



Чего нам не хватает от БЯМ?

Долгая дорога к AGI

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ЦИИ НГУ,
Aigents



Чего нам не хватает от БЯМ (LLM/GPT)?

Долгая дорога к AGI



Все дружно боремся с галлюцинациями!

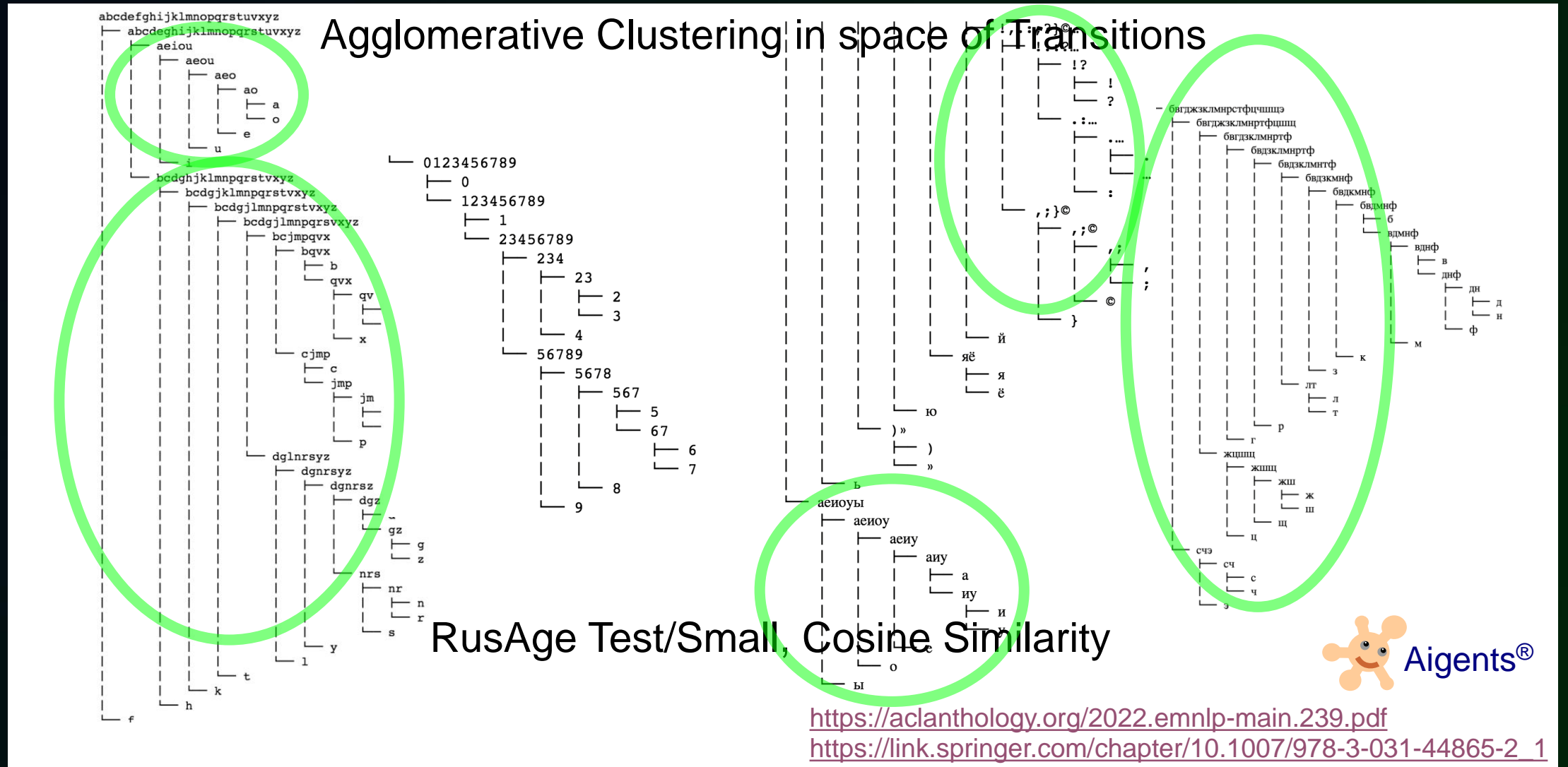
Палантир – впереди планеты всей (как пример)

<https://blog.palantir.com/reducing-hallucinations-with-the-ontology-in-palantir-aip-288552477383>



Онтологии – а где ж их взять?

