

ÚFAL Pub Quiz

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unless otherwise stated

The Game

- Open-ended questions
- 5 people per team
- 4 rounds
 - 2 topics per round
 - 5-6 questions per topic
- =42 questions, (usually) 1 point per question
- After every round I collect your answers and tally up points
 - This is a good opportunity to get drinks
- Afterwards, I announce the score and move on
- Winning team gets a round of drinks on the rest

The Rules

- No phones or computers (except for Zoom)
- No inter-team communication (try to keep quiet)
- If you disagree with my assessment of your answer(s) you can complain
 - But I get the final word
- You can get up and come closer if you can't e.g. see a picture
- If you are mentioned in the question, do not answer!

NAME AND DIVERSIFY YOUR TEAMS!

Round 1

Recent events

Recent events [1/10]

At EACL 2024 in Malta, Simone Balloccu, Patrícia Schmidtová, Mateusz Lango and Ondřej Dušek received the **Best Non-Publicized Paper Award** for their submission entitled *Leak, Cheat, Repeat: Data Contamination and Evaluation Malpractices in Closed-Source LLMs*.

Which emoji did the team select to represent their paper?

Recent events [2/10]

A Czech team of high schoolers recently won four medals, including Gold in the team category, in the 2024 International Linguistic Olympiad out of 52 teams from all around the world.

In which city did the 2024 Linguistic Olympiad take place?
Country only for 0.5p.

Recent events [3/10]

Recently (relatively for theoretical computer science), Karlin, Klein, and Gharan broke a 44-year-old record in approximating solutions to a certain NP-hard theoretical problem. Until 2021, the 6-line Christofides algorithm with an optimization factor of 1.5 reigned supreme, but the new much more complex solution has an optimization factor of $1.5 - 10^{-36}$.

Which algorithmic problem saw this drastic improvement?

Arching under the night sky inky
with black expansiveness, we point
to the planets we know, we

pin quick wishes on stars. From earth,
we read the sky as if it is an unerring book
of the universe, expert and evident.

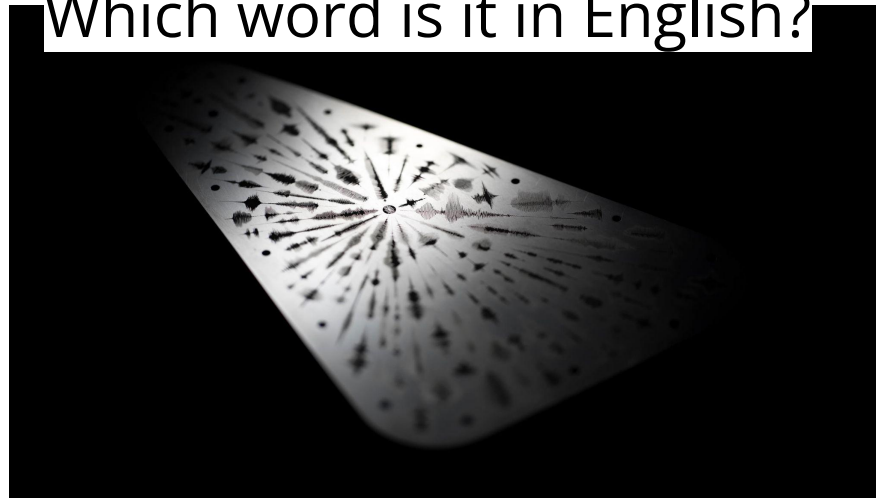
Still, there are mysteries below our sky:
the whale song, the songbird singing
its call in the bough of a wind-shaken tree.

We are creatures of constant awe,
curious at beauty, at leaf and blossom,
at grief and pleasure, sun and shadow.

Recent events [4/10]

This excerpt is part of a poem engraved on NASA's spacecraft heading to Europa, one of the moons of Jupiter, along with participants' names that will be stenciled onto microchips mounted on the spacecraft as part of the 2024 Message in a Bottle project. Alongside the poem, names, and artwork, the Message contains the waveforms of a word connecting Earth and Europa, spoken in 103 languages. The word is contained in the Swadesh list.

Which word is it in English?



Recent events [5/10]

Enthusiasts have for some time been competing amongst one another by forcing various things to do something, and have so far been able to do it with e.g. a DSLR camera, Tesco Scan&Go scanner, pregnancy test, Microsoft Excel, Mazda Miata, and an espresso machine.

In August 2024, Valevski, Leviathan, Arar, and Fruchter from Google and Tel Aviv University presented a diffusion model capable of doing the same.

What can this diffusion model do?

Famous quotes

Famous quotes [6/10]

“I don't know how many of you have ever met <computer scientist>, but you probably know that arrogance in computer science is measured in <SI prefix><computer scientist>s.”

- Alan Kay

This quote is in reference to a certain Dutch Turing award-winning computer scientist, famous, among other things, for habitually designing prototypes of his programs using a fountain pen. (Also graph theory)

What is the unit (0.5p), and what is the prefix? (0.5p)

(e.g. hectoPascal)

Famous quotes [7/10]

A fundamental observation leading to the emergence of vector-based semantic representations such as *fasttext* or *word2vec* is that linguistic units with a similar meaning tend to appear in similar contexts.

This concept is sometimes expressed as a quote that's a pun on an English proverb. Both the quote and the proverb rhyme.

How does the quote go?
(e.g. "Colorless green ideas sleep furiously")

Famous quotes [8/10]

“Language shapes the way we think, and determines what we can think about.”

This quote reflects something known as the Sapir-<linguist2> hypothesis, even though neither of the pair expressed this outright in any published work. <linguist2> however did claim that the Hopi language has *"no words, grammatical forms, construction or expressions that refer directly to what we call 'time,'" and that "no general notion or intuition of time as a smooth flowing continuum in which everything in the universe proceeds at equal rate, out of a future, through the present, into a past."*

Who was linguist no. 2? 0.5p for the surname,
0.5p for the first name AND middle name.

Famous quotes [9/10]

“A computer would deserve to be called intelligent if it could deceive a human into believing that it was human...”

- Alan Turing

This quote, one that has **arguably** aged poorly, was made by one of the pioneers of artificial intelligence, computer science, and cryptanalysis, later driven to suicide by the hormonal “treatment” of his homosexuality by British authorities. Originally dubbing it the *Imitation Game*, Alan Turing designed the first test for machine intelligence.

Which year was this test proposed? Tolerance +/-5 years.

