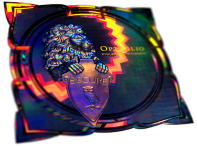


# Why nanotechnological Optaglio trains artists

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Example of a hologram based on unique graphical possibilities of particulare technology

The press recently informed that Optaglio, a research and technology company, started to teach artists to create beautiful holograms. Does it make sense? Optaglio employes some designers but it is not an art school. Why is graphical design critical for authentication?

Optaglio is a manufacturer of security holograms. It is the market leader in extremely high-resolution holograms. Application of these holograms creates the trust that the item is genuine. It is critical for the protection of brands and authentication of persons.

There is a tendency to think that biometry is the universal solution. It is elegant and comfortable. As far as biometry data is compromised. Recent massive breaches in USA and Taiwan demonstrated that such compromisation is possible. For such cases, a backup must exist, based on standard authentication methods and tools, including an ID card.

ID cards need to be firmly resistant to all attempts for counterfeiting and tampering. A usual race starts between protection technology providers with more and more sophisticated elements and attacker trying to imitate them.

The best holograms are produced so that the master is „carved“ with an ultrathin stream of electrons, much thinner than any laser. Optaglio, which is currently the leader, reaches up to 5 million DPI resolution. Mathematical algorithms that ca n´t be derived and from the ready hologram and thus can be compared to asymmetric cryptography are used for directing the beam.

This production technology enables placing unique visual effects, that cannot be created any other way, into the hologram. With tilting the hologram, the illusion object can move along another axis. Plastic 3D objects with interestingly changing colours can be created. Small animations are another exciting option. In fact, each leading holograms manufacturer has its unique visual effect that cannot be imitated by someone else.

But it is not so easy. Law enforcement officers often say that a counterfeiting attempt is successful when an inspection person does not mention that the item is a fake. Of course, the attackers try to target the weakest part of the chain.

Now we can understand the role of graphic designer better. Most common training will help us to understand benefits of great design better.

An artist can spoil the protection through designing a holograms with only numbers, digits and logo. Everything is black and grey, letter change with tilting the hologram. Such design may be very elegant but it will be boring for most of inspectors. If they meet another hologram with the same letters, they can be misled easily.

Another artist can design something more interesting. The hologram can include an animal, portrait of a famous person, castle, a set of objects with exciting animation etc. However, these visual properties are not based on specific features of the technology. Risk still exists that counterfeiters can create similar appearance using low-end technology tools.

It is thus critical that the designer knows way of technical realisation in detail, including a deep understanding of differences between origination technologies. With such knowledge, he/she can create a design based on unique technology features. It can be illustrated on an example from the Czech Republic. In 2009 – 2010, Optaglio delivered holograms to protect Czech highway vignettes. A dim plastic car with was the central motive of the hologram. There was no counterfeit attempt. The ministry then decided to change the supplier and replace „car holograms“ with simple ones. Fakes have appeared each year since that.

It is obvious that role of the graphic designer is vital. It is not about the beauty but rather about authentication. It is about the creation of the trust that ID card is genuine and that the person is what he/she claims to be. Market leaders in protection technologies have spent huge resources on the development of special visual features. But at the end, they are dependent on an artist. If the technology is not applied the right way, investment into technology is wasted.

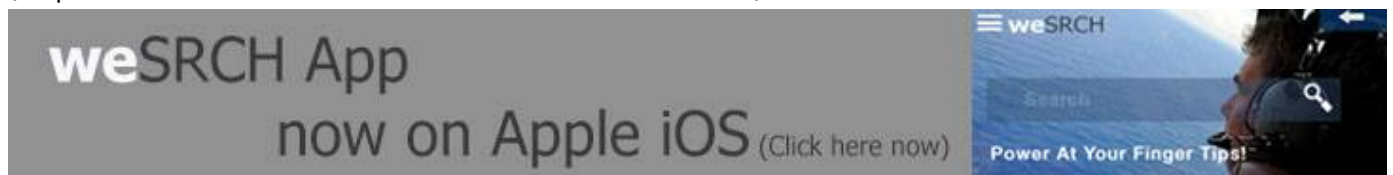
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