IEA VE NEWS

IEA Visual Ergonomics Technical Committee Newsletter August 2021

From the Chair

Educational initiative from the Visual Ergonomics Technical Committee

Remote teaching is not a new invention. Courses broadcast by radio and television have become popular in the last century. Distance education universities and other distance education institutions were already in place in the 19th century and even before.

Constraints due to the pandemic situation have of course boosted the popularity of remote teaching. Because the technology involved in teaching has drastically evolved, remote teaching has undergone a fantastic revolution. Lectures can be recorded and replayed at any time and for unlimited times. Worldwide connections enable an instantaneous delivery of education at almost any location on earth, and in future, also in space. Are we soon going to see summer teaching camps on the moon?

Instant communication has become bi-directional, however, with pros and cons. On one hand, bidirectional communication has led to instant interactions with the students but on the other hand, bidirectional communication requires training and respect of rules. Because a student forgot to mute her mike, she entertained the whole class with her chat on the phone. She obviously was not listening to the teacher (which was me) telling her to mute the mike and it took her a while before she read the messages of her colleagues telling her how funny she is. Another advantage of the new remote teaching opportunity is that it is easy to integrate experts located at distant places around the world in educational training, without the need of time consuming and expensive procedures to bring them physically into a classroom.

The Visual Ergonomic Technical Committee has started an initiative aiming to bring the practice of Ergonomics closer to academia. In a first step, we plan to expand lecturing with live and pre-recorded presentations of Ergonomics projects undertaken in practice. With this, the “ivory” tower students will be given the opportunity to explore practice of Ergonomics at first hand. Later on, we plan to develop educational packages about Visual Ergonomics including theory and practice and making them accessible to the interested community.

Should you be interested in sharing your experience in practice within the framework of the above mentioned educational initiative, please contact me by mail (mmenozzi@ethz.ch). We plan to have a first meeting, of course virtually, for discussing details of the initiative on the 23rd or 24th of August.

I wish you a pleasant summertime!

Best regards,

Marino Menozzi

IEA VE TC Chair

IEA2021 Conference Summary

The International Ergonomics Association Triennial Congress was held virtually on 14-18 June 2021. Here is a summary of visual ergonomics activities at the congress.

Visual Ergonomics Sessions

These are the oral presentations delivered during the Visual Ergonomics streams, 17 - 18 June 2021:

- Prevalence and determinants of computer vision syndrome in Italian workers (Natalia Cantó Sancho)
- Visual symptoms and risk assessment using Visual Ergonomics Risk Assessment Method (VERAM) (Hillevi Hemphälä)
- Dynamic Signs: Field test to install signs around the stairs (Reiko Sakata)
- Dynamic Signs: Multiple attributes determining visibility (Hiroshi Watanabe)
- Visual ergonomics in control room environments (Cecilia Österman)
- Effect of the optimal illumination from different genders in a relaxed condition (Chi-Lun Hung)
- Error rate as mediators of the relationships among 2D/3D TV environments, eye fixation accuracy, and symptoms (Yogi Prasetyo)
- Effect of glare disruption on contrast vision during transient adaption stage (Rudy Ying-Yin Huang)
- Road tunnel lighting causing perception of flicker (Marino Menozzi)
- Pragmatic needs-oriented evaluation of visibility, impressions, aesthetics and eye movement for platform display design (Hirotaka Aoki)
- Visual Ergonomics in the virtual world: Examples of lighting assessments conducted in cyberspace (Jennifer Long)

IEA VE TC General Meeting

A general meeting for our TC was held on 14 June 2021. A recording of the meeting can be accessed at https://www.youtube.com/watch?v=WA_ThhEqhEY

The Executive Team for the next 3 years will be Marino Menozzi (chair), Hillevi Hemphälä (co-chair), Jennifer Long, Rudy Ying-Yin Huang and Frank Po-Hung Ling.

Hans Richter stood down from the Executive Team at the general meeting.

Hans has been a member of the IEA VE TC Executive for 11 years. Together with Magne Helland, Hans attended the IEA2009 Congress in Beijing to put forward a proposal for the Visual Ergonomics TC. The proposal was accepted, and the IEA Visual Ergonomics TC commenced in 2010. The first congress with Visual Ergonomics streams was in Recife, Brazil, in 2012.

The initial IEA VE TC committee convened in 2010 consisted of Magne Helland (Chair), Hans Richter (Co-chair), Catherine Burns (Canada), Marino Menozzi (Switzerland) and Jennifer Long (Australia). Hans served as co-chair from 2010-2015. A brief history of our TC can be viewed here: https://www.youtube.com/watch?v=12o5f1w1wlU

Thanks for your service on the IEA VE TC committee, Hans!

