

DON STATE TECHNICAL UNIVERSITY
Digital transformation of master's programs based on
artificial intelligence algorithms



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Dmitry Rudoy, Dean of the Faculty of Agriculture

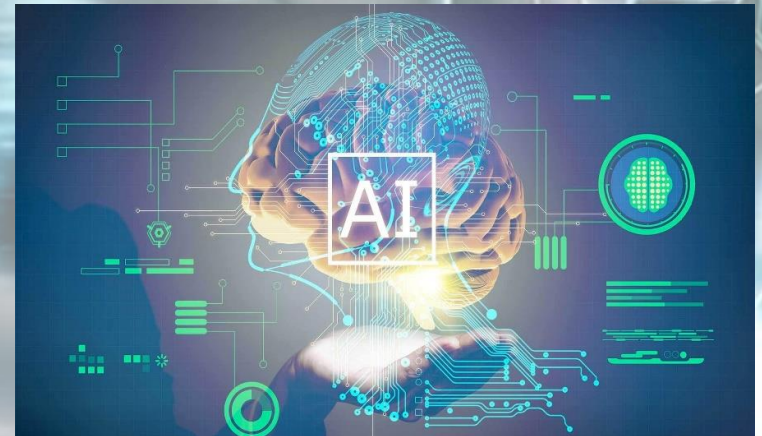
Why Master programs?

Why it's so critical?

To implement the digital economy program, **high-level specialists** must be trained in a **short time**. Master's programs meet these requirements.

Many industrial partners need highly qualified personnel to implement digital economy programs. To do this, **graduate students** must solve problems in the interests of industrial partners during the learning process. They should be closely connected to the technological process of production and carry out a master's thesis in manufacture.

Thus, the core of Master program is the real project!



НАШИ ПАРТНЕРЫ



MASTER PROGRAM

"ARTIFICIAL INTELLIGENCE, MATHEMATICAL MODELING AND SUPERCOMPUTER TECHNOLOGIES IN THE DEVELOPMENT OF INFORMATION SYSTEMS"

Level of training: Master

Structural subdivision:

Faculty of Computer Science and
computer engineering

Language of instruction: Russian

Forms and terms of training: Full-time - 2 years

Entry requirements:

Bachelor's degree required



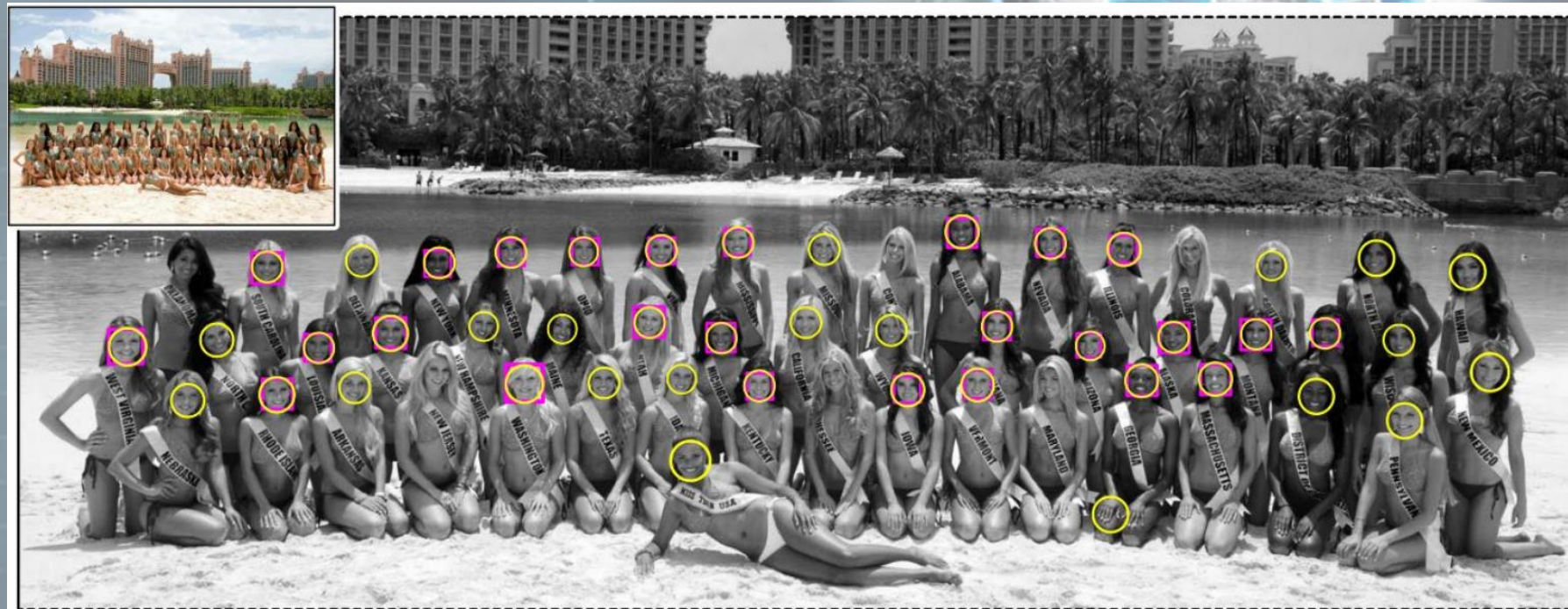
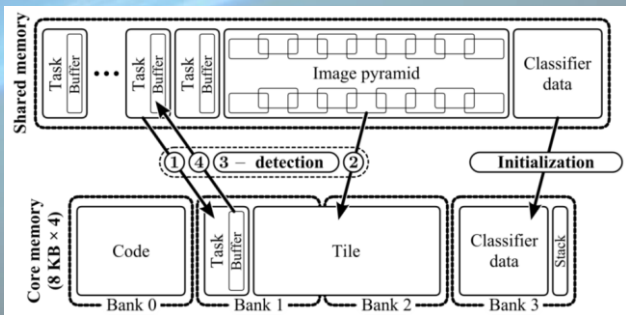
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The problems of effective face recognition on a high-performance computing system