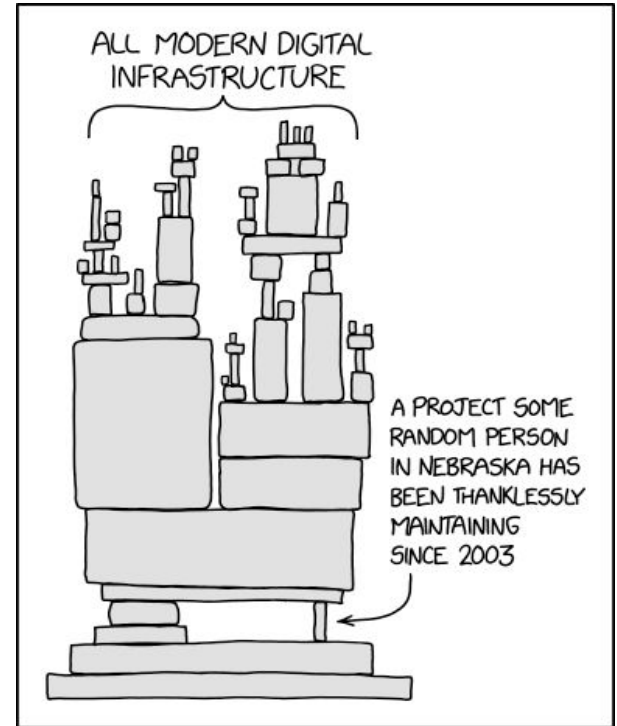
Famous quotes [10/10]

“If carpenters made buildings the way programmers make programs, the first woodpecker to come along would destroy all of civilization.”

- Unknown

The maintenance a Linux utility you use every day, since it is included in just about every device connected to the Internet, including the 2020 Mars Helicopter mission, has been overseen since 1998 by one Daniel Stenberg, who is...a Swedish developer.

What is the name of the utility?



<https://xkcd.com/license.html>

HAND IN YOUR ANSWERS, PLEASE!
(and go get a drink)

Round 1 – answers

Recent events [1/10]

At EACL 2024 in Malta, Simone Balloccu, Patrícia Schmidtová, Mateusz Lango and Ondřej Dušek received the **Best Non-Publicized Paper Award** for their submission entitled *Leak, Cheat, Repeat: Data Contamination and Evaluation Malpractices in Closed-Source LLMs*.

Which emoji did the team select to represent their paper?



Recent events [2/10]

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In which city did the 2024 Linguistic Olympiad take place?
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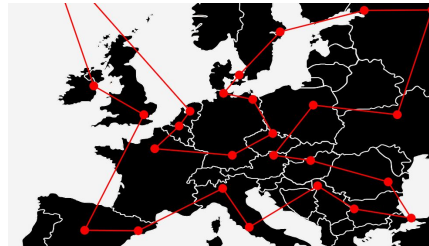


Recent events [3/10]

Recently (relatively for theoretical computer science), Karlin, Klein, and Gharan broke a 44-year-old record in approximating solutions to a certain NP-hard theoretical problem. Until 2021, the 6-line Christofides algorithm with an optimization factor of 1.5 reigned supreme, but the new much more complex solution is better by 10^{-36} percent.

Which algorithmic problem saw this drastic improvement?

The travelling salesman problem

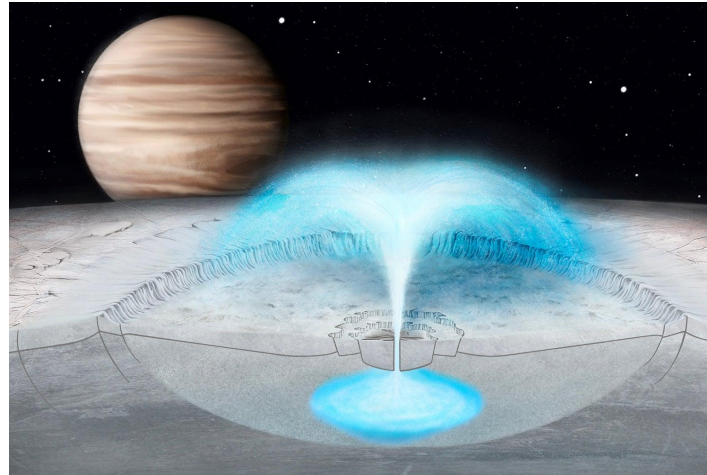


Recent events [4/10]

Alongside the poem, names, and artwork, the Message in a Bottle contains the waveforms of a word connecting Earth and Europa, spoken in 103 languages.

Which word is it in English?

Water



Recent events [5/10]

In August 2024, Valevski, Leviathan, Arar, and Fruchter from Google and Tel Aviv University presented a diffusion model capable of something.

What can this diffusion model do?

Run *Doom*!



Recent events [5/10]



“I don't know how many of you have ever met Dijkstra, but you probably know that arrogance in computer science is measured in nanoDijkstras.”

- Alan Kay

Famous quotes [7/10]

A fundamental observation leading to the emergence of vector-based semantic representations such as *fasttext* or *word2vec* is that linguistic units with a similar meaning tend to appear in similar contexts.

This concept is sometimes expressed as a quote that's a pun on an English proverb. Both the quote and the proverb rhyme.

How does the quote go?

Words of a feather flock together.

Famous quotes [8/10]

“Language shapes the way we think, and determines what we can think about.”

This quote reflects something known as the Sapir-<linguist2> hypothesis...

Who was linguist no. 2? 0.5p for the surname,
0.5p for the first name AND middle name.

Benjamin Lee Whorf



Famous quotes [9/10]

“A computer would deserve to be called intelligent if it could deceive a human into believing that it was human...”

- Alan Turing

Which year was this test proposed? Tolerance +/-5 years.

1950

Famous quotes [10/10]

“If carpenters made buildings the way programmers make programs, the first woodpecker to come along would destroy all of civilization.”

- Unknown

The maintenance a Linux utility you use every day, since it is included in just about every device connected to the Internet, including the 2020 Mars Helicopter mission, has been overseen since 1998 by one Daniel Stenberg, who is...a Swedish developer.



What do you use when wget doesn't get the job done?

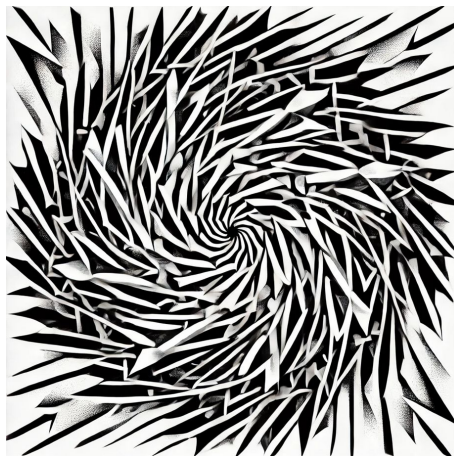
Round 2

AI in science fiction

AI in science fiction [1/10]

In his 1988 sci-fi short story *BLIT*, David Langford describes the discovery of so-called *basilisks*; images that, when viewed by a human, produce a lethal seizure by exploiting flaws in the human brain [depicted]. While we insofar cannot short-circuit biological human networks, we can manipulate artificial neural networks to produce arbitrary output using engineered inputs.