IEA2021 Conference Summary

Joint symposium, Visual Ergonomics and Ergonomics in Design for All

A joint symposium was held between the Visual Ergonomics TC and the Ergonomics in Design for All (EDfA) TC on 17 June 2021, and chaired by Jennifer Long (VE) and Isabella Steffan (EDfA). The session included 5 presentations that explored the usability of indoor visual environments for people with vision impairment, and the role of standards and guidelines for informing good design. The following papers were presented:

- Good lighting and visual contrast to improve accessibility in the built environment – A literary study (Gregorio Feigusch)
- Luminance contrast standards, the boy who could, and visionary pathfinders (Penny Galbraith)
- Preferences of people with vision impairment with respect to visibility of elements in the built environment (Mei Ying Boon)
- Dynamic signs: Appropriate contrast and speed for older adults and low vision (Nana Itoh)
- Do you see what I see? Simulating vision impairment to assist design of the built environment (Jennifer Long)

Visual Ergonomics Lighting Workshop

A visual ergonomics lighting workshop was hosted by Hillevi Hemphälä and Jennifer Long on 18 June 2021, and attracted 25 participants (the maximum number permitted for this activity).

The workshop was similar to one held at the IEA2015 congress in Melbourne, Australia, but was updated to include discussion about LED, flicker, blue light, circadian lighting and the Visual Ergonomics Risk Assessment Method (VERAM).

Other Visual Ergonomics content at the conference

- Marino Menozzi participated in a Healthcare Symposium: Ergonomics in Surgery, with his paper “Virtual and augmented reality display technology and its effect on the visual system of the elderly and young.
- Nevedita Dabir presented a poster “Applied visual ergonomics: A compelling consideration for the new normal”.

The International Commission on Illumination (CIE) mid-term conference will be a virtual one this year, 27-29 September. Hosted by CIE Malaysia, the program will include many papers related to visual ergonomics.

Registration is now open at https://malaysia2021.cie.co.at/

NEXT NEWSLETTER DEADLINE: 30th November 2021

Please send any visual ergonomics news or announcements to Jennifer Long at jlong@visualergonomics.com.au

In the public eye...

Journal articles

- Lam F (2021) Applying light for human health: What lighting designers need to know. *Lighting Research and Technology 53: 485-487*
- Shivhare, Y.K, & Sanjram, P. K. (2021). Less Effortful Synchronization with Low Frequency Tones in Isochronous Sound Sequence. *Neuroscience Letters*, https://doi.org/10.1016/j.neulet.2021.135945
- Smyth J, Jennings P, Bennett P, Birrell S (2021) A novel method for reducing motion sickness susceptibility through training visuospatial ability—A two-part study. *Applied Ergonomics 90: 103254*.
- Thorns P (2021) Applying light for human health: What lighting product manufacturers need to know. *Lighting Research and Technology 53: 477-483*
- Wilkins A (2021) Fear of light: On the cause and remediation of photophobia. *Lighting Research and Technology 53: 395-404.*

Blogs

- Peter Howarth published a blog for the North East Byelines in the UK, providing yet another visual ergonomics perspective about road signs. You can read it here:
  Howarth P (2020) Help! Where do I go? https://northeastbylines.co.uk/help-where-do-i-go/
- Jennifer Long continues to publish a regular blog for the WORK journal. Recently published topics include blue light and digital eyestrain, five tips for a memorable virtual conference experience, and motion sickness and self-driving cars. You can read the blogs at: http://workjournal.org/visionworkplay

Research update

Efficacy of Landmark Identification and Route Learning Strategies in Spatial Navigation

By Sambath RD and Manish Kumar Asthana, Department of Humanities and Social Sciences, Indian Institute of Technology Roorkee, India.

Choosing the correct route and arriving at a certain location is always difficult for the human brain. To get assistance, we use various external cues of various shapes, colors, hues, signs, and symbols. Previous research has investigated how people use structural and culturally relevant landmarks and whether these landmarks make spatial orientation and route planning easier. In this regard, we conducted two virtual reality studies to assess the human ability to identify landmarks and plan routes in various scenarios. The findings of this study show how we may help spatial cognition, and researchers' emphasis on relevant features of a landmark should be highlighted in navigation systems. For instance, colors aid the user in their social and spatial navigation.

In the current research work, study 1 will investigate wayfinding in a social context. The goal is to look at how Indian males and females perceive selected structurally significant virtual buildings. Study 2 will examine the effect of color and route instruction on landmark identification using a virtual environment, along with the necessity of instructions and bird's eye-view in wayfinding. Study 3 will investigate the influence of color on route learning. By altering visual characteristics such as the environmental color of the virtual maze, we sought to identify the relevance of ecological colors that aid in the formation and usage of mental representations.