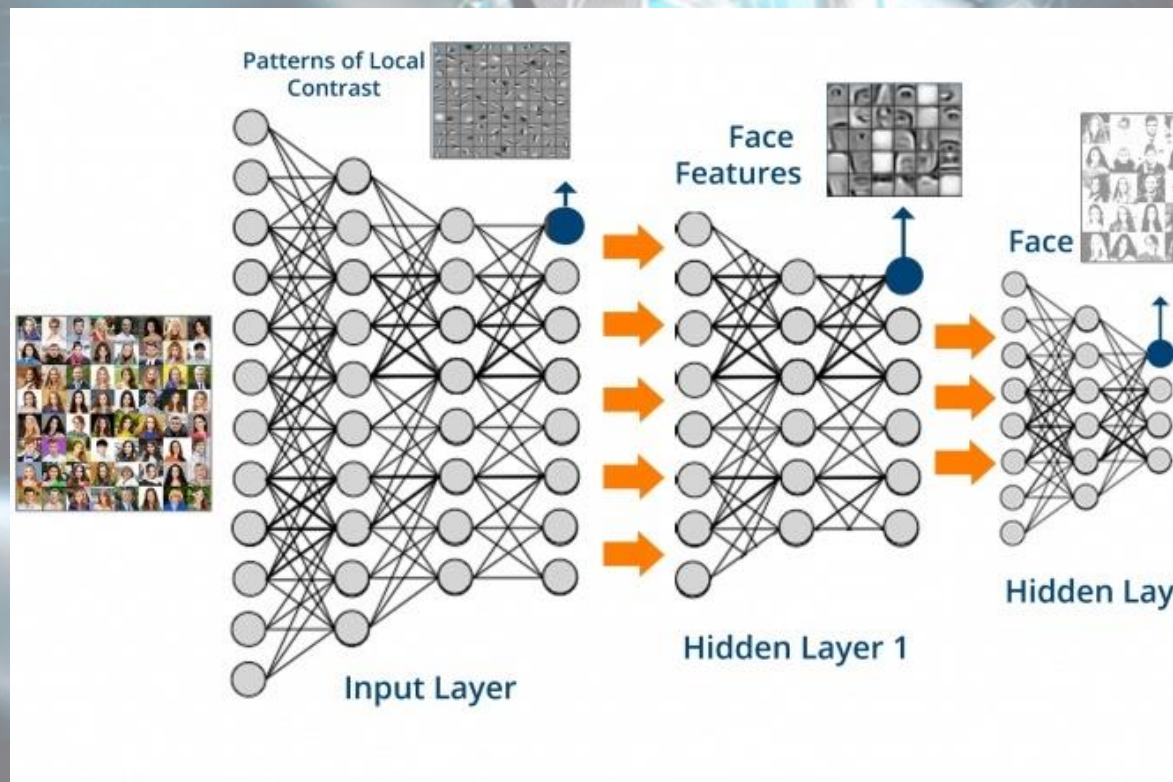
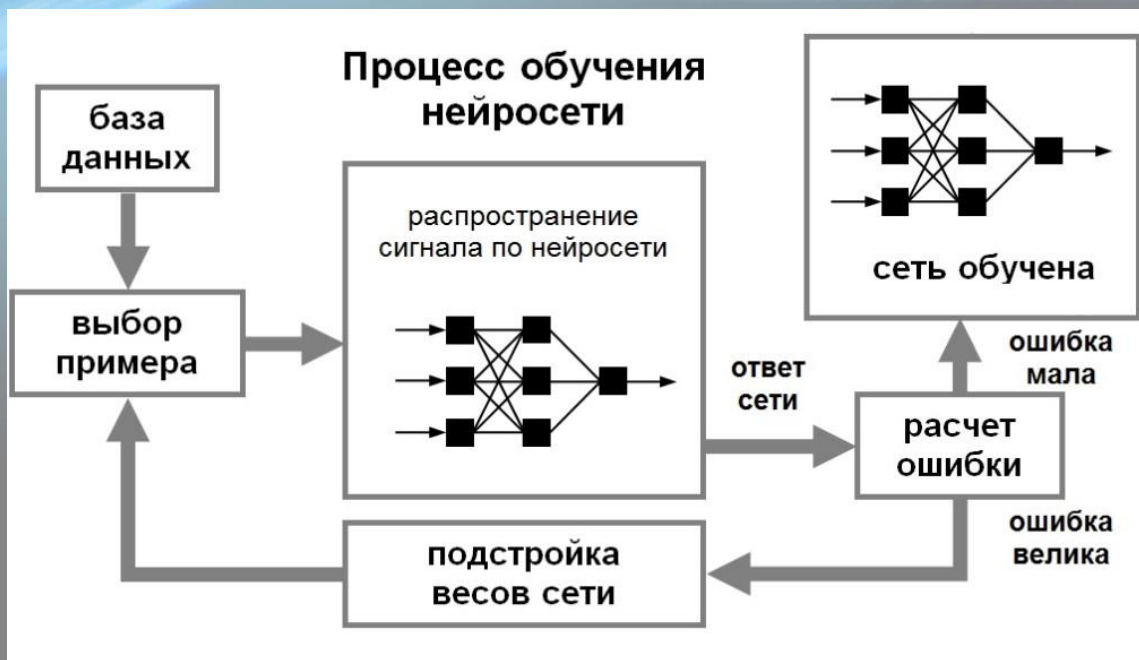
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Neural network training tasks



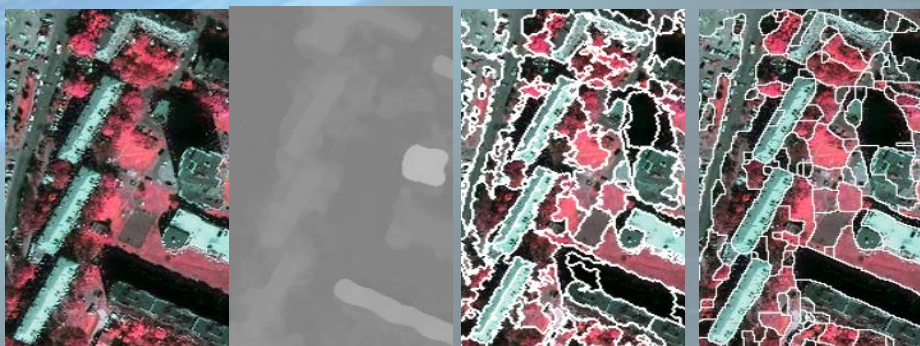
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Detecting buildings in satellite imagery using a height map

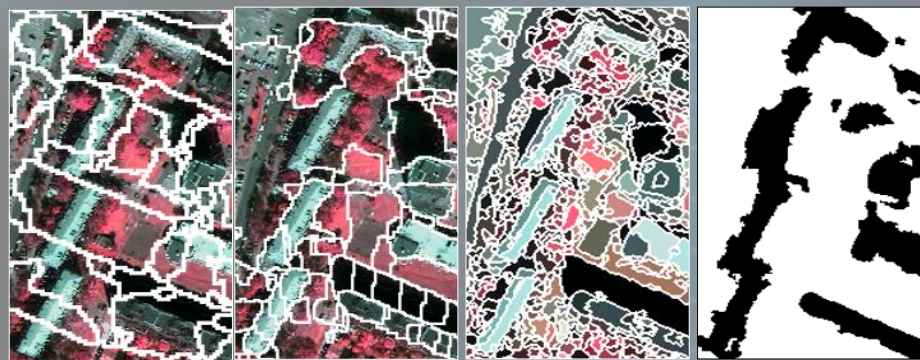


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Fig. 1. A fragment of the original image.

