Eye Tracking – Experimental Design, Implementation, and Analysis
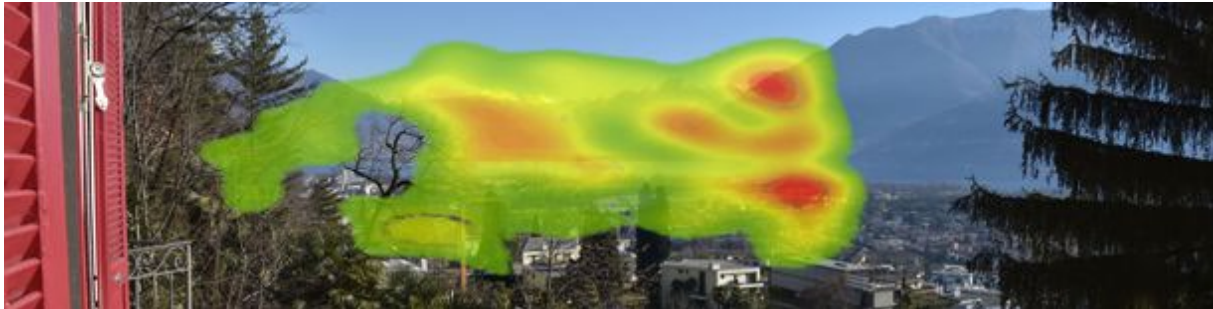# ETH Zurich Winter School

January 8-13, 2023 in Monte Verità, Switzerland

http://winterschool.ethz.ch/

wintereye@ethz.ch

Updated announcement 22 Sep 2022

- Keynote speaker: Enkelejda Kasneci

- Travel grant deadline: 15 Oct 2022

- Updated list of sponsors

The Winter School Eye Tracking - Experimental Design, Implementation, and Analysis targets at PhD students and early PostDocs (coming from any research field) who are using, or planning to use, eye tracking in their research. Internationally recognized experts will provide lectures and hands-on sessions on eye tracking methodology, experimental design, and analysis.

Concept

Eye tracking allows us to measure a person's visual attention, yielding a rich source of information on where, when, how long, and in which sequence certain information on displays or in 3D space is looked at. Not surprisingly, eye tracking has become a popular method for investigating research questions related to human cognitive processes in many disciplines. In engineering, for instance, eye tracking can be used to gain insights on how humans interact with tools, physical space, or artificial agents. These insights can be turned into guidelines for interaction design or for spatial planning, leading to engineering products better suited to be used by humans.

Including eye tracking methodology into one's research in an efficient and effective way, however, requires a variety of capabilities which 1st year PhD students typically do not have. These include a sound knowledge of the physical and cognitive background of human visual processing, technical skills to cope with large amounts of eye tracking data, statistical methods to interpret the data in a meaningful way, as well as competences in designing an empirical eye tracking experiment.

This 5-day Winter School aims at helping students extend their knowledge and skills in eye tracking methodology, experimental design, and analysis. An international and interdisciplinary audience of students using eye tracking in their research will be taught by internationally recognized experts. Lectures will be accompanied by hands-on experiences with eye trackers. Students will present their research projects and receive individual feedback from the experts. One goal of the Winter School is also to enable networking among participants and to encourage future cooperation.

Building on the successful 2016 Winter School, the 2023 School will be updated to focus on state-of-the-art software (licensed and open-source, e.g., PsychoPy and Pupil Labs) and hardware. Hands-on exercises will focus on table-mounted eye trackers.

Keynote Speaker

Enkelejda Kasneci, Technical University of Munich, Germany

"**On opportunities and challenges of eye tracking and machine learning for adaptive educational interfaces and classroom research**"

Lecturers

Andrew Duchowski, Clemson University, Clemson (S.C.), USA   (Abstract)

Nina Gehrer, University of Tübingen, Germany   (Abstract)

Izabela Krejtz, University of Social Sciences and Humanities, Warsaw, Poland   (Abstract)

Krzysztof Krejtz, University of Social Sciences and Humanities, Warsaw, Poland   (Abstract)

Venue

The Winter School will take place in the conference center Monte Verità, close to Ascona in the mountains of Ticino, Switzerland. Travel directions are provided on the website of Congressi Stefano Franscini: https://www.monteverita.org/en/monte-verita/contact-and-directions

Registration

The total costs are CHF 1'150 and include a registration fee of CHF 350, and an accommodation fee of CHF 800 (including 5 nights accommodation in a shared double room, full board for the duration of the Winter School, welcome drink and social dinner).

More information on registration: http://winterschool.ethz.ch/registration.html

Tentative Schedule (see also website)

	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
Sponsor of the day		Pupil Labs	Facebook Reality Labs Research	BiSigma	Smart Eye	
8:00 – 10:00	Participants arriving at Monte Verità	**Keynote:** Enkelejda Kasneci	**Hands-on:** Eye Tracking Data Collection (NG + all)	**Hands-on:** Gaze Analytics (AD)	**Hands-on:** Own Eye Tracking Experiment Design (all)	**Hands-on:** Students complete work, Overleaf report (all)
Coffee break						
10:30 – 12:30		Intro to Eye Tracking (AD) Empirical Research Methods (IK)	Gaze Analytics (AD)	Statistical Theory (IK)	**Hands-on:** Own Eye Tracking Experiment data collection, export, processing (all)	**Hands-on:** Student presentations (all)
Lunch						
13:30 – 15:30		**Hands-on:** PsychoPy (NG)	Excursion	Statistical Analysis (KK)	**Hands-on:** Own Eye Tracking Experiment statistical Analysis (all)	Concluding discussions (all)
Coffee break						
16:00 – 18:00	Registration 17:30 Welcome address and drink	Student presentations (E)	Student presentations (E)	**Hands-on:** Statistical Analysis (KK)	**Hands-on:** Own Eye Tracking Experiment statistical Reporting (all)	*Participants leaving Monte Verità*
Dinner						
Evening		Student presentations (E)	Student presentations (E)	Social dinner		

Travel Grants

Thanks to our sponsors, we have a **substantial amount of money** available with which we will support several young researchers with a travel grant of **CHF 550** each. Deadline for travel grant applications is 15 October 2022. More details on travel grants is available on the registration webpage.

Organizers

- Peter Kiefer, Institute of Cartography and Geoinformation, ETH Zürich
- Martin Raubal, Institute of Cartography and Geoinformation, ETH Zürich
- Christoph Hölscher, Cognitive Science, ETH Zürich

Supported by