What do we call such poisoned inputs?



AI in science fiction [2/10]

In the 2013 TV show episode *Be Right Back*, a young woman's husband dies in a car accident, and she uses the services of an AI company to train a model based on her IM and text communication with him to ease her grief (a task that has since become now near trivial). The episode then continues with the model's embodiment into a physical android body.

As part of which TV show was this portrayal of digital necromancy aired?



AI in science fiction [3/10]

In a 2004 movie starring Will Smith, a superintelligent AI agent embodied by millions of physical androids imposes a brutal dictatorship, not letting even people leave their homes, because the agent's prime directive is to minimize harm to humans. The movie highlights how difficult it is to prevent so-called *perverse instantiation*, which is the tendency of superintelligent agents to converge to unintended consequences of their programming and/or loss functions.

Which movie am I referring to?

+1p for the author of the eponymous short story collection.

AI in science fiction [4/10]

"I've seen things you people wouldn't believe. Attack ships on fire off the shoulder of Orion. I watched C-beams glitter in the dark near the Tannhäuser Gate. All those moments will be lost in time, like tears in rain. Time to die."

At which point do we grant artificial constructs rights? This classic 1982 sci-fi noir film this quote is from, starring Harrison Ford, asks itself this very question.

Which movie am I referring to?

+1p for the name of the 1968 short story it is based on,
+1p for the name of the author of the story.

AI in science fiction [5/10]

The theme of poisoned images is also explored in Neal Stephenson's 1994 science-fiction novel *Snow Crash*. Here, following an economic ultra-recession, many people spend most of their time in a virtual world accessed through a VR headset, and Snow Crash refers to a "drug" that relays a sequence white-noise looking images through the VR headset to alter or damage the user's consciousness.

What is the virtual universe called in *Snow Crash*?

AI in science fiction [Bonus/10]

Because of the presence of two bonus questions, the number of questions in this quiz is 42.

In the *Hitchhiker's Guide to the Galaxy*, the number 42 is the output of 7 million years of calculation by a hyper-intelligent supercomputer the size of a city, with the input being a demand to give “the Answer to ____”. In line with the overall themes of the book series, it is an absurd answer, because the question is absurd.

What Answer was the computer supposed to output?

+1p for precise phrasing.

+1p for the name of the computer.

(Hint: The first model to beat a human grandmaster at chess was named in its honor)

Women in computer science

Women in computer science [6/10]

Since about 1865 until about 1960, tasks requiring a large amount of calculation had to be performed by rooms full of professional humans using pen and paper, slide rules, abaci, and so on. This tedious job was typically done by women.

What was this profession called?

Women in computer science [7/10]

Defining a “programmer” as someone who writes instructions parsable by a machine, the first programmer was a British 19th century mathematician and writer, who wrote a program for the computation of Bernoulli numbers for Charles Babbage’s proposed *Analytical Machine*. She also realized that such machines could be used for symbolic manipulation and much more.

What was her name (0.5p) and surname (0.5p)?

What was her maiden name (+1p)?

(Hint: an NVIDIA GPU architecture was named after her)

Women in computer science [8/10]

This is the first person to devise the idea of specific machine-independent programming languages. She also pioneered the idea of programming languages being based on English (as opposed to symbolic-oriented approaches), leading to the development of COBOL. She and her team coined the term *bug* by finding a moth stuck in a relay, as well as the term *debugging*.

What was her name (0.5p) and surname (0.5p)?

(Hint: an NVIDIA GPU architecture was named after her)

Women in computer science [9/10]

The term *software engineer* was first coined by Margaret Hamilton, a computer scientist seen depicted next to a printout of the code that she and her team produced for a particular purpose.

What did Margaret Hamilton's code do?



Women in computer science [10/10]

Frequency-hopping spread spectrum (FHSS) is a method of transmitting radio signals by rapidly changing the carrier frequency among many frequencies, providing protection against jamming, interference, and interception. This method was invented by an Austrian inventor who happened to also have a career in Hollywood.

What was her name?



HAND IN YOUR ANSWERS, PLEASE!
(and go get a drink)

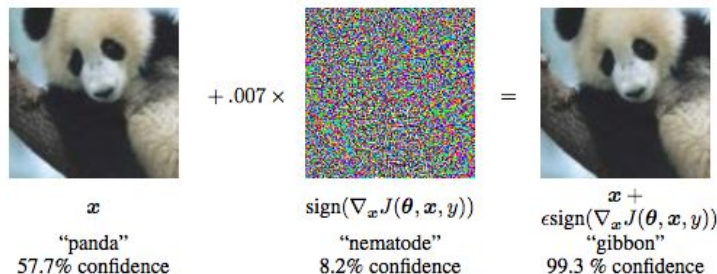
Round 2 – answers

AI in science fiction [1/10]

In his 1988 sci-fi short story *BLIT*, David Langford describes the discovery of so-called *basilisks*; images that, when viewed by a human, produce a lethal seizure by exploiting flaws in the human brain [depicted]. While we insofar cannot short-circuit biological human networks, we can manipulate artificial neural networks to produce arbitrary output using engineered inputs.

What do we call such poisoned inputs?

Adversarial examples



AI in science fiction [2/10]

In the 2013 TV show episode *Be Right Back*, a young woman's husband dies in a car accident, and she uses the services of an AI company to train a model based on her IM and text communication with him to ease her grief (a task that has since become now near trivial). The episode then continues with the model's embodiment into a physical android body.

As part of which TV show was this portrayal of digital necromancy aired?

Black Mirror



AI in science fiction [3/10]

In a 2004 movie starring Will Smith, a superintelligent AI agent embodied by millions of physical androids imposes a brutal dictatorship, not letting even people leave their homes, because the agent's prime directive is to minimize harm to humans. The movie highlights how difficult it is to prevent so-called *perverse instantiation*, which is the tendency of superintelligent agents to converge to unintended consequences of their programming and/or loss functions.

Which movie am I referring to? +1p for the author of the eponymous short story collection.

I, Robot (Isaac Asimov)

AI in science fiction [4/10]

At which point do we grant artificial constructs rights? This classic 1982 sci-fi noir film this quote is from, starring Harrison Ford, asks itself this very question.

Which movie am I referring to?

+1 p for the name of the short story it is based on,
+1 p for the name of the author of the story (1968).

Blade Runner

Do Androids Dream of Electric Sheep?

