International cooperation and technological leadership

Evgeny Burnaev

Dr. Sci., Professor,
Head of Applied AI center, Skoltech
Head of research group, AIRI

E-mail: e.burnaev@skoltech.ru
WeChat: Evgeny_Burnaev

Skoltech
Applied AI

AIRI

10 Years of AI History:

The Race
Has Just Begun

Some Russian IT/AI companies now:

- Combined a team of top ML developers, analysts, product managers etc.
- Allocating maximum of computing power to LLMs’ pretrain
- Started a series of internal hackathons
- Introduced a new profession: AI-coach and is actively hiring
- Integrating new LLMs into their products and services
- Paying maximum attention to AI ethics

AI in Russia

Areas with local leaders

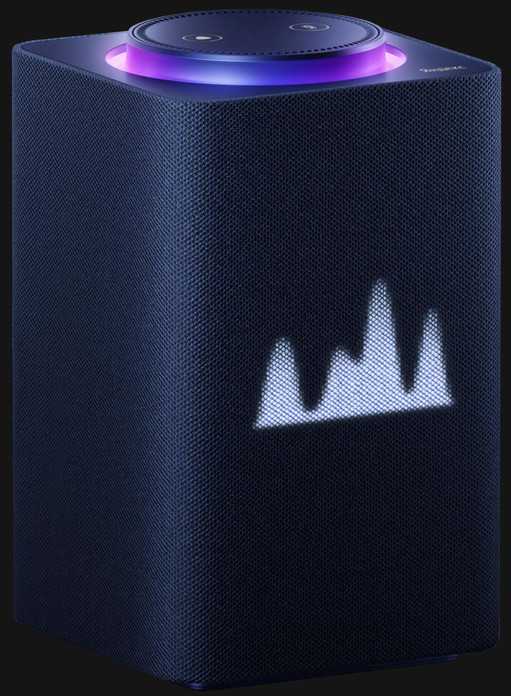
Web search **Social networks**

Messengers **Taxi** **Fintech**

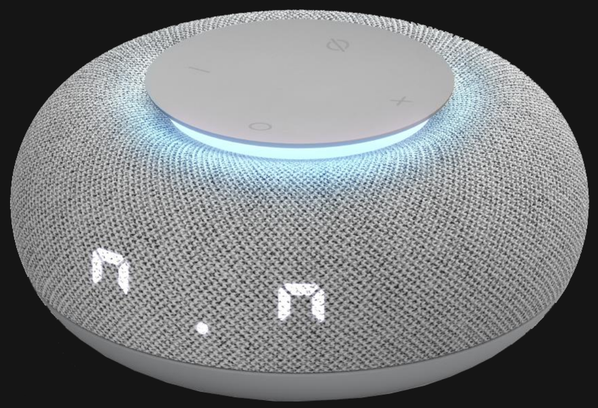
Marketplaces **Voice assistants**

etc.

Local voice assistants



Alice



Marusya

Salut

Self-Driving Vehicles

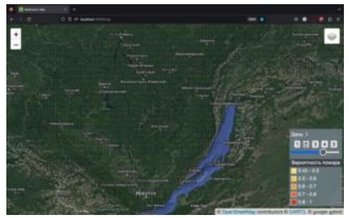
Some AI Indicators

1. **ML frameworks:**
   present, but not so popular

2. **Opensource:**
   CatBoost, ClickHouse, DeepPavlov…

3. **LLM:**
   YaLM 2.0 (Yandex), GigaChat (Sber)

AI Research Centers: Skoltech Applied AI center

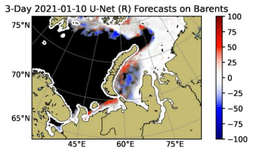


Forecasting probability of forest fires

Monitoring and Remote Sensing

Real-time Analysis of Multimodal Data Streams

Multimodal data analysis



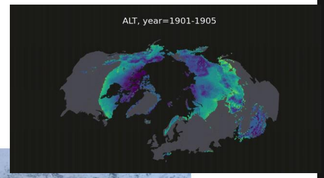
Forecasting the ice situation in the Arctic