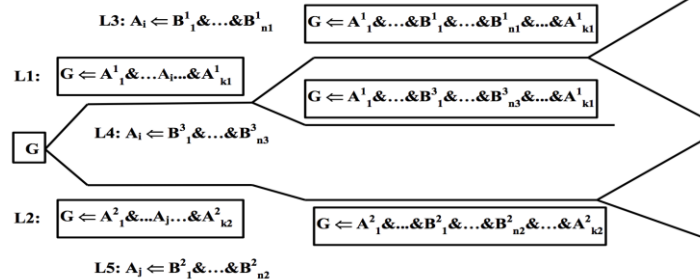
Structured unsupervised learning – is all you need, isn't it?



УЧИТЬСЯ ВСЮ ЖИЗНЬ?

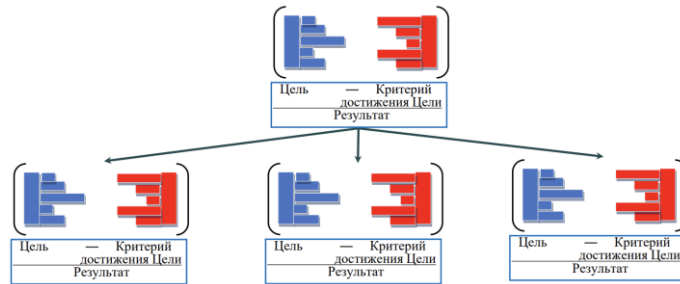
Формальные математические методы для инкрементального само-обучения

Логико-вероятностный вывод



Vityaev, E., Odintsov, S. How to predict consistently? // Trends in Mathematics and Computational Intelligence In: Studies in Computational Intelligence, 796, Maria Eugenia Cornejo (ed), 2019, 35-41.

Задачный подход



Evgenii E. Vityaev Purposefulness as a Principle of Brain Activity // Anticipation: Learning from the Past, (ed.) M. Nadin. Cognitive Systems Monographs, V.25, Chapter No.: 13. Springer, 2015, pp. 231-254.

https://link.springer.com/chapter/10.1007/978-3-030-93758-4_12

<https://www.springerprofessional.de/en/brain-principles-programming/23921444>

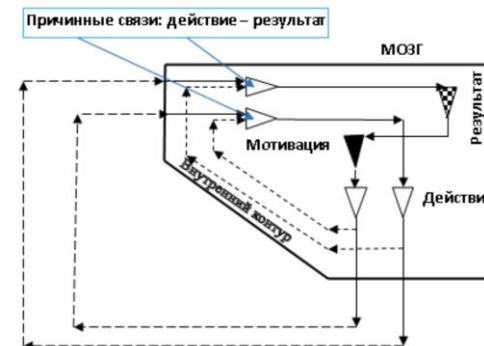
<https://www.sciencedirect.com/science/article/pii/S1877050922017458>

Вероятностные формальные понятия

ANIMALS	preying	flying	bird	mammal
LION	×			×
FINCH		×	×	
EAGLE	×	×	×	
HARE				×
OSTRICH			×	

Alexander Demin, Denis Ponomaryov, Evgeny Vityaev. Probabilistic Concepts in Formal Contexts // Lecture Notes in Computer Science, Vol. 7162, Springer Verlag, 2012, p. 394-410 E. E. Vityaev, V. V. Martinovich. Probabilistic Formal Concepts with Negation // A. Voronkov, I. Virbitskaite (Eds.): PCI 2014, LNCS 8974, 2015, pp.385-399.

Теория функциональных систем



Витяев Е.Е. Логика работы мозга. Подходы к моделированию мышления. (сборник под ред. д.ф.-м.н. В.Г. Редько). УРСС Эдиториал, Москва, 2014г., стр. 120-153.

