moment where the logo is splashed across a sense of investment in V's struggle, and t heat. Once past the intro, you can go wher neighborhoods may have tougher enemies you on sight unless you go looking for troul quests to keep you busy for a long time.

On a scale of 0 to 1, where 0 is extremely opening segment is slightly restrictive relating negative, 0.5 is neutral, and 1 is extremely positive, the estimated sentiment for this review would likely be around 0.8, indicating a predominantly positive outlook. Keep in mind that sentiment analysis is subjective and may vary

The structure here feels very different from based on individual interpretations. Witcher 3: Wild Hunt. If most game structures are puilt like a redwood tree, with a tail central trunk that has paths branching off it as you go higher, Cyberpunk 2077 is more like a large bush: you don't have to travel down its main quest very far at all to have dozens of tangled branches already within your reach, all competing for your attention. Most are just a phone conversation away, too: since this is the future, you often don't even have to go looking for quest givers because people will just call to offer you a job. This does somewhat rob Cyberpunk 2077 of a familiar feeling of scaling growth, since the options available to you increase rapidly and then plateau a bit for most of your playtime, but there's so much to see and do and still so much not directly handed to you that must be sought out - that I didn't mind trading in that style

of discovery for one of abundant choice .



Al should not be left unatended

- Al is as good as dataset used to train
- The intention of a user could be misread

Introduction to Cleaning Robots

Cleaning has always been an essential part of maintaining a healthy and comfortable living environment. However, the traditional methods of manual cleaning can be time-consuming, labor-intensive, and often require a significant amount of effort. In recent years, the emergence of cleaning robots has revolutionized the way we approach household and commercial cleaning tasks. These robots are designed to autonomously or semiautonomously perform cleaning tasks, ranging from vacuuming and mopping floors to scrubbing windows and disinfecting surfaces. The integration of advanced technologies such as artificial intelligence (AI), computer vision, and machine learning has enabled these robots to adapt to various environments and efficiently tackle a wide range of cleaning challenges.

Cleaning robots offer numerous advantages over conventional cleaning methods. They can work tirelessly without human intervention, ensuring that spaces remain clean and sanitized around the clock. Moreover, they are equipped with sensors and intelligent algorithms that allow them to navigate through complex environments, avoid obstacles, and even adapt their cleaning patterns to specific conditions. This level of autonomy not only saves time but also reduces the physical strain on individuals responsible for cleaning tasks, making it a valuable addition to both households and commercial settings.

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Alternative

bard.google.com

Bard Experiment

+ New chat	Give me proposition on escape room	0
Recent	 View other Sure! Here are some ideas for a proposition on an escape room: Escape room proposition Introduction Escape rooms are a popular and growing form of entertainment. They are a great way to challenge you with friends and family, and have a lot of fun. Proposed escape room business I am proposing an escape room business that will provide a unique and exciting experience for our cus will offer a variety of themed rooms, each with its own unique puzzles and challenges. We will use state technology to create an immersive and realistic experience. 	drafts 🗸 📕 ur mind, bond stomers. We e-of-the-art
	Enter a prompt here	♥⊳⁺

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Create grafical concepts

- Attractive and original photos, graphics and video materials attract the attention of recipients, build the brand image and increase conversions.
- Artificial intelligence (AI) offers tools that apply advanced algorithms to generate images based on text or sketch.





Example

• Generate the image of da Vinci creating web application using brush



Create concetps for projects (Dall-e)

Generate the space shuttle cabin from 23 century. It should be simple





Generate texture on wall



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- CARB



Concept (stable diffusion)



√ cinematic-default sai-3d-model sai-analog film sai-anime sai-cinematic sai-comic book sai-craft clay sai-digital art sai-enhance sai-fantasy art sai-isometric sai-line art sai-lowpoly

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Way of tune model

Styles	Styles
sai-3d-model 🗸	sai-pixel art 🔹



AND

Precision

Generate the space shuttle cabin from 23 century. Inside sits 2 pilots.
 On the floor lays yellow rubber duck. From ceiling sticks lots of cables.