Phillip K. Dick

AI in science fiction [5/10]

The theme of poisoned images is also explored in Neal Stephenson's 1994 science-fiction novel *Snow Crash*. Here, following an economic ultra-recession, many people spend most of their time in a virtual world accessed through a VR headset, and Snow Crash refers to a "drug" that relays a sequence white-noise looking images through the VR headset to alter or damage the user's consciousness.

What is the virtual world called in *Snow Crash*?

The Metaverse

AI in science fiction [Bonus/10]

In the *Hitchhiker's Guide to the Galaxy*, the number 42 is the output of 7 million years of calculation by a hyper-intelligent supercomputer the size of a city, with the input being a demand to give “the Answer to ____”.

What Answer was the computer supposed to output?

+1p for precise phrasing.

+1p for the name of the computer.

(Hint: The first model to beat a human grandmaster at chess was named in its honor)

The meaning of life

Answer to the Ultimate Question of Life, the Universe, and Everything

Deep Thought

(Deep Blue)

Women in computer science [6/10]

Since about 1865 until about 1960, tasks requiring a large amount of calculation had to be performed by rooms full of professional humans using pen and paper, slide rules, abaci, and so on. This tedious job was typically done by women.

What were people performing this profession called?

Computers

Women in computer science [7/10]

Defining a “programmer” as someone who writes instructions parsable by a machine, the first programmer was a British 19th century mathematician and writer.

What was her name (0.5p) and surname (0.5p)?

What was her maiden name (+1p)?

Ada Lovelace, née Byron



Women in computer science [8/10]

This is the first person to devise the idea of specific machine-independent programming languages.

What was her name (0.5p) and surname (0.5p)?

(Hint: an NVIDIA GPU architecture was named after her)

Admiral Grace Hopper

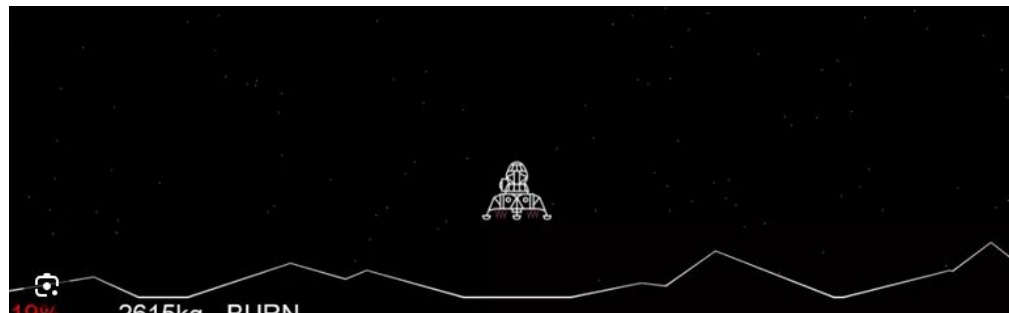


Women in computer science [9/10]

The term *software engineer* was first coined by Margaret Hamilton, a computer scientist seen depicted next to a printout of the code that she and her team produced for a particular purpose.

What did Margaret Hamilton's code do?

Land the first humans on the Moon



Women in computer science [10/10]

Frequency-hopping spread spectrum was invented by an Austrian inventor who happened to also have a career in Hollywood.

What was her name?

Hedy Lamarr



Round 3

Slang [1/10]

Some of you may be familiar with the term “goat” when referring to a person or “goated” when used as an adjective from contemporary youth slang.

What is the meaning of “goat”?
+1p for its folk etymology backronym.

Slang [2/10]

A voice register below one's natural lowest pitch, resulting in irregular vibrations of the vocal folds, leading to a characteristic "creaky" or "popcorny" sound. In some languages, vowels with this phonation may even achieve phonemic status, and in many languages, it e.g. signals phrasal boundaries or guides turn-taking behavior. In Czech, it is often the phonetic value of the glottal stop semi-phoneme (ráz) in rapid speech, appearing in especially in Bohemian dialects in consecutive vowels belonging to different syllables.

In 21st century American English, a more consistent register of this type has become a trend among young women, popularized by celebrities such as Britney Spears and Kim Kardashian.

What is this register called?

Who or what is or was a dederon?

What do American soldiers call this dish?

Hint: It is customarily abbreviated S.O.S.

0.5p for each noun in the name.



Slang [5/10]

Some of you may be familiar with the term “pebbling”, referring to giving a loved one small gifts or sending them internet content you think they might enjoy, to show them you are thinking about them.

By the behavior of which animal is the term “pebbling” inspired?

Spectral analysis

Spectral analysis [6/10]

Strictly speaking, the spectrum of a signal is the output of the Fourier transform of that signal. However, the Fourier transform maps real-valued functions to complex-valued functions, and in practice, the real-valued *power spectrum* is instead used. It is calculated by taking the square of the absolute value of the Fourier transform of the given signal. Obviously, the absolute value causes some information about the signal to be lost, but in speech processing, we usually don't mind.

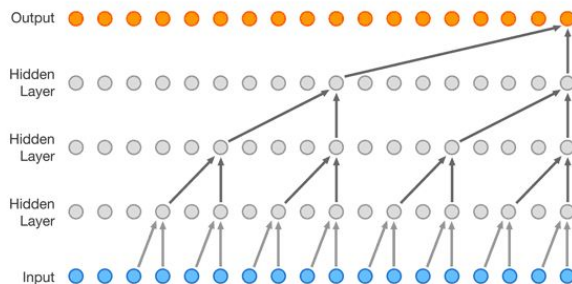
What information about the signal is lost?
+1 p for explaining why we usually don't mind.

Spectral analysis [7/10]

Some deep learning models such as *WaveNet* do away with the whole Fourier transform business, and process audio by feeding the raw signal into a sequence of trained layers instead.

WaveNet is a convolutional network, but the convolution it uses is of a special type where the convolutional filter skips every n th value (except the first layer, where vanilla convolution is used).

What is this type of convolution called?



Spectral analysis [8/10]

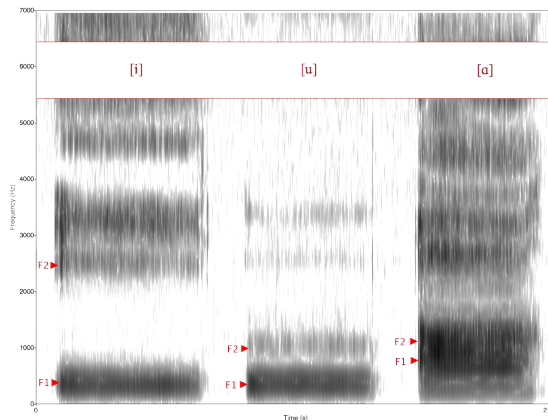
A spectrogram is a way to visualize the spectrum of a signal as it changes over time. For this to work, we need to slice up the signal and perform the Fourier transform on each slice. However, the longer the slices, the less temporal resolution we get; the shorter the slices, less frequency resolution we get. This is called the *time-frequency resolution tradeoff*, and it makes you choose between spectrograms that are blurry either horizontally or vertically.

