Ophthalmic education taken to the next level at the first Virtual Imaging Symposium

The Heidelberg Engineering Academy had planned to hold the International Imaging Symposium as a special event in Heidelberg to mark the company's 30th anniversary. Due to the COVID-19 pandemic, the event had to be redesigned as a virtual event, which lead to an ambitious two-day Virtual Imaging Symposium (VIS) that took place on Friday Oct 30 and Saturday Oct 31, 2020. The VIS comprised an impressive 36-hour program delivered live to more than 2000 participants across the globe.

The symposium's lectures went beyond retina and glaucoma matters to embrace a variety of anterior segment and healthcare IT topics, ranging from the present to the future of diagnostics from all areas of ophthalmology. Dr. Stephan Schulz, Director of the Heidelberg Engineering Academy, moderated 100% live on stage at the original location in Heidelberg.

The main program ran on the scientific channel, featuring 45 high-caliber presentations – a total of 18 hours over two days – by a faculty of leading ophthalmologists and researchers located in 14 countries. In parallel to the scientific channel, participants could access a workshop channel, devoted to training on image acquisition using the SPECTRALIS and ANTERION platforms, as well as image and patient data management using HEYEX 2 and HEYEX EMR. The workshop presentations included "live" demonstrations and encouraged interaction.

"The VIS was stellar."

Retina and glaucoma highlights

The abundant and thought-provoking retina presentations covered several aspects of **multimodal imaging** related to AMD, CSC, and diabetic retinopathy but also in the context of less frequent pathologies. Joan W. Miller (USA) even presented the manifestations of Alzheimer's disease in the retina.

It was the first time that the **High-Res OCT** investigational technology[1] was presented to the public, attracting a great deal of attention. The investigational High-Res OCT device uses SD-OCT because the shorter wavelength can provide higher contrast and an optical axial resolution of up to 3 µm. It is particularly suited for the visualization of both inner and outer retinal layers, which form the neurosensory retina and account for most pathologies we observe with OCT. The High-Res OCT device could potentially bring researchers and clinicians new insights into the retinal structure and vasculature leading to changes in the way patients are managed.

Rosa Dolz-Marco (Spain) presented her first experiences with the investigational High-Res OCT device: "The improved contrast and detail are remarkable and obvious as soon as you look on the scans. It means that we can segment the retinal layers much better and improve our assessment with OCT."

Adrian Koh (Singapore) and Giovanni Staurenghi (Italy) provided a very clear update on the advantages and disadvantages of **OCTA** and how it has changed the clinical practice of diabetic retinopathy (DR). New vessels can be differentiated from IRMA much better and allows more accurate grading of DR. Also, subclinical DR can be detected with the assessment of the foveal avascular zone and vessel density analytics. Superior visualization of microaneurysms with fewer MAs associated with better anti-VEGF response in DME. By studying changes in MAs from visit to visit, ophthalmologists can predict which patients are more

[1] High-Res OCT is currently a research product from Heidelberg Engineering and not available commercially

likely to develop DME and worsening retinopathy. The speakers argued that OCTA currently is the best imaging modality to detect diabetic macular ischemia without the need for FA.

Oliver Findl (Austria) chatting to moderator Stephan Schulz, Director of the Heidelberg Engineering Academy, after his presentation on HEYEX EMR.

With regards to **glaucoma**, the presentations by Don Hood (USA) and Christian Mardin (Germany) demonstrated the value and effectiveness of individually segmented inner retinal layer deviation maps – RNFL, GCL and IPL – in clinical practice, whilst Claude Burgoyne (USA) gave a helpful update about the international Glaucoma and Myopia OCT Phenotyping Consortium.

"The sessions were all fantastic. Hope to get together in person next year!"

Anterior segment highlights

Numerous researchers from the fields of cataract and refractive surgery, cornea, and glaucoma diagnostics, as well as ocular surface diseases, shared their experiences and findings related to ANTERION and HRT3 RCM applications. All of them agreed that high-resolution imaging can assist in the diagnosis of anterior segment pathologies. Interestingly, they also established a link between image quality and reliable metrics particularly in the case of ANTERION.

"Congratulations on an excellent symposium."