Speech to text conversion



Alternative

 <u>Speech Synthesis: Generate Al Audio & Voiceovers</u> (elevenlabs.io)

The First Generative Speech Synthesis Platform

Generate lifelike speech in any language and voice with free Speech Synthesis and AI Voice software online.

Click on a language to generate random speech: English Chinese Spanish Hindi Portuguese French Japanese Arabic Russian Turkish Polish German Korean Indonesian Italian Dutch Swedish Filipino Malay Romanian Ukrainian Greek Czech Danish Finnish Bulgarian Croatian Slovak Tamil Welcome to the conference. Let's speak about AI models. — Daniel ∨ 55/333 3 1



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Get Started Free →

VR and 3D (deepmotion.com)

- Record movement
- Map movement to bones+ DNN
- Use it on any avatar
- Describe animation with chat GPT





Common application

Generate

Microsoft Designer - Stunning designs in a <u>flash</u>



Image Creator Create any image you can imagine – just enter in a text description.



Design Creator Describe a design in words and generative Al will create it for you.



Generative erase Use AI to zap objects from your photos for a clean look.



Generate



Remove background Remove the background from your image in one click.



Try it

Blur background Blur the background of your image to bring focus to the subject.



Brand Kit Creator Use generative AI to create a brand kit – logos, colors, fonts, and more.



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Example

Describe the design you'd like to create ©

Create the 10 years maried aniversery card

Click to try this suggestion: "Create a romantic anniversary card for a 10-year milestone. Include a heart-shaped image with red, white, and gold colors to symbolize love and commitment."

Designs for social media and more

🕅 Add media 🛛 🍫 Generate image 🛈

Generate



Browse templates in Microsoft Create





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Various solutions

- Invideo movie making in one day
- Simplified meme generator
- Ontraport –tool for creating and managing advertaisment campaign
- Bytek.ai creation of personalized solutions for clients.





One step further

NVIDIA's generative AI lets gamers converse with NPCs

It replies to natural speech, though the responses are a bit... stilted.



NVIDIA has unveiled technology called <u>Avatar Cloud Engine (ACE)</u> that would allow gamers to speak naturally to non-playable characters (NPCs) and receive appropriate responses. The company revealed the tech during its <u>generative AI keynote</u> at Computex 2023, showing a demo called *Kairos* with a playable character speaking to an NPC named Jin in a dystopiclooking Ramen shop.



Building models



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Example

High inflation – where to store money?

Bankier.pl * Rynki * Gospodarka * Wiadomości

Inne Wskaźniki makroekonomiczne · Analizy · Forum

Inflacja w sierpniu utrzymała się powyżej 10%. GUS podał finalne dane

krzysztof Kolany główny analityk Bankier.pl publikacja aktualizacja 2023-09-15 10:10 2023-09-15 12:18

W poprzednim miesiącu inflacja CPI w Polsce wciąż była dwucyfrowa. Dane za wrzesień zapewne pokażą jej spadek poniżej 10%, ale nadal będzie to wynik bardzo odległy od 2,5procentowego celu NBP.



Złoto (XAU/USD), tradycyjnie uważane przez inwestorów za bezpieczną przystań w burzliwych czasach, zanotowało wczoraj spadek do tygodniowego minimum w wyniku rosnących rentowności obligacji i Było miło, ale się skończyło. Ministerstwo Finansów masakruje nam oprocentowanie. Obligacje skarbowe przestaną chronić przed (dużą) inflacją





umocnienia dolara amerykańskiego. Inwestorzy zwracają się w stronę tych aktywów, szukając schronienia przed narastającymi obawami o globalny



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Get data from service

import yfinance as yf
brk = yf.Ticker('BRK-B')
hist = brk.history(period="max", auto_adjust=True)
hist