It turns out that this problem is mathematically inherent to all wave systems, and as such it also shows up all over the place.

What do they call the time-frequency resolution tradeoff in quantum physics?

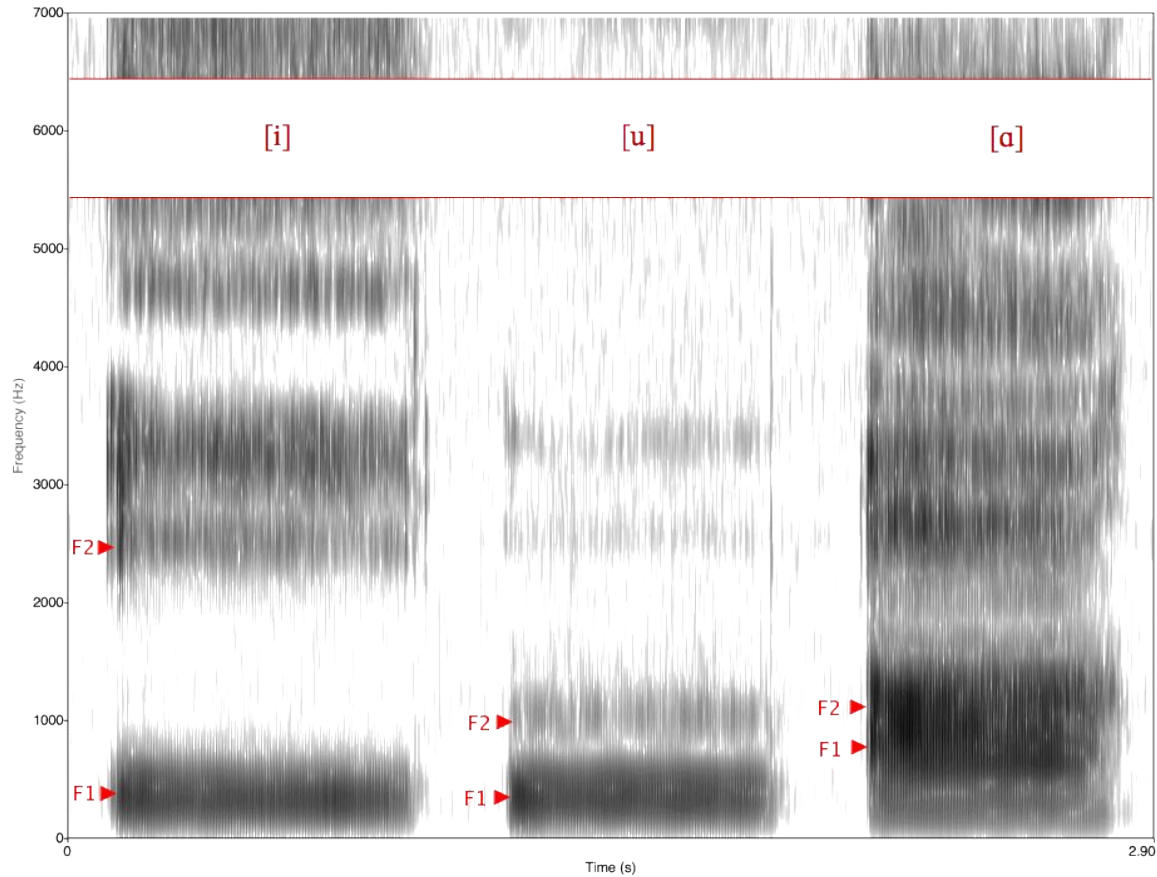
Spectral analysis [9/10]

Formants are frequency bands of higher energy in the spectrum, and show up as dark ribbons on a spectrogram. The position of the first two formants, F1 and F2, very nicely correspond to the movement or position of their associated articulatory organs.



Using the image, which organ does F1 correspond to, and which organ does F2 correspond to? Try pronouncing the vowels.

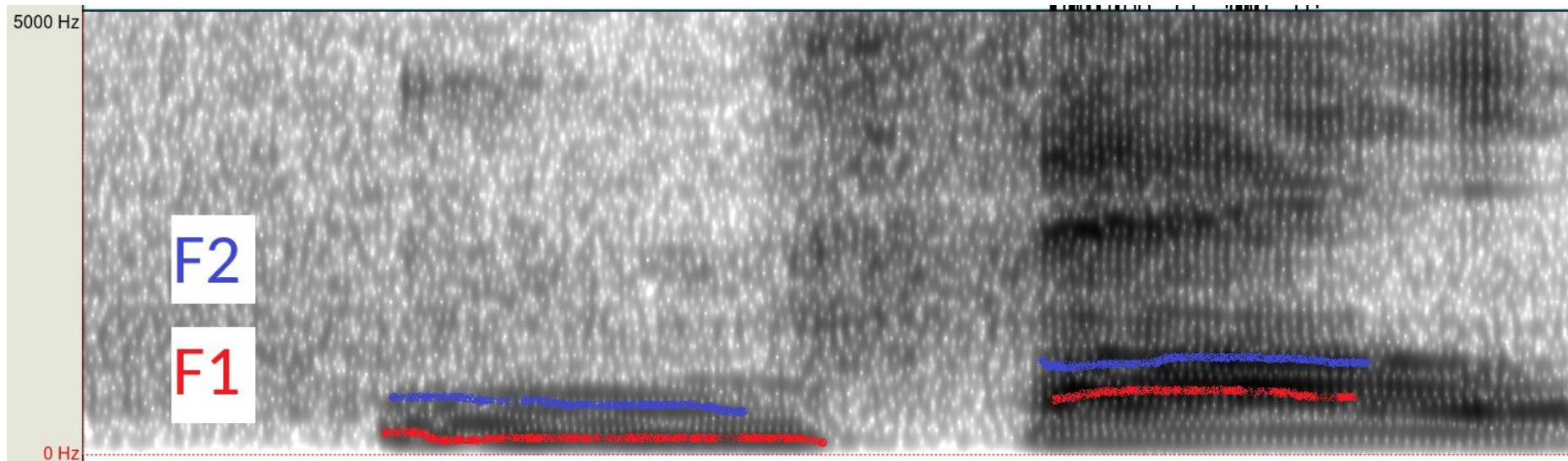
Spectral analysis [9/10]



Spectral analysis [10/10]

This is a spectrogram of which word, as pronounced by yours truly?