Fig. 2. Height Map

Fig. 3. The result of the SWA algorithm

Fig. 4. The result of the gPb-owt-ucm algorithm

Fig. 5. The result of the MCG algorithm

Fig. 6. The result of the COB algorithm

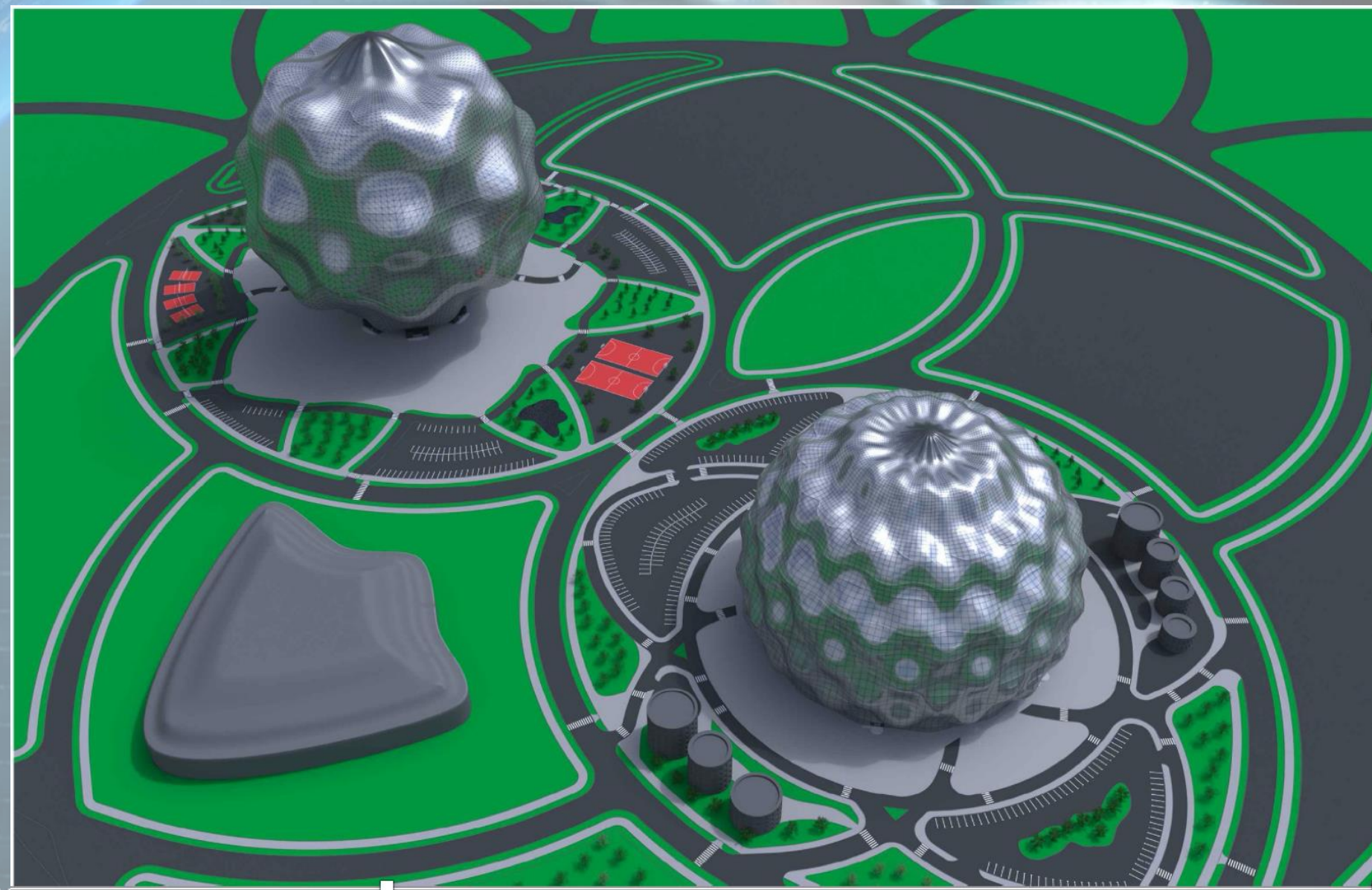
Fig. 7. The result of the simple segmentation algorithm