	Open	High	Low	Close	Volume	Dividends	Stock Splits
Date							
1996-05-09 00:00:00-04:00	22.200001	24.400000	22.200001	23.200001	4290000	0.0	0.0
1996-05-10 00:00:00-04:00	24.000000	24.200001	23.600000	24.000000	1060000	0.0	0.0
1996-05-13 00:00:00-04:00	24.000000	24.100000	23.299999	23.900000	700000	0.0	0.0
1996-05-14 00:00:00-04:00	24.000000	24.100000	23.100000	23.600000	310000	0.0	0.0
1996-05-15 00:00:00-04:00	23.600000	23.700001	23.000000	23.200001	545000	0.0	0.0
2023-09-19 00:00:00-04:00	371.640015	373.339996	368.459991	370.480011	2603700	0.0	0.0
2023-09-20 00:00:00-04:00	371.329987	371.339996	366.730011	366.820007	2268400	0.0	0.0
2023-09-21 00:00:00-04:00	366.559998	367.200012	362.940002	363.279999	3178600	0.0	0.0
2023-09-22 00:00:00-04:00	362.779999	363.420013	359.760010	360.160004	3969400	0.0	0.0
2023-09-25 00:00:00-04:00	359.010010	361.890015	357.269989	361.709991	2554839	0.0	0.0
6891 rows × 7 columns							

* * * * * * *

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Prepare data

```
import pandas as pd
df = pd.DataFrame()
df['ds'] = hist.index.tz_localize(None)
df['y'] = hist['Close'].values
df.tail()
```

	ds	У	Ħ
6886	2023-09-19	370.480011	1.
6887	2023-09-20	366.820007	
6888	2023-09-21	363.279999	
6889	2023-09-22	360.160004	
6890	2023-09-25	361.709991	



Select regression model by Amazon

```
from prophet import Prophet
m =Prophet(daily_seasonality=False)
m.fit(df)
```

```
OrderedDict([('lp ', array([[19862.2]])),
            ('k', array([[0.752948]])),
             ('m', array([[0.0520432]])),
             ('delta',
              array([[ 5.55215e-08, -2.00593e-02, -1.02662e+00, 2.00138e-01,
                       3.98408e-01, -1.35158e-05, 2.05775e-07, 1.81320e-06,
                      -1.55919e-01, -3.57142e-05, 7.98122e-01, 1.18246e-01,
                      -1.64496e+00, -2.90444e-01, 1.73324e+00, -6.90574e-01,
                      -1.19638e-01, 1.54541e+00, 5.32601e-02, -3.87292e-08,
                      -1.28049e+00, 6.54986e-05, 1.61518e+00, -1.10497e+00,
                      1.15213e+00]])),
             ('sigma obs', array([[0.0326206]])),
             ('beta',
              array([[ 3.45247e-03, 1.84092e-03, 5.72685e-04, -5.54935e-04,
                      -1.27808e-03, 1.74263e-03, -9.78238e-05, -1.46867e-03,
                       6.36391e-04, -2.70358e-04, 9.27222e-05, -9.12477e-05,
                       3.39696e-04, 6.99229e-04, 2.49058e-04, -3.10703e-04,
                      -1.72215e-04, -4.70886e-05, 5.07176e-04, 3.75507e-04,
                       3.00886e-03, -2.23870e-03, -2.44812e-03, -6.37446e-04,
                       4.77053e-04, 7.19897e-04]])),
             ('trend',
              array([[0.0520432, 0.0521185, 0.0523444, ..., 0.890982, 0.891185,
                      0.891795 ]]))])
```



Prediction

future = m.make_future_dataframe(365, freq='D')
forecast = m.predict(future)
m.plot(forecast);



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Other

Gold





Bitcoin



USD/PLN



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Conclusion

- The solution is always biased by the model and number of data
- It can be more or less accurate but is not perfect
- The model should be used with caution and with respect to copyrights.







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- All graphics were generated using <u>Stable Diffusion Online (stablediffusionweb.com)</u>



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