(Window length: 0.010s, View range [-100Hz; 5kHz])



HAND IN YOUR ANSWERS, PLEASE!
(and go get a drink)

Round 3 – answers

Slang [1/10]

Some of you may be familiar with the term “goat” when referring to a person or “goated” when used as an adjective from contemporary youth slang.

What is the meaning of “goat”?
+1p for its folk etymology backronym.

Excellent; amazing; awesome
Greatest Of All Time

Slang [2/10]

A voice register below one's natural lowest pitch, resulting in irregular vibrations of the vocal folds, leading to a characteristic "creaky" or "popcorny" sound.

In 21st century American English, a more consistent register of this type has become a trend among young women, popularized by celebrities such as Britney Spears and Kim Kardashian.

What is this register called?

Vocal fry

Who or what is or was a *dederon*?

Someone from the East Germany (Deutsche Demokratische Republik; DDR; derogatory)

What do American soldiers call this dish?

Hint: It is customarily abbreviated S.O.S.

0.5p for each noun in the name.



Shit on a shingle

Slang [5/10]

Some of you may be familiar with the term “pebbling”, referring to giving a loved one small gifts or sending them internet content you think they might enjoy, to show them you are thinking about them.

By the behavior of which animal is the term “pebbling” inspired?



Spectral analysis [6/10]

Strictly speaking, the spectrum of a signal is the output of the Fourier transform of that signal. However, the Fourier transform maps real-valued functions to complex-valued functions, and in practice, the real-valued *power spectrum* is instead used. Some information is therefore lost.

What information about the signal is lost?
+1p for explaining why we usually don't mind.

Phase information is lost.
We don't mind, because the human ear is largely phase-insensitive.

Spectral analysis [7/10]

Some deep learning models such as *WaveNet* do away with the whole Fourier transform business.

WaveNet is a convolutional network, but the convolution it uses is of a special type where the convolutional filter skips every n th value (except the first layer, where vanilla convolution is used) .

What do the authors of *WaveNet* call this “skipping” convolution?

Dilated convolution

Spectral analysis [8/10]

A spectrogram is a way to visualize the spectrum of a signal as it changes over time. For this to work, we need to slice up the signal and perform the Fourier transform on each slice. We get the *time-frequency resolution tradeoff*.

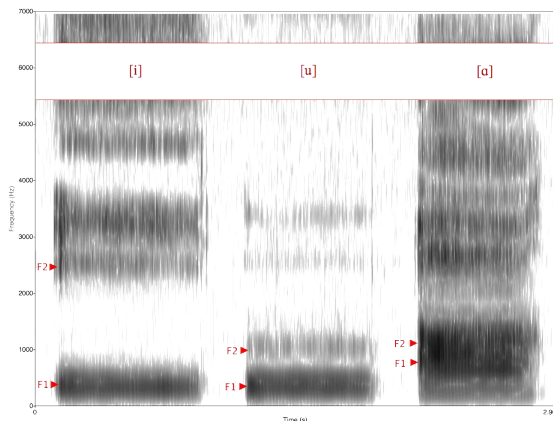
It turns out that this problem is mathematically inherent to all wave systems, and as such it also shows up all over the place.

What do they call the time-frequency resolution tradeoff in quantum physics?

The Heisenberg Uncertainty principle

Spectral analysis [9/10]

Formants are frequency bands of higher energy in the spectrum, and show up as dark ribbons on a spectrogram.



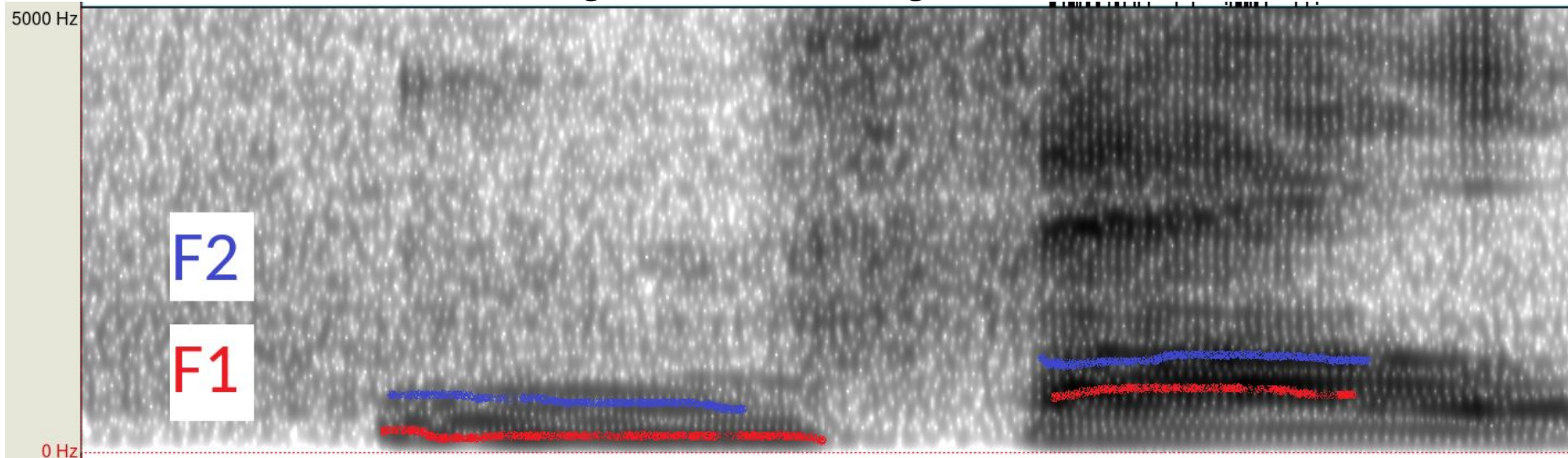
Using the image, which organs do the first two formants correspond to?

F1 – jaw, F2 – (blade of) tongue

Spectral analysis [10/10]

This is a spectrogram of which word, as pronounced by yours truly?

(Window length: 0.010s, View range [-100Hz; 5kHz])



ÚFAL

Round 4

Languages across time

Languages across time [1/10]

It is a generally accepted fact that the main driving force behind language change is isolation. Usually, this is due to physical distance, but sometimes also for other reasons. In the case of the Uralic languages, their first split happened because of the Ural mountain range, hence their name. The Finno-Ugric branch, including Hungarian, Estonian, and Finnish ended up west of the Ural, and the other oftentimes forgotten branch, including Nenets, Nganasan, and Mator, ended up east, in Siberia.

What is the name of the other branch of the Uralic languages?

Hint:



Languages across time [2/10]

While many aspects of language can change drastically as time goes by, most, if not all, experts will agree that some aspects of language remain relatively stable.