Fig. 8. The result of the construction detection algorithm

MASTER PROGRAM

BIM-technology in Civil Engineering

Visualization of fractal
architecture objects



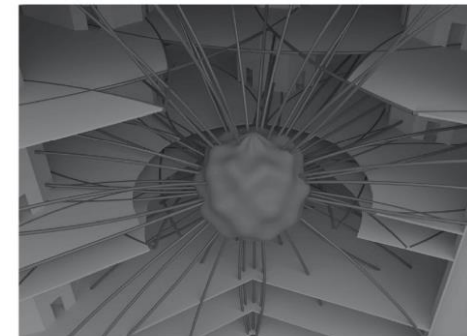
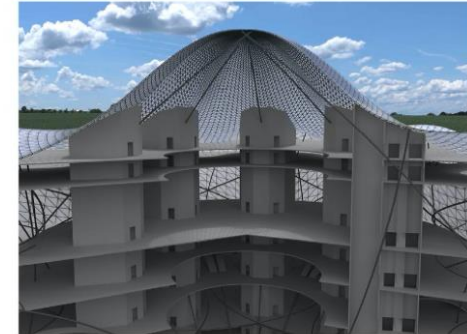
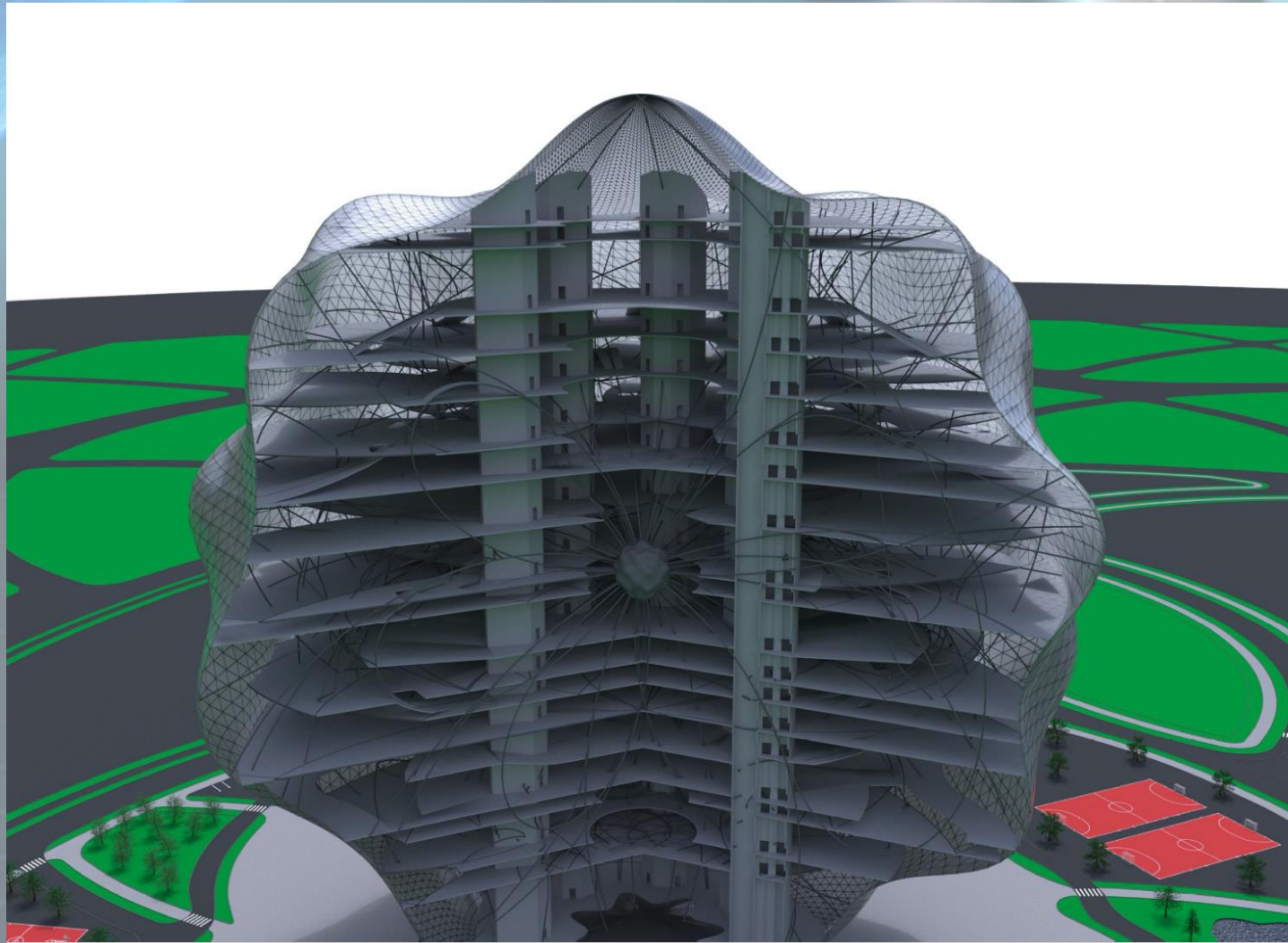
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BIM-technology in Civil Engineering

Visualization of fractal architecture objects

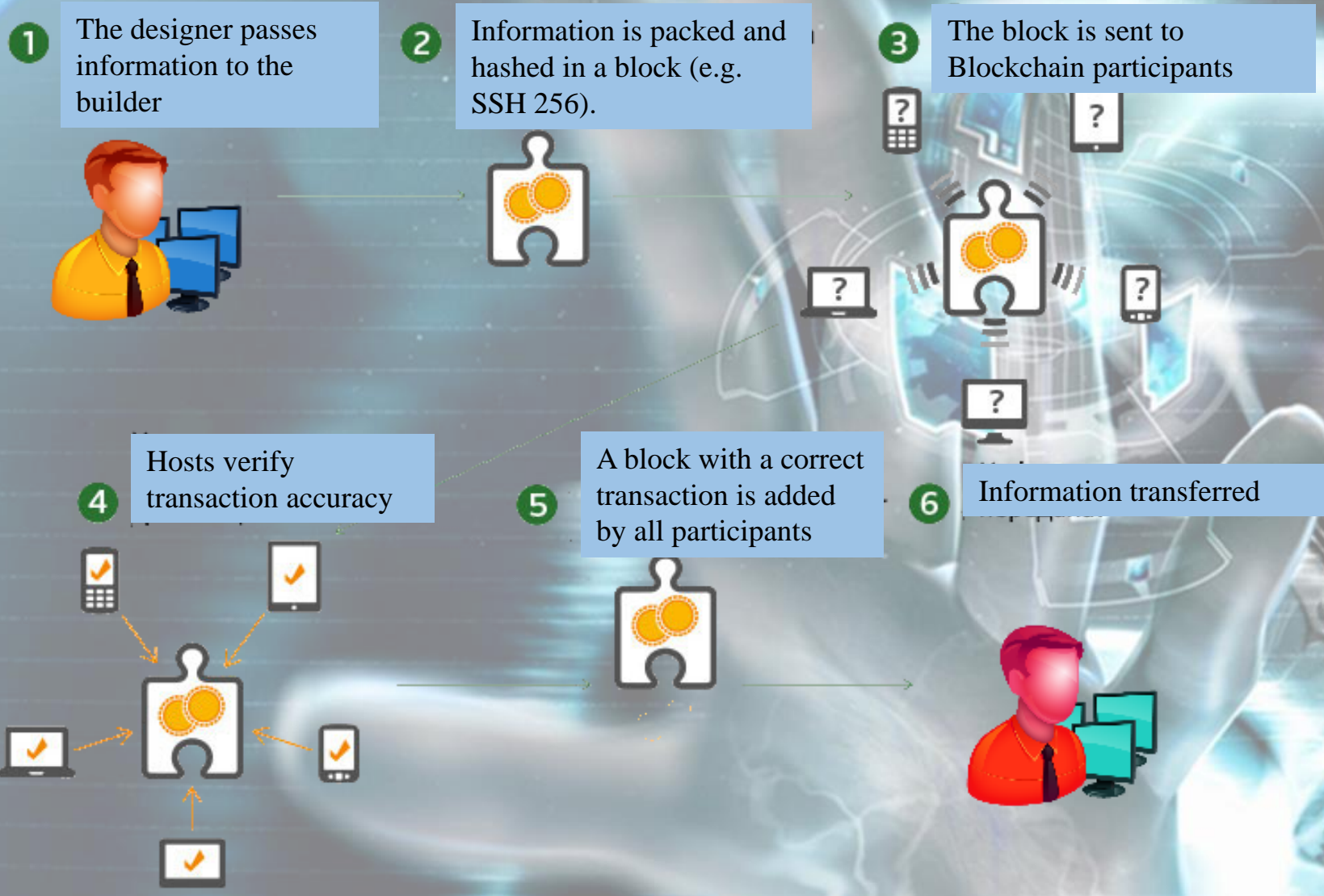
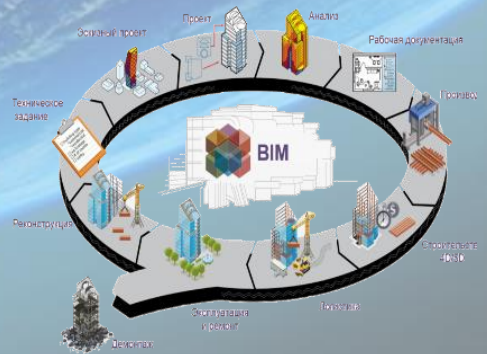


