

## Danish University Colleges

### Bringing science to the world in under six minutes

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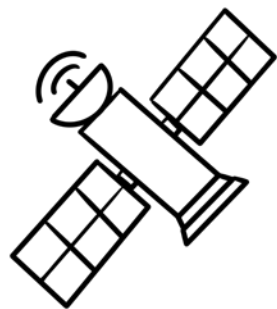
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# BRINGING SCIENCE TO THE WORLD IN UNDER SIX MINUTES



'Is human evolution speeding up or slowing down?' by TED-ED, Art by Ouros Animation.



*Animation is a way of thinking. Those are the words of Ágota Végső, animation producer and production manager of a collaboration between the well-known “Lessons Worth Sharing” platform TED-Ed, and Sci-Vi, a science visualization initiative by The Animation Workshop in Viborg. Végső admits that it is a radical thought, but it has worked in practice since 2014.*

Sci-Vi is a partnership between The Animation Workshop/VIA University College (TAW), Viborg Municipality, and the creative industry cluster Arsenale, all located in rural Denmark. The Animation Workshop and the area have been renowned for years for their high-quality animation education and a strong public focus on strategies for animation in the arts and industries. The bar is set high for the initiative, which has aimed since 2017 to not only visualize science but “explore and unfold visual science dissemination as a field and strengthen cooperation between scientists and visual storytellers.”

The collaboration with TED-Ed formed the basis for the open-ended exploration that became the Sci-Vi initiative, and during Végső's time with the project, she has seen an improvement not just in the quality of the video lectures, but in the interest of their partners to understand the potential of visualized science. The voice-overs of the videos are in English, but subtitles are available in more than 20 languages, and the videos cover research fields from STEM (science, technology, engineering, and mathematics) to history, literature, and social topics.

**Ágota Végső:** Using science wisely is the most important challenge of humanity, and it's our task to share the facts and news coming from scientific research, in a way

that all members of the community can understand. The Animation Workshop participates in this mission by finding talented animators who can think with the researchers and educators and create the best ways to understand those facts.

**WeAnimate:** What happens during that process, when researchers and animators “think with” each other?

**AV:** It's different depending on the purpose. The key is constant communication and the willingness to have your mind be changed, even though the two professionals working together are each the masters of their own field. Making animation is a slow and focused procedure where there are ‘no accidents,’ everything needs to be planned in advance. The TED-Ed collaboration is a special case, where the educators are open to trusting the artist to find the best 2D animated way to talk to a general, worldwide audience in under six minutes. When researchers enter the collaboration with an animation professional, a constant exchange to accurately simplify the topic they are working on begins. In that process, the researchers discover how their topic should best be talked about or presented to people.

One example is when we worked with scientists to create visuals for their presentations at the Creativity World Forum 2017 Aarhus for the City Challenge.

In this case, the animation served as an organic part of the live presentation at the conference and may not make a lot of sense on its own. The result was less didactic and more abstract. Tom Butler, a researcher at Central Saint Martins, said ‘I loved the idea of bringing my research to life through animation, and I think the final result added a new dimension. The film by Will Mackenzie and Kat Gusarova brilliantly communicates and simplifies my research on new approaches to urban design, helping the audience immediately get the project, and helping me to see it in a new light.’

**It's our task to share the facts and news coming from scientific research, in a way that all members of the community can understand.**

– Ágota Végső



‘Is human evolution speeding up or slowing down?’ by TED-Ed, Art by Ouros Animation.

Another example of a different ‘thinking together’ process was when we were collaborating with researchers at The Novo Nordisk Foundation Center for Stem Cell Biology, DanStem, at the University of Copenhagen. During a matchmaking session between researchers from DanStem and animators at the Sci-Vi Conference in 2019, one of the researchers would like to have their dissemination animated, but the artists that they met during our matchmaking were VR game makers. It turned out that a VR game was the best option to explain the research, because of how a stem cell chooses which direction it will develop in – a linear film would not have been able to accurately show the same process. So a kid, going through that VR game experience, will understand that the way they are choosing between multiple parallel possibilities and creating a path through the game, that's the way they should think about what's happening inside the body when a stem cell is developing and actually “choosing” what to become. The Collaboration with DanStem is ongoing and we will be seeing different and experimental productions about stem cells in the coming years.

The TED-Ed collaboration has created content that has the quality of a short film and the accuracy of an explanatory video. It is crucial for the young generation especially, but basically for everybody.

**The films get millions of views, so the director will have a film that has been watched by three, four million people worldwide, in their portfolio.**

– Ágota Végső

How do we expect people to make the best decisions about sustainability, ecology, dealing with a pandemic, or problems related to race, religion, and acceptance, unless they understand the facts of the problems they are deciding on? I think that for a better future for humanity, you have to arm people with this knowledge and understanding. You have to give the scientists the opportunity to communicate what they're working on, and to enable everyone from people to businesses to make informed decisions about what we should do.

TAW has cooperated with TED-Ed, the educational arm of TED, since 2014 to create better communication about

all kinds of science. It began with a collaboration on four videos, and over the years the partners have created more than 30 animated lectures together and have been represented at several international film festivals.