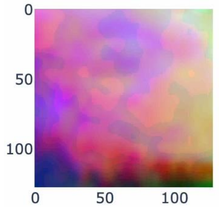
Monitoring and Remote Sensing

Industry products

Modeling of Economic and Physical Risks

Influence of climate risks



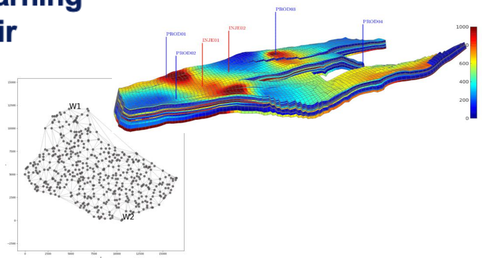


Monitoring and forecasting of air pollution

Monitoring and Remote Sensing

Optimization of Decisions for Industrial Engineering

"Self-learning reservoir model"



Frameworks

Data Fusion
Fusion of multimodal spatial-temporal data

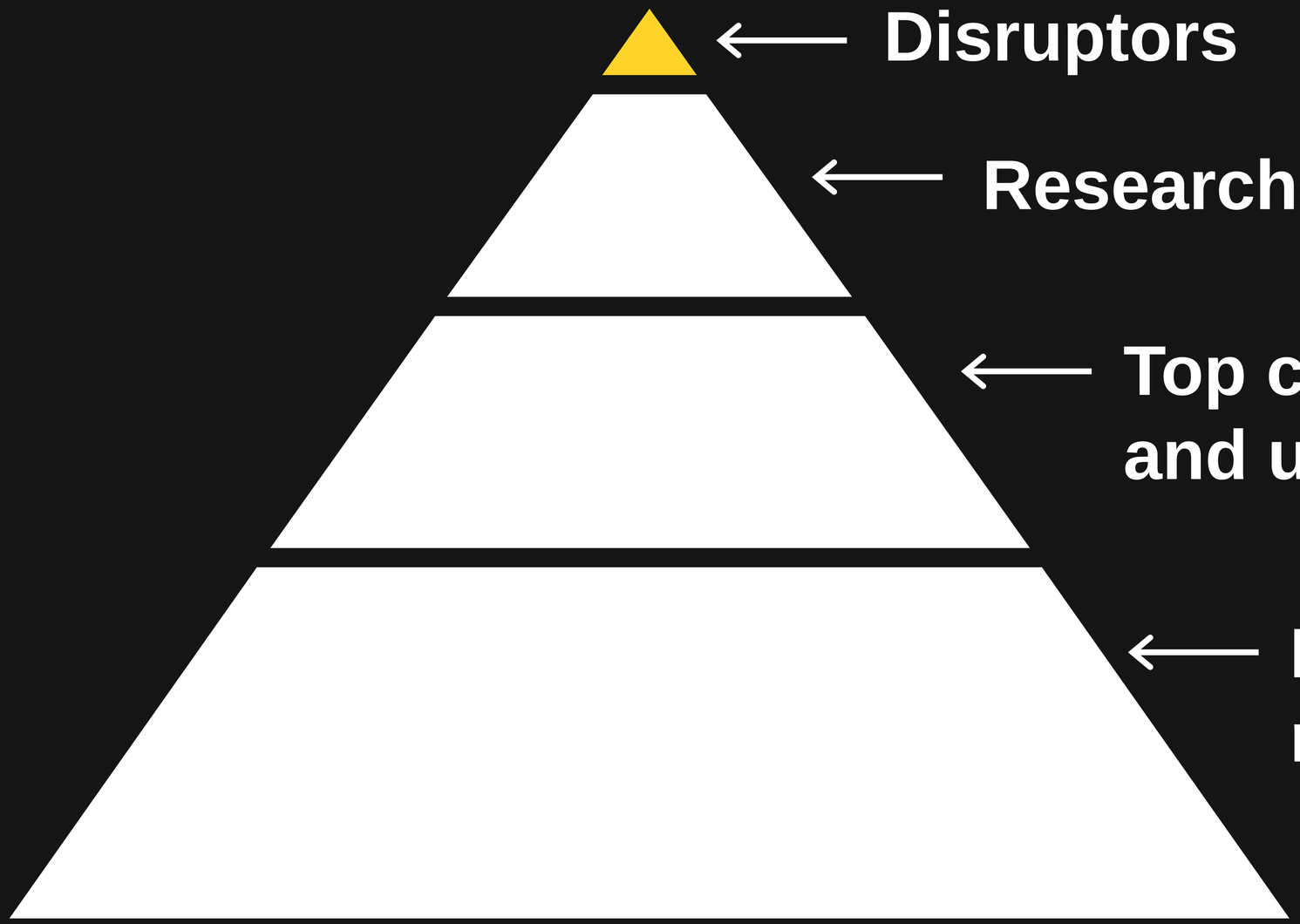
Science-Informed ML
Coupling of Scientific and AI models