Oliver Findl (Austria) reported about the performance of the **ANTERION Cataract App**, highlighting the importance of high-resolution OCT scans that show the entire cornea and lens on one scan, which he found useful to visualize important parameters for cataract surgery. He presented two clinical studies that compare the biometric measurements of two swept-source OCT devices, and the repeatability of biometric parameters of two swept-source OCT devices and one optical low coherence reflectometer. The conclusion was that ANTERION shows a good correlation and agreement of critical variables for IOL power calculation with the IOLMaster 700, and that the swept-source OCT devices slightly outperform the optical low coherence reflectometer.

Peter Hoffmann (Germany) focused on **IOL calculation after refractive surgery** and explained which data points are essential for successful surgery planning. His presentation emphasized the potential of swept-source OCT devices for IOL calculation because they can provide more measuring points than other imaging approaches.

Speakers such as Rohit Shetty and Pooja Khamar (India) concentrated on the workflow benefits brought by **multimodal imaging** with an "all in one device" such as ANTERION, which is of particular interest during the COVID-19 pandemic.

The diagnostic benefits of in vivo **confocal microscopy of the cornea** with the HRT3 RCM were illustrated in the talks about ocular surface diseases such as those by Pedram Hamrah (USA) and Alex Müntz (New Zealand).

The Workshop Channel offered 18 hours of hands-on live education with an engaged corona-tested team.

Healthcare IT highlights

Oliver Findl (Austria) started the symposium with an honest and motivating account of how **HEYEX EMR** has improved the **workflow** of his busy clinic. He reported how even though some team members felt data entry slowed them down at first, they now recognize that they are faster and it takes them as little as 2 or 3 clicks to document many cases. He also described the audit feature as one of the strongest resources his department sees in HEYEX EMR. Oliver Findl finished by reporting on how they are building on their structured HEYEX EMR data for upcoming big data projects.

"It was a great meeting. I sat through all sessions and learned a lot."

Original location in Heidelberg during the 100% live VIS.

In his presentation, Aaron Lee (USA) informed about the missing gaps between healthcare IT and **artificial intelligence** and how integration models are particularly desirable for ophthalmology.

Adnan Tufail, Ian Pearce and Anthony Khawaja (all UK) shared their latest research findings, painting an optimistic picture about the power of **EMR data collection in a research context**. Ian Pearce encouraged all EMR users to start using the audit functionality straight away, to ensure that teams are gathering all crucial pieces of information and nothing valuable might be "lost in the free text". He acknowledged how much easier it is for his team to recruit study participants nowadays just by interrogating their EMR system.

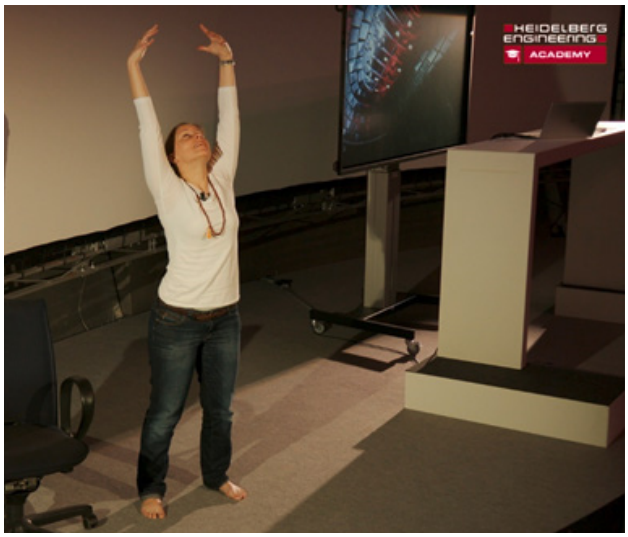
Adnan Tufail went as far as to ensure that "the future of studies is synthetic" because there is real potential to leverage existing datasets using mathematical modelling, saving time and money.

Outlook 2021

In the context of the global pandemic, the VIS 2020 ended up being very different to the originally planned face-to-face 30th anniversary event. However, it was also full of new positive experiences, including yoga breaks between sessions. The fact that it was virtual allowed it to be the biggest International Imaging Symposium so far and the first one to be completely free to attend.

The Heidelberg Engineering Academy team showed relentless commitment to make this high-quality knowledge transfer accessible to everyone, raising the standards of education in the ophthalmic industry. The team intends to continue pursuing these goals and is already working on further virtual events for 2021. More information on academy.heidelbergengineering.com.

"Challenging times but you managed to host a new outstanding ISS."



Professional yoga instructor demonstrating an exercise during a VIS break.

All quotes are original participants' feedback to the VIS 2020.

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