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BlockChain technology in BIM-design



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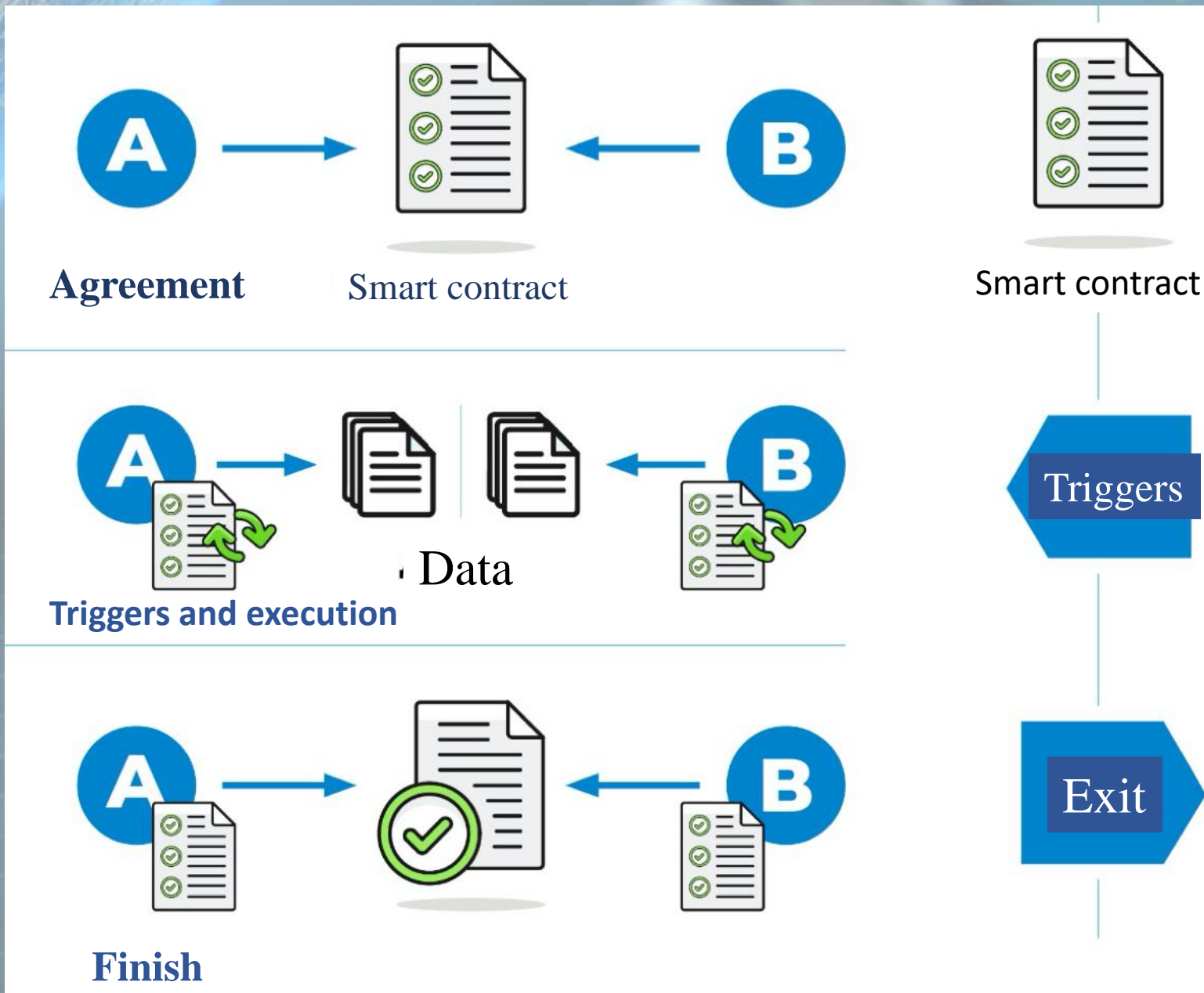