Fundamental AI research

Skoltech
Applied AI

AIRI

Staff



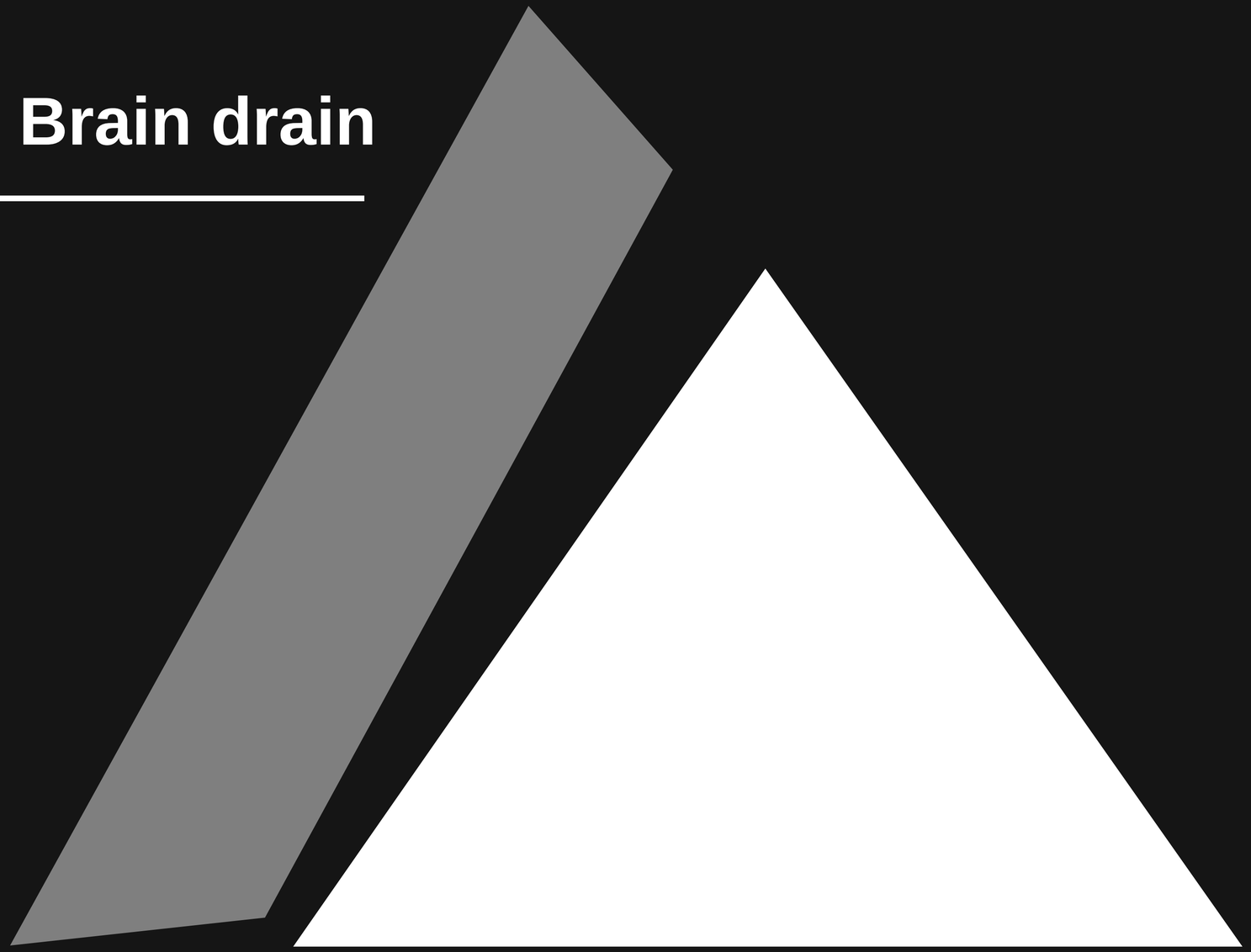
Disruptors

Researchers and engineers

Top college
and university students

Kids with strong
math base