One such possibly stable feature is *information transmission rate*. Very roughly speaking, the larger the syllable inventory of a language*, the slower the language in terms of syllables per second. This inverse correlation apparently leads to a constant rate of surprisal (entropy) per second across languages. In 2019, Coupé et al. measured the average entropy per second using syllables on 17 spoken languages, arriving at almost the same number in each of them.

What is the *information transmission rate* of spoken language in bits per second? Tolerance +/-10.

Languages across time [3/10]

Language change happens typically by tiny little steps over long periods of time, be it via sound changes or grammatical shifts. As an example, the Pre-Indo-European **lax* (meaning salmon) has been almost fully preserved both in sound and meaning in the English *lox*, referring to cured salmon.

With a bit of imagination and knowledge of history, we can see how the Italian *oso*, French *ours*, and Romanian *urs* through the Latin *ursus* preserve the PIE **hrtkos*, as well as the Sanskrit *ṛkṣa*, Avestan *arša*, Armenian *arj*, Greek *arktos* or *arkouda* and Welsh *arth*. In the Germanic, Slavic, and Baltic languages, the words for bear translate to *brown*, *honey-eater* (*medvěd*) and perhaps *shaggy* (*lokys*), respectively.

Why did the three branches lose the true name of the bear?
What is this phenomenon called in historical linguistics? (+1p)

Languages across time [4/10]

One of the unanswered questions of historical linguistics and archaeology is how many times writing was completely independently invented*. We know that it was invented at least twice, and at most five times.

One clear genesis of writing is in Mesoamerica; it is an open question if Egyptian hieroglyphics, Sumerian cuneiform and the Chinese script were developed independently. The last piece of the puzzle is a system of glyphs invented and preserved by the Polynesians, but it is unknown if this is writing at all, as it has not been deciphered.

What is this system of glyphs called?
On which island was it preserved? (+1p)

Languages across time [4/10]

Bv2  380y.280 - 060-380y.02 - 10.133-60-169.678 - 040-041-700-522y.070 - 484 - 470 - 021t - 360.040 - 630 - 047

Cb 13-14  663 - 280 - 060-02-02-05 - 10.067-067-145 - 209 - 040-700 - 530.070 - 664 - 725 - 017- 325-040-380 - 290 - 047

Ra5  044.607-55b-22f-55b

Bv3  166 - 68-22f-68-300.079

Sa5₁  190a.55b-22f-55b-22f-55b-45.09.37 522f - 301.09

Ab7  001-009a - 469a - 200f.025b - 324 - 453 - 060

Bv8₂  099 - 166 - 68 - 45.09.37 522f - 381.09

Bv8₁  165-054-001 - 492 - 200.171 - 670 - 060

Sa5₂  510.55b - 591-55b-739-68 - 607 - 68 - 607 - 68

Languages across time [Bonus/10]

As you surely know, the Slavs are hardly the first inhabitants of the Czech lands, being predeceased by numerous other peoples before beginning to settle here at about 600 AD. Since this was such a long time ago, almost all influence of the predecessors' languages on Czech is now gone.

Hydronyms are however famous for often retaining ancient vocabulary, and it just so happens that we have an example of this babbling right under the ski piste outside. Most Slavic speakers would assume that *Jizerka* (diminutive of *Jizera*) has something to do with *jezero*, but it doesn't.

From which language does the name come from?

What is the reconstructed form of the name from before the Slavs adopted it? (+2p.)

ÚFAL and its people

ÚFAL and its people [5/10]

Compared to other workplaces at the Faculty of Mathematics and Physics, the number of ÚFAL staff is considerable. Not counting **Honorary and Affiliated Staff** and **Alumni and Former Academic Staff**, <https://ufal.mff.cuni.cz/people> lists more than 2 people.

How many people work at ÚFAL? Tolerance +/-20.

ÚFAL and its people [6/10]

The current head of ÚFAL is Prof. Barbora Vidová Hladká.

Since which year has she been at the helm? No tolerance.

ÚFAL and its people [7/10]

One of the **Honorary and Affiliated Staff** is Tomáš Mikolov, who alongside his team at Google caused a paradigm shift in NLP by introducing a family of models that can represent words by semantically rich vectors, leading to drastic improvements in machine translations, text generation, and much more. This is called Word2Vec, and there are two basic architectures included.

What are the names of the two architectures?

What is the models' hidden activation function (+0.5p)?

ÚFAL and its people [8/10]

ÚFAL maintains friendly relations with JHU, a highly prestigious American university, with frequent paper collaboration, academic exchanges, and the like. While not considered part of the Ivy League, it boasts being the US's first research university, and is associated with 39 Nobel prize laureates.

Veritas vos liberabit

What is the full name of the university?

-0.5p for bad spelling/grammar.

ÚFAL and its people [9/10]

Biblibot is one of the most critical components of ÚFAL's infrastructure, as it reminds researchers by e-mail that they have incorrectly listed information into *Biblio*. The *Biblio* database tracks the Institute's publication output for the purposes of later submission to the Ministry of Education.

As of March 2024, the e-mail template begins with a double internal internal rhyme with *Bloudě Bibliem, robot Biblibot objevil problém ve Vaší publikaci*;, followed by a an English description of the incorrect (usually missing) information.

What is the value of the string *Biblibot* uses as the email's subject?

1p for edit distance 0, 0.5p for edit distance 1 (there is no punctuation).

+1p for the **English** term for the form of the verb "bloudě" (CZ: *přechodník*).

ÚFAL and its people [10/10]

Our Institute is physically split up between two locations – Malá Strana and Trója. Informal communication among researchers in location-mixed company is, as a result, largely composed of expressing jealousy over not working in the other location.

It is unknown if ÚFAL's GPUs are also jealous of one another (assuming they are now sentient due to all the LLM training), but they are also split between Malá Strana and Trója.

Which location boasts which feature?

Copy the indexes and fill out the table on the next slide.

ÚFAL and its people [10/10]

Feature	Index	Location -- MS or Trója?
Beer tap	1	
Foosball table	2	
20-50 CZK mycological counselling	3	
8+ hour political protests	4	
Unbelievable heat	5	
Slack bot that posts lunch	6	
Chance of running into Tomio Okamura	7	
Environment that looks like <i>Mirror's Edge</i>	8	
pan Vorel smoking his pipe	9	
a car wreck on a tower (???)	10	
funicular	11	



12

HAND IN YOUR ANSWERS, PLEASE!
(and go get a drink)

Round 4 – answers

Languages across time

Languages across time [1/10]

The Finno-Ugric branch, including Hungarian, Estonian, and Finnish ended up west of the Ural, and the other oftentimes forgotten branch, including Nenets, Nganasan, and Mator, ended up east, in Siberia.

