4th SNSF SCIENTIFIC IMAGE COMPETITION – DISTINCTIONS

Category 1: Object of study

Sunwalk
Jérôme Gapany (PhD student, University of Lausanne)

In my research, I focus on public spaces and new ways of delivering mobility in Chinese cities. This shot was taken while I was conducting ethnographic fieldwork in south-eastern Fujian Province, where daily lives are shaped by rapid urban change, sometimes in uncanny ways. Here, a woman holding an umbrella tries to hide from the sun while walking on a running track. Summer heat in south-eastern Chinese cities is an increasing challenge with rapid urbanisation. In this image, I tried to capture a fleeting moment of solitude in a densely populated urban landscape. (Jérôme Gapany)

Bio
Jérôme Gapany (CH), born in 1990, is a Swiss ethnographer and PhD candidate at the University of Lausanne. He holds a Master in Asian Studies from the Geneva Graduate Institute and the University of Geneva. His current research focuses on mobility infrastructures in Fuzhou city, China. His interest in photography stems from experiences in China, Taiwan, and South Korea, where he picked up his camera to document everyday politics and street life.

Jury
At first sight, this very strong composition appears to mix sport and fashion; but actually it beautifully illustrates the paradox encountered by the researcher: that studying overpopulated cities involves the depiction of isolated people.
Category 1: Object of study

Smallholder farmers are not very strong on safe pesticide use. This compilation displays pesticide bottles of mostly 100 ml, obtainable by any person in agro dealer shops in Uganda. Almost all of the displayed products are highly or moderately hazardous to human health. Nevertheless, sales staff do not explain safety labels or otherwise indicate potential dangers. In our research we study how agro dealers (don’t) advise smallholder farmers and see how good their own knowledge and awareness is regarding the safe use of pesticides. We recruited local farmers and sent them to buy pesticides, all using the same description of a fall armyworm outbreak in maize. This image displays all the products obtained in different shops around the country. Safety labels are supposed to indicate the level of hazard and protective measures, usually as a red or yellow band at the bottom of the bottle. Looking closely, you can see some unreadable pictograms and an array of wrong colours. (Curdin Brugger)

Bio
Curdin Brugger (CH), born in 1993, is a master’s student in Epidemiology at the Swiss Tropical and Public Health Institute in Basel. He is motivated to improve public health in developing countries, with a focus on social, behavioural and occupational determinants of health. His current research investigates the impact of pesticide use on the health of small-scale farmers in Uganda.

Jury
The slightly random repetition in this typology of poisons echoes in its chosen arrangement the situation faced by farmers: numerous substances, as interchangeable as they are dangerous; highlighted by the colour yellow, universal symbol for hazardous materials. Familiar in art, the serial representation finds a captivating use in this social science research project.
Category 2: Women and men of science

Keep calm and write on
Stefano Danzi (PhD student, ETH Zurich)

This photo portraits my colleague and dear officemate Yuan Xiao during the final rush towards the completion of her PhD studies. Yuan wrote her thesis in an impressively short amount of time and brilliantly defended her PhD shortly after. I found her total dedication to it both bemusing and inspiring. It even led her to change her desktop background image to "Keep calm and write on ».
(Stefano Danzi)

Bio
Stefano Danzi (IT, 1991) is a Materials science PhD at ETH Zurich. He obtained MSc in Materials engineering and nanotechnology from Politecnico di Milano and spent one year as a visiting student at the Massachusetts Institute of Technology (MIT) before moving to Switzerland. While not being a photographer whatsoever, he enjoys street photography as a graphical approach to storytelling.

Jury
A moment of intimacy captured on camera with empathy, a spontaneous movement showing a moment of relaxation during intense intellectual work – natural and relatable.
Category 2: Women and men of science

The astronomer
Nicolas Blind (scientific collaborator, University of Geneva)

To install new equipment to the telescope, it is often necessary to remove older equipment, granting a unique view into the telescope’s mirrors and internal mechanics. Until the 80s, astronomers would still sit at night in the so-called telescope cage (pictured here) to perform visual observations. With the advent of photo-sensitive electronic devices, the astronomer’s eye was progressively replaced by today’s detector arrays, which are able to count individual photons. This is therefore a rare view of an astronomer looking into the telescope focus. (Nicolas Blind)

Bio
Nicolas Blind (FR), born in 1984, is an optical engineer working at Geneva Observatory (CH). He obtained his PhD in high angular resolution instrumentation for astronomy at UGA (Grenoble), and already contributed to several instruments of the European Southern Observatory (ESO). While he works daily with state of the art detectors, able to count individual photons, his photographic work focuses on analog processes (more specifically, original processes from the 19’s century, like wet plate collodion or cyanotype), with a pinch of digital when necessary.