MASTER PROGRAM BIM-technology in Civil Engineering

Conclusion of an agreement

Monitoring compliance

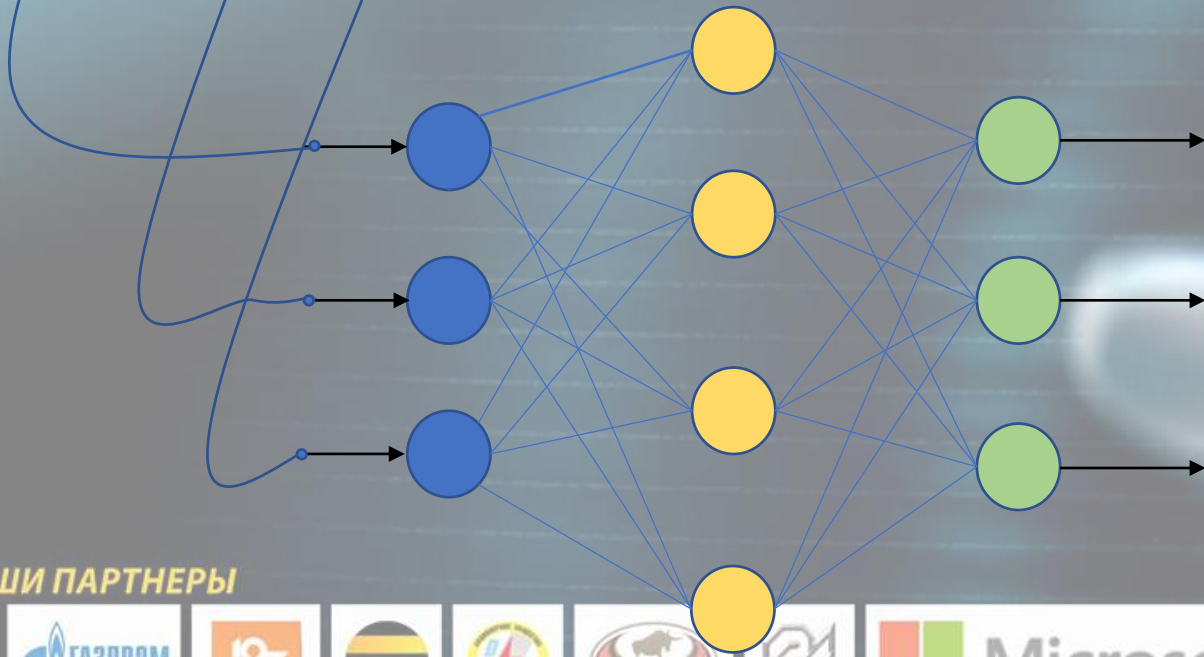
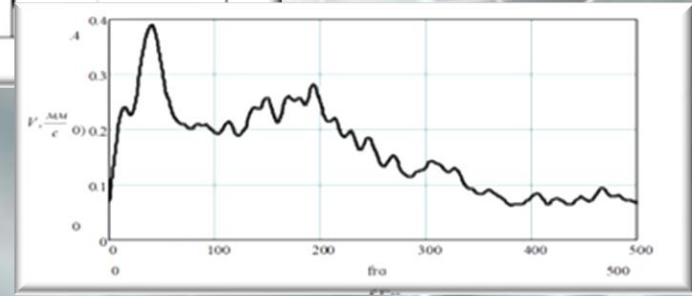
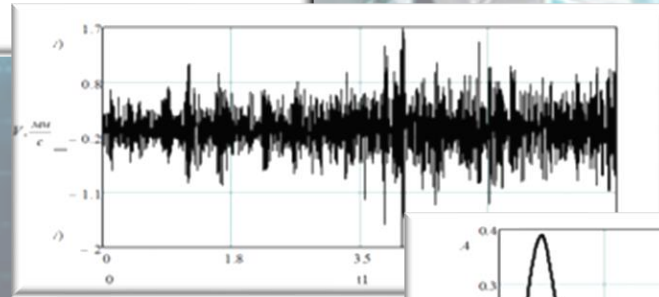
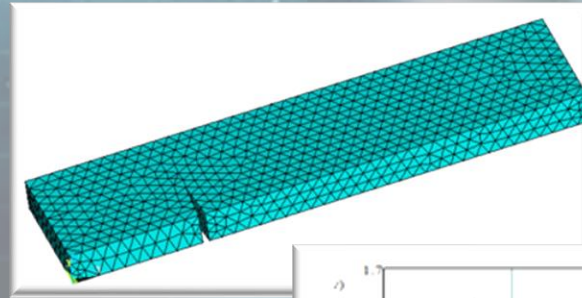
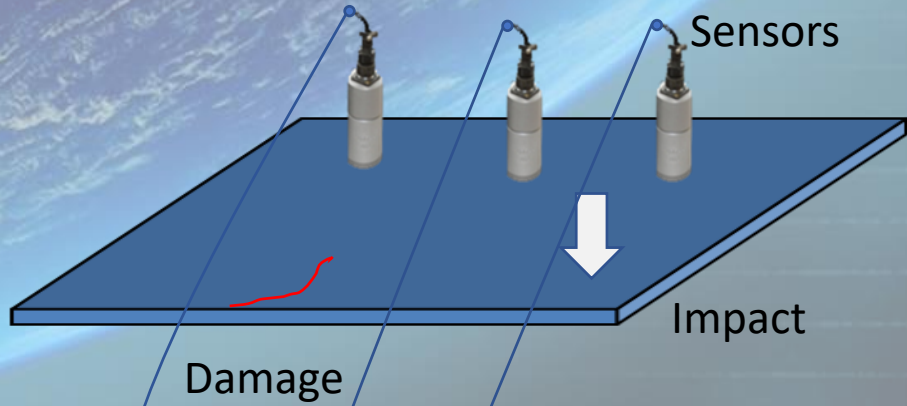
The signing of the
acceptance certificate



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Vibro-diagnostics in Civil Engineering



Damage position

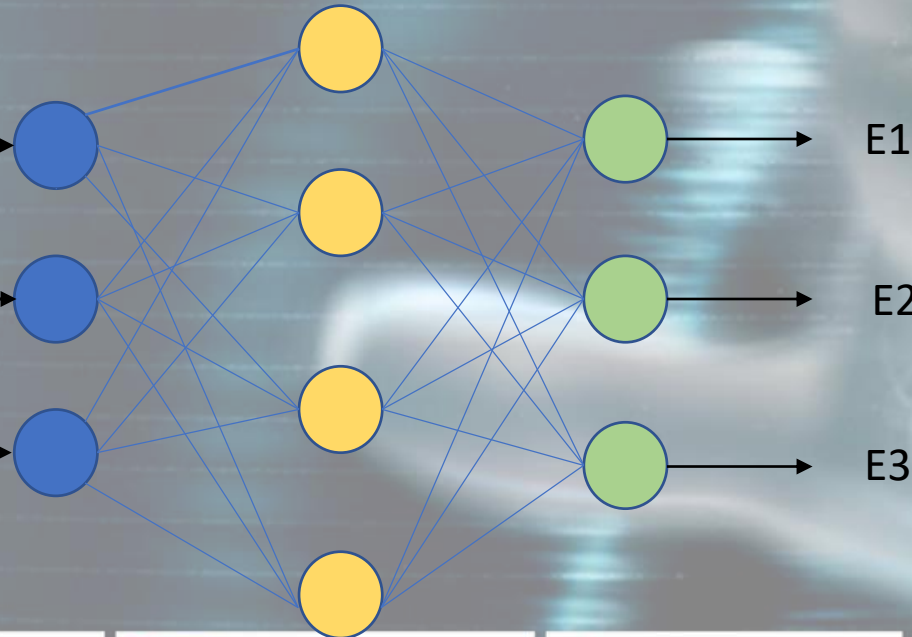
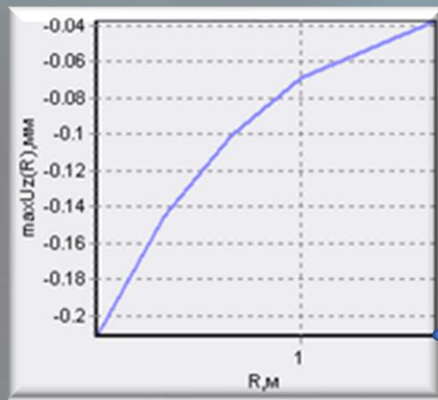
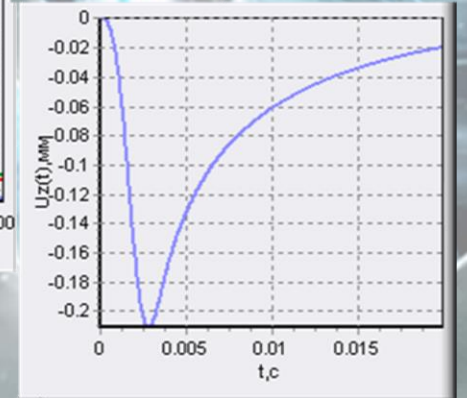
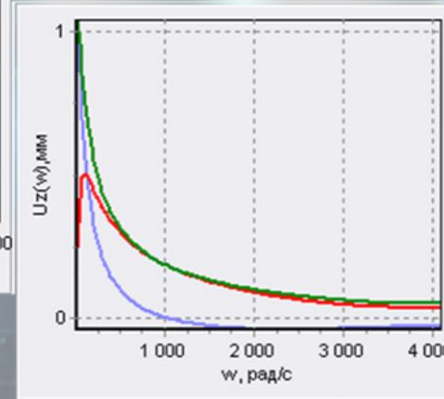
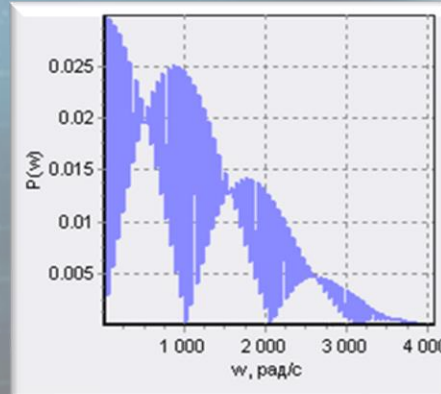
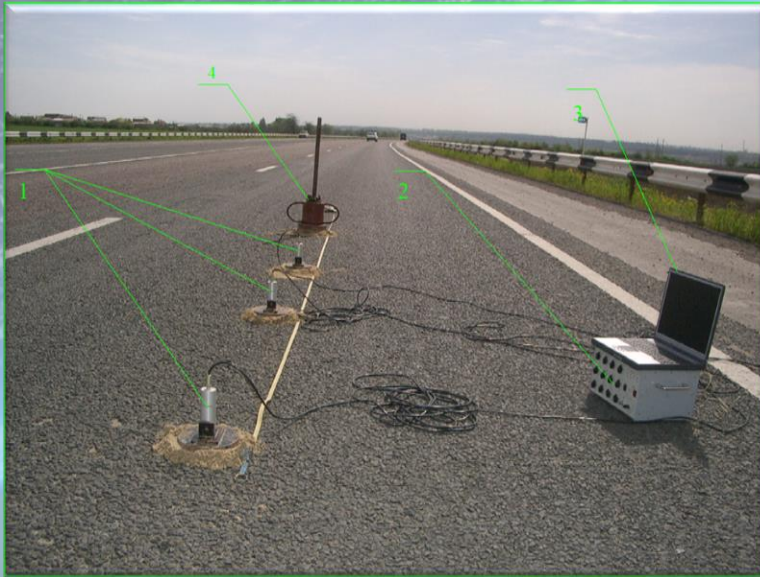
Risk