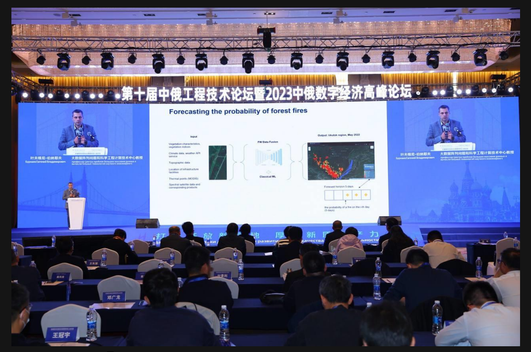
Brain drain



Some persons who were born in Russia:

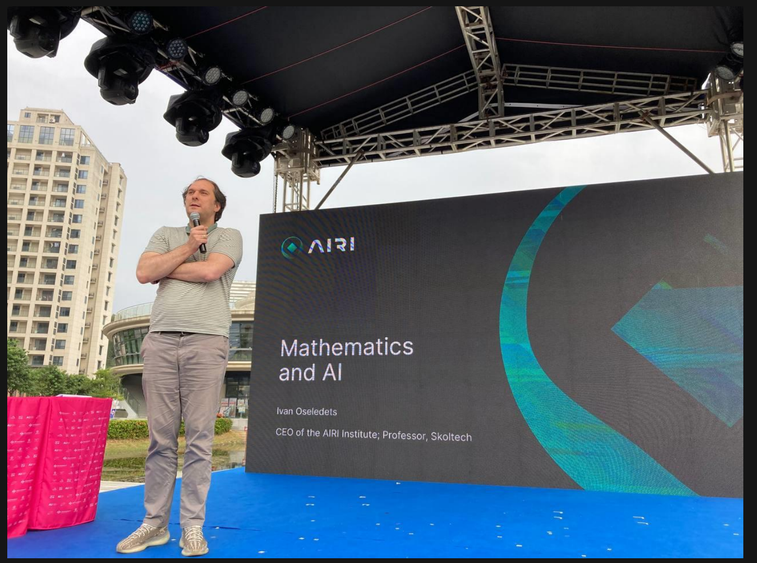
1. Ilya Sutskever
2. Alexei (Alyosha) Efros
3. Ruslan Salakhutdinov

...