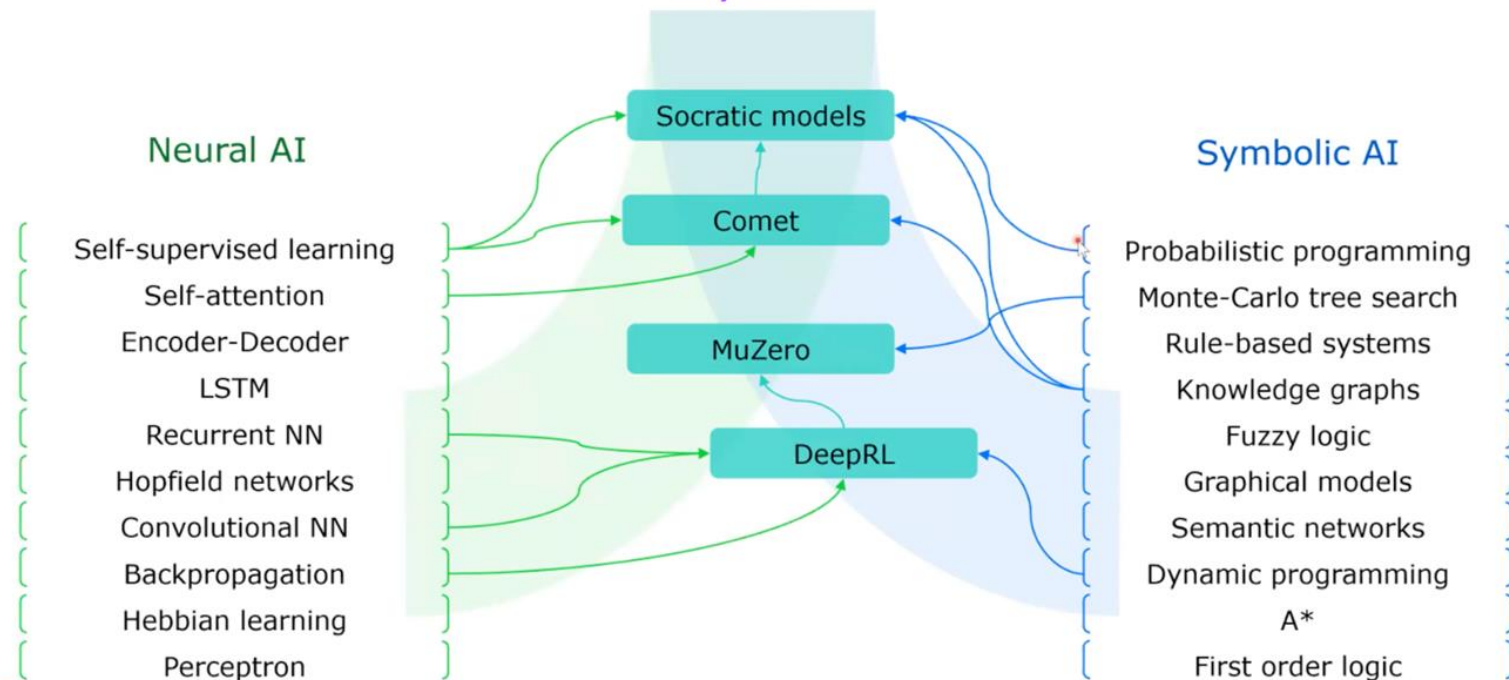
Мы придем к победе нейросимвольной интеграции?

Problems with Deep Learning: new AI winter or new synthesis?

Mikhail Burtsev

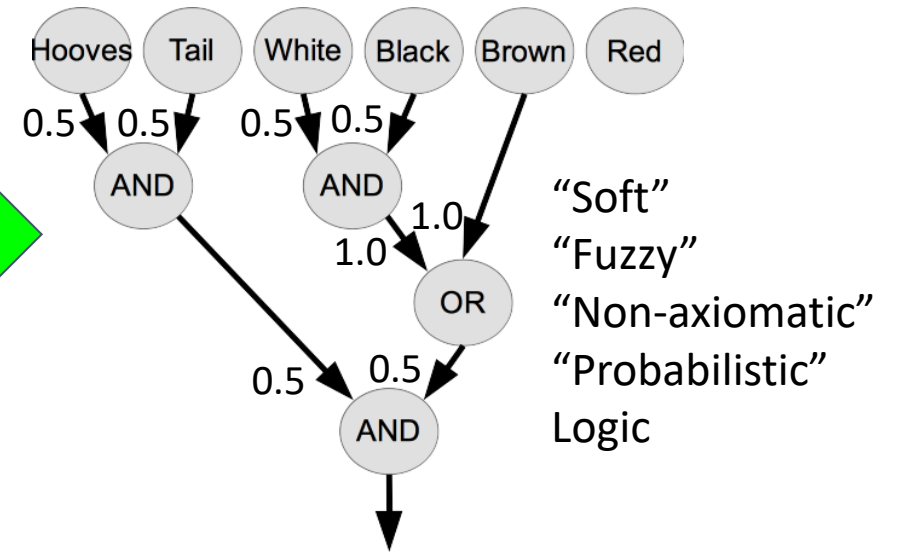
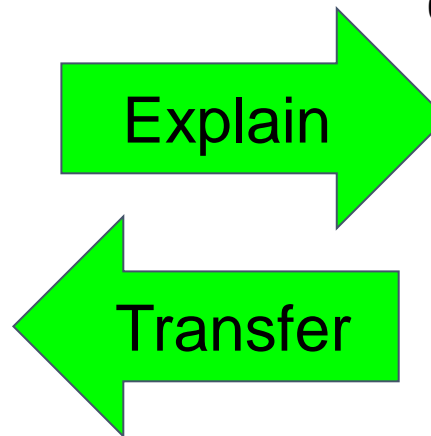
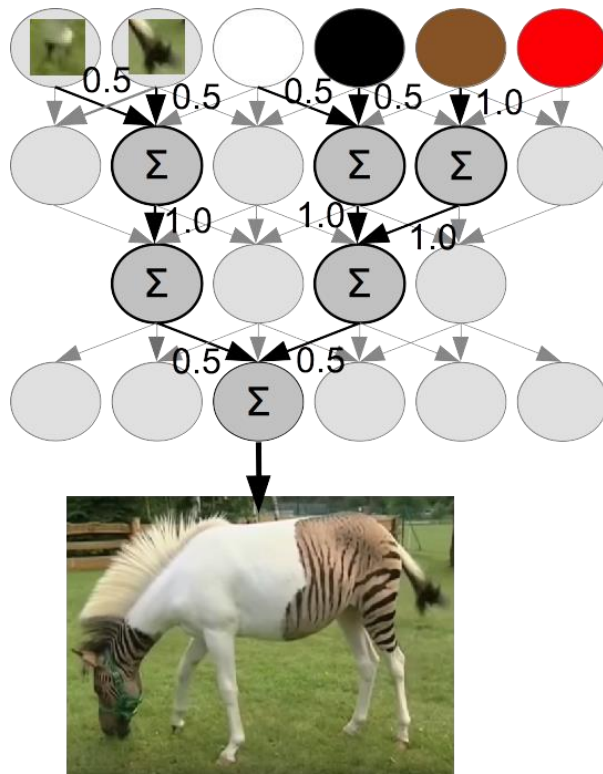
PhD
AIRI, MIPT