Other defect parameters

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Layered structures mechanical properties assessment

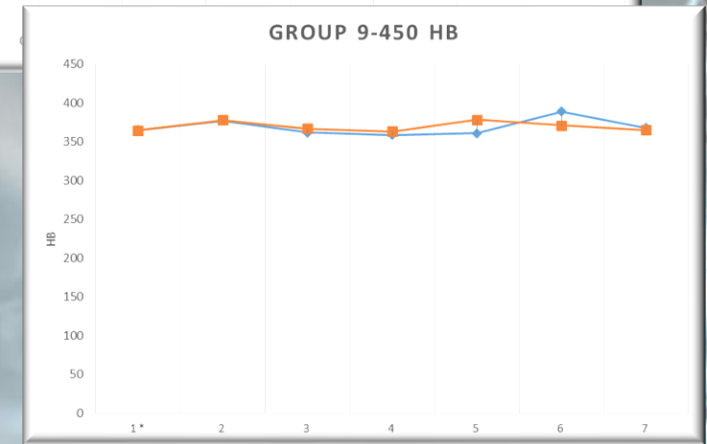
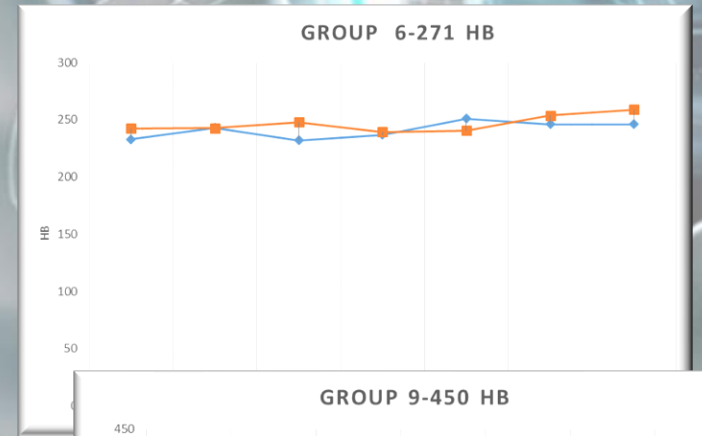
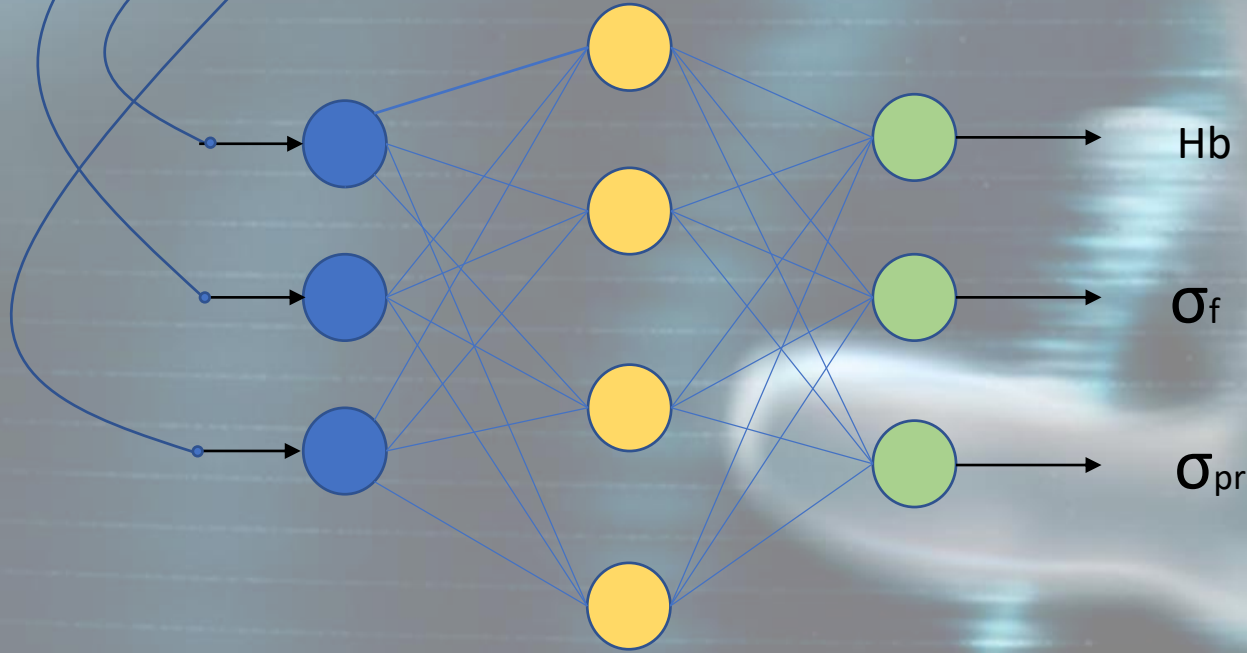
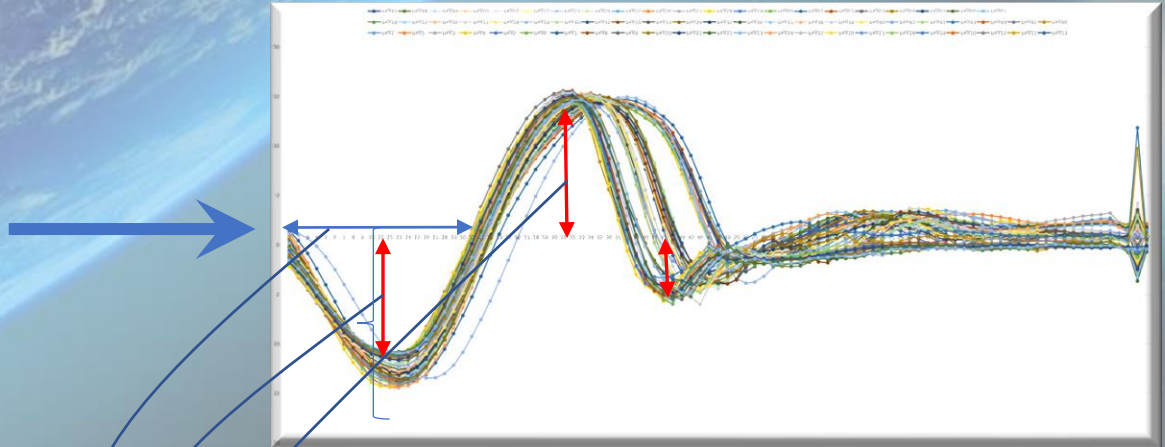
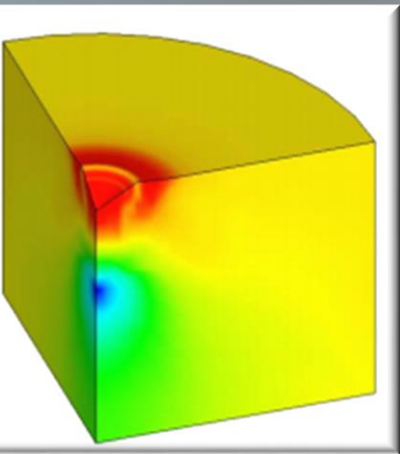
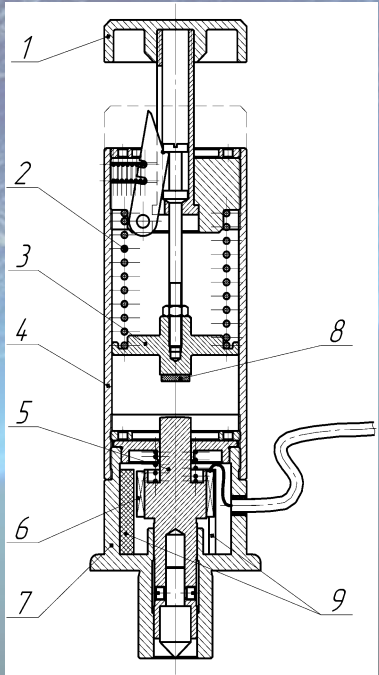