Jury
The choice of black and white photography avoids the expected aestheticisation of technical apparatus. A strong composition which reveals, as emphasised by the slight blur, a very rare moment in the work of an astronomer: tinkering with the hard mechanics needed to explore ethereal outer space.
Category 3. Locations and instruments

Siberian trees witness 1000 years of climate change
Andreas Rigling (professor, WSL)

This picture shows several hundred-year-old living and relict larch (Larix cajanderi Mayr) trees on the extensive, 56 km-long lava flow of the Anyui volcano in northeastern Siberia (around 68°N and 166°E). While the volcanic complex in Russia’s far Northeast is mainly unexplored, it provides a unique dendrochronological archive for the development of multi-centennial to millennial long, temperature-sensitive tree-ring chronologies, in one of the world’s most remote regions where high-resolution paleoclimatic evidence is still missing. The picture was taken during the first international and interdisciplinary Anyui-Expedition in September 2019, a joint venture of the University of Cambridge (United Kingdom), the Universities of Krasnoyarsk and Yakutsk (both Russia), and the Swiss Federal Research Institute WSL (Switzerland). Photo credit: Andreas Rigling, Swiss Federal Research Institute WSL, Switzerland. (Andreas Rigling)

Bio
Andreas Rigling (CH), born in 1964, is a forest and dendro-ecologist at the Swiss Federal Institute for Forest, Snow and Landscape Research, and adjunct professor at ETH Zürich. Among others, he uses tree rings to analyse current and reconstruct past environmental conditions. He is a dedicated and passionate hobby photographer with a focus on nature and specifically forest topics and he uses photography as an important communication tool for science, teaching and knowledge transfer.

Jury
A clear, honest photographic document set in a dramatic landscape; the image condenses the passing of time over millennia, projecting us into a future impacted by climate change.
Sequential sequencing
Reto Togni (PhD student, ETH Zurich)

142 years after Eadweard Muybridge’s invention, the principle of chronophotography remains essential in understanding human movement. The image not only builds on a rich cultural heritage of sequence photographs, nowadays best known in extreme sports, but also illustrates cutting-edge scientific processes that reveal internal working principles of the human body. Shown is a gait trial using a unique moving fluoroscope that tracks and follows the movements of a study participant while taking a series of x-ray images to analyse bone kinematics. By merging a series of six photographs taken during the trial, the image not only shows but also follows the maxim of novelty through continuous reinterpretation and repurposing of methods that are more than a century old. (Reto Togni)

Bio
Reto Togni is a PhD candidate at the Laboratory for Movement Biomechanics at ETH Zurich. He holds a BA in Industrial Design and a MA/MSc in Innovation Design Engineering. Mundane everyday things have the capacity to shape, change who people are, what they do, how they view the world and are viewed by others. As a developer of such everyday objects, he disentangles these relationships, analyses their components, prototypes interventions and designs new practices.

Jury
A playful mise en abyme of chronophotography, depicting by means of a digital collage the motion of an apparatus that is itself taking sequential X-ray images of the legs of a person walking. It brings into view the actual processes involved in a scientific experiment, rather than solely its results.
Category 4: Video loop

The digital prototypical embryo
Marvin Albert (postdoc, University of Zurich)

This video illustrates the computational creation of a prototypical zebrafish embryo. What does the average embryo look like and how can we find out? We use modern optical microscopy to create 3D reconstructions of living zebrafish embryos. With the help of computational algorithms we then warp the embryos such that differences in their pose and shape are eliminated. Finally, a 3D representation of the prototypical zebrafish embryo results from overlaying and averaging all of the obtained images. Details: the zebrafish embryos were 36 hours old when their images were taken using multi-view light sheet fluorescence microscopy. The image contrast represents the expression pattern of a chemokine receptor protein, visualising among other structures the eye, the gill arches, vasculature and neuronal bundles. Computational processing of the images was performed on a high performance computer cluster and took two days. (Marvin Albert)

Bio
Marvin Albert (born 1989, German) is a biophysicist at the University of Zurich. He creates 3D computer models of animal development. He obtained his PhD from the European Molecular Biology Laboratory (EMBL) in Heidelberg, where he specialised on extracting quantitative information from microscopy images to study cell movement and tissue growth.

Jury
A very aesthetic presentation of the scientific method, based on an intuitive way of explaining visually a very complex scientific project: creating virtual lifeforms based on real observations.