Neuro Symbolic AI?



Мы придем к победе нейросимвольной интеграции?

Ради инкрементального обучения, до-обучению и переобучения на протяжении всего жизненного цикла, без катастрофического забывания/запоминания?



“Soft”
“Fuzzy”
“Non-axiomatic”
“Probabilistic”
Logic

(Hooves AND Tail) AND
((White and Black) OR Brown)

=> Horse

Kahneman, D. Thinking, Fast and Slow. New York :Farrar, Straus and Giroux, 2011.

Kolonin, A. Neuro-Symbolic Architecture for Experiential Learning in Discrete and Functional Environments. In: Goertzel, B., Iklé, M., Potapov, A. (eds) Artificial General Intelligence. AGI 2021. Lecture Notes in Computer Science(), vol 13154. Springer, Cham. https://doi.org/10.1007/978-3-030-93758-4_12, 2022

Справочные материалы

Authors	Paper	Link
Evgenii Vityaev, Anton Kolonin, Andrey Kurpatov, Artem Molchanov	Brain Principles Programming	https://www.springerprofessional.de/en/brain-principles-programming/23921444
Anton Kolonin, Andrey Kurpatov, Artem Molchanov, Gennadiy Averyanov	Cognitive Architecture for Decision-Making Based on Brain Principles Programming	https://www.sciencedirect.com/science/article/pii/S1877050922017458
Anton Kolonin	Neuro-Symbolic Architecture for Experiential Learning in Discrete and Functional Environments	https://link.springer.com/chapter/10.1007/978-3-030-93758-4_12
Anton Kolonin, Vignav Ramesh	Unsupervised Tokenization Learning	https://aclanthology.org/2022.emnlp-main.239.pdf
Anton Kolonin	Evolution of Efficient Symbolic Communication Codes	https://link.springer.com/chapter/10.1007/978-3-031-44865-2_1
Alex Glushchenko, Andres Suarez, Anton Kolonin, Ben Goertzel, Claudia Castillo, Man Hin Leung, Oleg Baskov	Unsupervised Language Learning in OpenCog	https://www.springerprofessional.de/unsupervised-language-learning-in-opencog/15995030
Alex Glushchenko, Andres Suarez, Anton Kolonin, Ben Goertzel, Oleg Baskov	Programmatic Link Grammar Induction for Unsupervised Language Learning	https://www.springerprofessional.de/en/programmative-link-grammar-induction-for-unsupervised-language-learning/17020348
Palantir Blog	Reducing Hallucinations with the Ontology in Palantir AIP	https://blog.palantir.com/reducing-hallucinations-with-the-ontology-in-palantir-aip-288552477383

Еженедельные
дискуссии по теме
сильного и общего ИИ
в группах, на онлайн-
семинарах и
видеоканалах

<https://agirussia.org/>



<https://t.me/agirussia>
<https://t.me/agirussianews>
<https://vk.com/agirussia>
<https://www.youtube.com/siberai>