Elasticity modulus

Dynamic deflections

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Assessment of the mechanical properties of steel structures



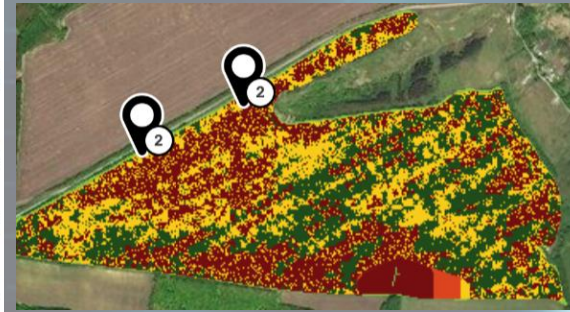
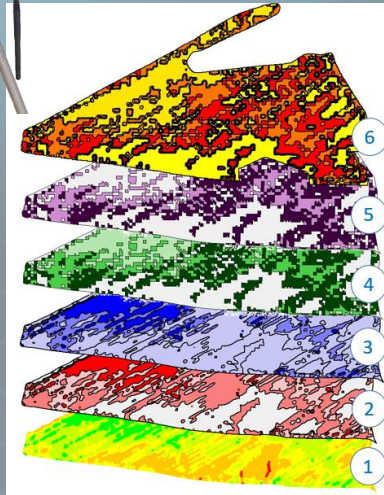
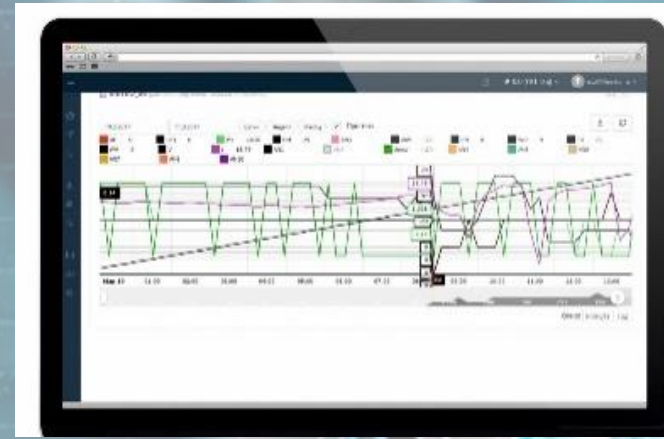
MASTER PROGRAM

Digital Agricultural Engineering

Weather analysis and forecasting



Контроль техники



АГРОШТУРМАН



look



Differentiated processing, sowing,
yield mapping

Parameter optimization
cleaning equipment works



AMAZONE



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So, what do we need?

1. We need several partners **who are advanced in manufacturing or in the educational sphere** and **who can set a problem of a high level.**

2. **Double diploma programs with Universities**

3. **Exchange of students and lecturers**



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THANK YOU!

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