**AV:** It started in 2014 when we got a call from TED-Ed that they would like to collaborate on four quantum mechanics videos. We collected four directors, I was one of them, and we just grabbed a couple of friends from The Animation Workshop and got started. After that, we got calls to make more videos, and I proceeded to make a deal with TED-Ed for a certain number of films per year, to be able to collect the directors who are interested in advance, and match the projects with their schedule. When we had the first conference in 2017, that was the game-changer, I think. It was the first initiative that showed me that the science visualization project could be more than the online collaboration with TED-Ed.

The annual Sci-Vi Conferences have all been different, catering to the needs of that specific year. It is an important opportunity to invite people who Végső and her colleague, Sia Søndergaard, feel like should meet in person. Although most collaboration under Sci-Vi happens online, the physical meeting should not be overlooked – some angles would never have been discovered if people had not met and discussed in person.

**WA:** How do you bring the scientists and the visualizers together – do they get each other's phone numbers and go, or is there a specific method to onboarding them with each other?

**AV:** It depends on the director, but we do have a regular tactic for how we start. There are two types of approach at the beginning. We can start by asking the director, what their interests are because most of the topics require a lot of extra time to dig deeper into the research. For other directors that we have already worked with, we do it the other way around and choose them for a topic because of their visual style. In either case, we send the script to the director before introducing them to the scientist or educator, so the director can





'Can the ocean run out of oxygen' by TED-Ed,  
Art by Mette Ilene Holmriis.

It's a maximum of two and a half to three months of production from when we receive the script to delivering the videos, which are around five and a half minutes.

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read it and decide. If it's a match, we send the director's portfolio and any previous videos to the educator. From that moment, it's up to them. Some don't need an online meeting or further emails, the director just sends the first still images, then the draft animatic, and so on.

**WA:** It seems clear that coming from a non-science background, many of these topics would need a lot of research for the directors to be able to even talk to the scientists about them. What's the time frame for the TED-Ed projects?

**AV:** It's a really, really tight schedule, basically it's a maximum of two and a half to three months of production from when we receive the script to delivering the videos, which are around five and a half minutes. Some topics require serious reading, but not all, of course. We sometimes see that topics that are easier to understand need more time to visualize more accurately. History, literature, and social topics need more animation, whereas science needs more accuracy and slower animation, so the viewer has a chance to understand better. They each have their own need for emphasis. We have also seen productions that lasted almost five months because they needed corrections. Weeks of correcting skin tones, dress, colors, maps, which map you're using – but the details are so important to make sure that people in all parts of the world get an accurate message.

**WA:** How big are the production teams?

**AV:** Usually they are a one-man production, but in the way that many of the directors have their own little teams that they can call when they are in need, people they can hire to do the compositing or the animation or something else, to make their work faster. Even though we pool the finances coming from TED-Ed, The Animation Workshop, and Viborg Municipality, the budgets definitely don't support large teams.

**WA:** As an animation professional, unless you are already interested in science, working with a scientist and visualizing their work might not sound like the sexiest task. When you recruit someone to your community of professionals, what are the reasons you give them to join?

**AV:** There are a lot of reasons. Firstly, the animation has to be within the borders of 2D digital animation, because that's the fastest, but other than that you usually get total freedom in style. Most of the feedback is on the content – so it's great if you like to control the style and the process – and it will be under the director's name. Secondly, the films get millions of views, so the director will have a film that has been watched by three, four million people worldwide, in their portfolio. Also, TED Talks is a company that is well-known nowadays, so when you mention that you are working with them, it can work as a stamp of approval, and that can be valuable, too.

During the years, I've sent a lot of portfolios to TED-Ed. They look for multi-talents, who can do everything from designing to animating and directing. I sense that they

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usually don't choose people with a very fine arts style because it doesn't work as well for explanatory videos, so if you're someone with a really expressive fine arts style, I'd tell you to consider that they might not choose you. But, TED-Ed does sometimes choose that kind of artist, not for the five-minute videos, but for projects like illustrations or experimental films. If you are a director who wants to work with TED-Ed, but

would like to work in stop motion or 3D, they are more likely to accept it if you are already in their network and they trust and know your workflow.

**WA:** What about you personally, do you have a favorite video from the collaboration with TED-Ed, or is there a dream project, something you're thinking, "I would love to see this kind of science, or this scientist, paired with someone who will create a professional visualization?"

**AV:** We are already doing it. In 2020 we have dedicated our TED-Ed collaboration to creating lectures on the topic of climate. We have been working on several new videos including topics about saving endangered animals, following the life cycle of coral reefs, the right usage of plastic bags, or how humans evolved to adapt to the changing life circumstances of their habitat. We have an amazingly talented team of directors this year: Mette Ilene Holmriis, Jody Ghani Nordby, Denis Chapon, Zsuzsanna Kreif, and Ouros Animation, a studio formed by Rikke Planeta and Philip Piaget. In 2021, we would like to continue with this topic, and for me personally, working on the topic of climate is actually my dream. I'm so happy that I have had all these crazy talents working together in the past years, and I love all the videos. I think we have reached a quality level that it is great entertainment but on a seriously important topic. We are already realizing the dream. ■

Ágota Végső, *Producer, Project Manager at TAW / VIA UC - PhD student at NOVA FCSH Lisboa.*