What is the name of the other branch of the Uralic languages?

Hint:



Samoyedic branch

Languages across time [1/10]



What is the *information transmission rate* of spoken language in bits per second? Tolerance +/-10.

39 bits per second

Languages across time [3/10]

In the Germanic, Slavic, and Baltic languages, the words for bear translate to *brown*, *honey-eater* (medvěd) and perhaps *shaggy* (lokys), respectively.

Why did the three branches lose the true name of the bear?
What is this phenomenon called in historical linguistics? (+1p)

They were afraid that using the bear's name
summons it, so they used euphemisms
(Taboo contamination)

Languages across time [4/10]

The last piece of the puzzle is a system of glyphs invented and preserved by the Polynesians, but it is unknown if this is writing at all, as it has not been deciphered.

What is this system of glyphs called?
On which island was it preserved? (+1p)

Rongorongo
Easter Island

Languages across time [4/10]

Bv2 
 380y.280 - 060-380y.02 - 10.133-60-169.678 - 040-041-700-522y.070 - 484 - 470 - 021t - 360.040 - 630 - 047

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Languages across time [Bonus/10]

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From which language does the name come from?

What is the reconstructed form of the name from before the Slavs adopted it? (+2p.)

Celtic

Isara

ÚFAL and its people

ÚFAL and its people [5/10]

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How many people work at ÚFAL? Tolerance +/-20.

102

ÚFAL and its people [6/10]

The current head of ÚFAL is Prof. Barbora Vidová Hladká.

Since which year has she been at the helm? No tolerance.

2021

ÚFAL and its people [7/10]

One of the **Honorary and Affiliated Staff** is Tomáš Mikolov, who alongside his team at Google caused a paradigm shift in NLP by introducing a family of models that can represent words by semantically rich vectors, leading to drastic improvements in machine translations, text generation, and much more. This is called Word2Vec, and there are two basic architectures included.

What are the names of the two architectures?

What is the models' hidden activation function (+0.5p)?

CBOW (continuous bag-of-words) and Skipgram

None; they are linear models

ÚFAL and its people [8/10]

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What is the full name of the university?

-0.5p for bad spelling/grammar.

Johns Hopkins University

(yes, this is the correct spelling)

ÚFAL and its people [9/10]

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+1p for the **English** term for the form of the verb "bloudě" (CZ: *přechodník*).

"Biblibot se zlobi" (short i)

Transgressive form

Which location boasts which feature?

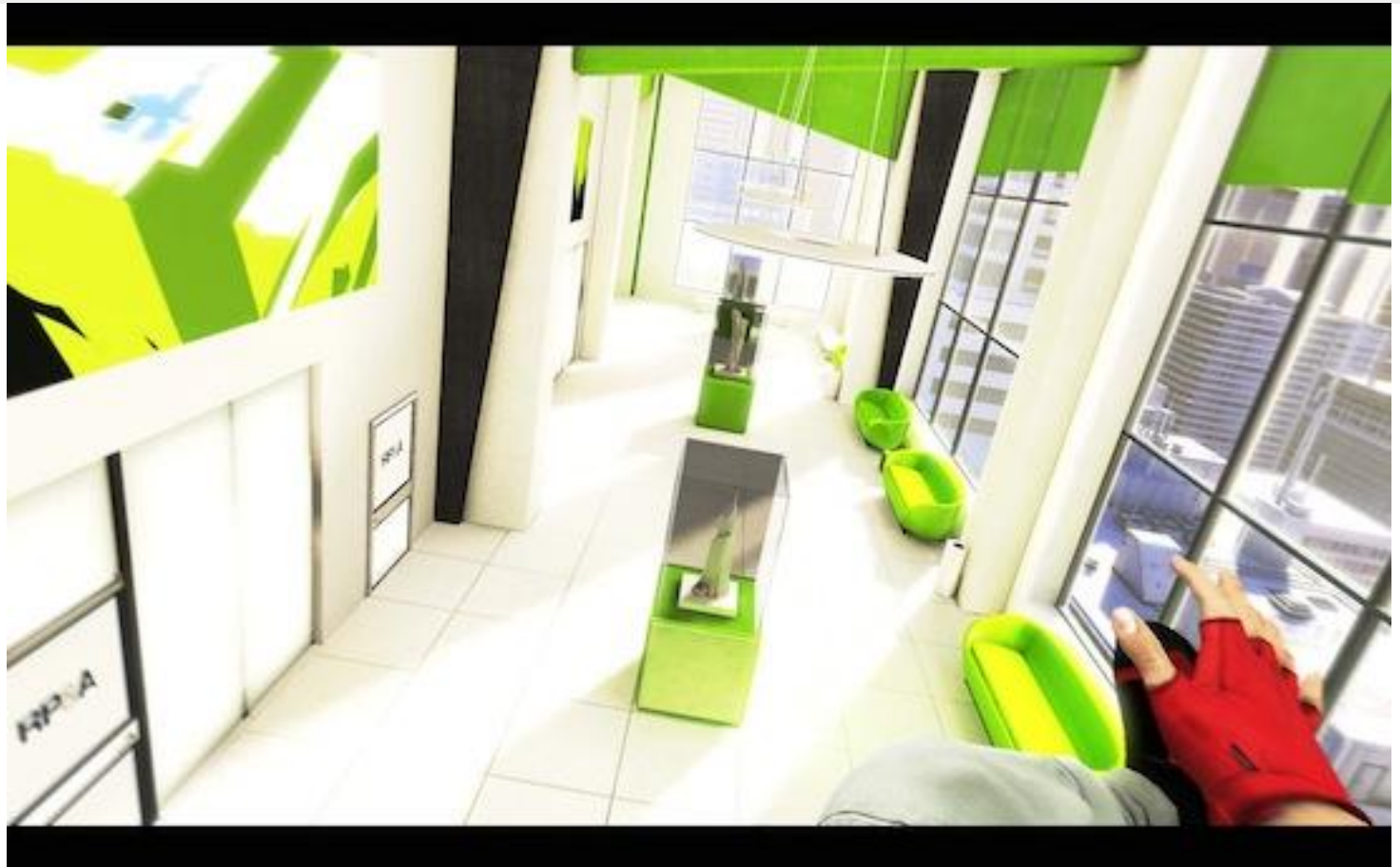
ÚFAL and its people [10/10]

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8+ hour political protests	4	MS
Unbelievable heat	5	MS
Slack bot that posts lunch	6	Troja
Chance of running into Tomio Okamura	7	MS
Environment that looks like <i>Mirror's Edge</i>	8	Troja
pan Vorel smoking his pipe	9	MS
a car wreck on a tower (???)	10	Troja
funicular	11	



12 MS

ÚFAL and its people [10/10]



And the winner is...