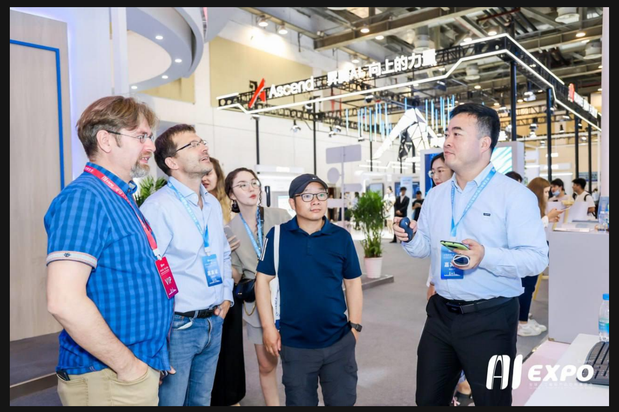


Suzhou AI expo

Huawei campus



Science festival in Shenzhen

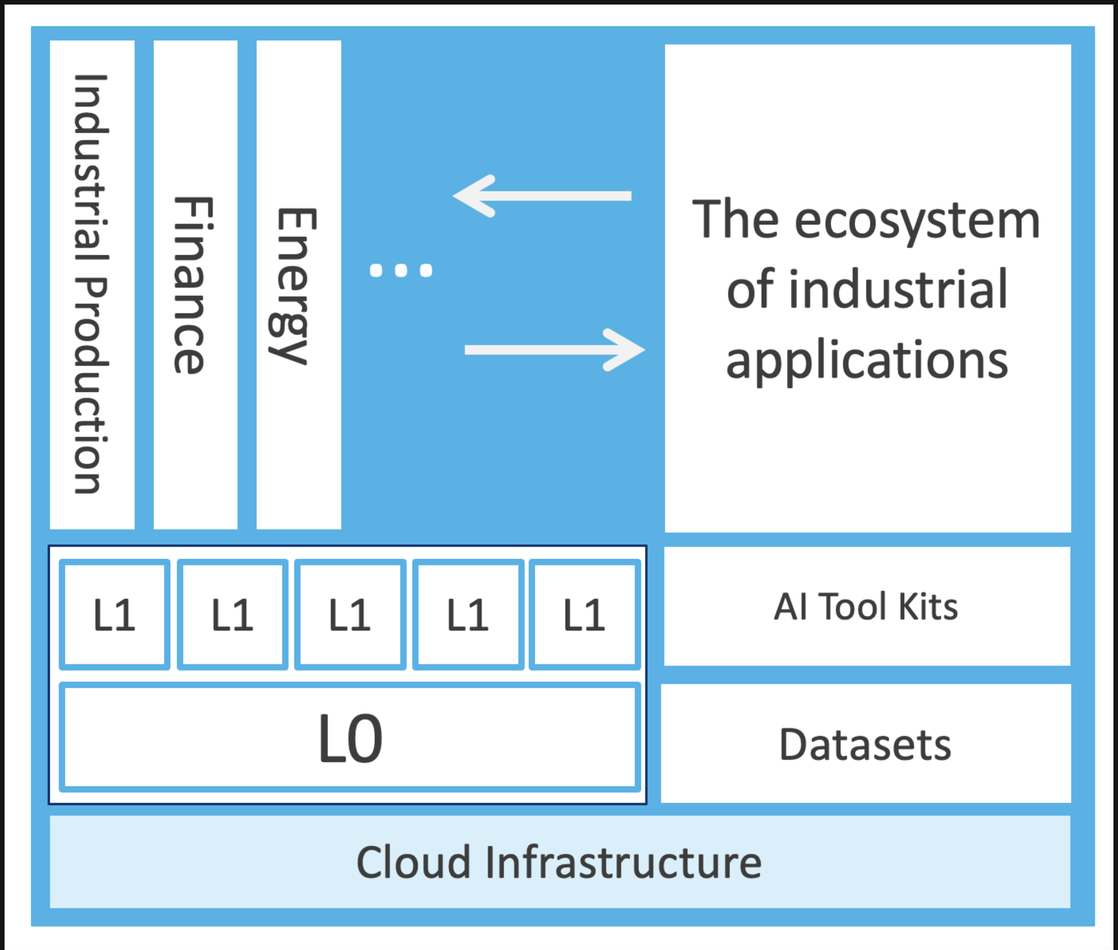


Beijing AI academy

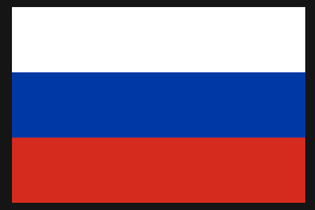
AI Educational forum in Tsinghua University

The 10th Russian-Chinese Engineering Technology Forum and the Russian-Chinese Digital Economy Summit 2023 in Harbin

Chinese strategy on ChatGPT



- Quantity -> Quality
- Based on large general-purpose models (L0), create a series of large industrial models (L1), integrate them into industrial systems
- Companies with state participation should collect and prepare relevant data on their topics (China Mobile, China Telecom, State Grid, China Southern Power Grid, PetroChina, Sinopec, etc.)
- Create 8 industrial models by 2025 (communications, electric power, logistics, petrochemicals, mining, construction, etc.) and work out 20 scenarios for the application of industrial models
- To become one of the world leaders by 2030
- Current condition – there are about 30 models, but the quality remains questionable



China and Russia: cooperation without competition