

09-11-2020, 5:00 CET

Participants

Gert-Jan Bakker, Sebastian Beer, Rodrigo **Bammann**, **Ulrike Boehm**, **Louise Code**, **Carl Ebeling**, Frank Eismann, Orestis Faklaris, **Julia Fernandez**, **Toshihiko Fujimori**, Nathalie Gaudreault, **David Grunwald**, **Hella Hartmann**, Gerhard Holst, **Uros Krzic**, **Baptiste Monterroso**, **Sebastian Munck**, Roland Nitschke, Yury **Prokazov**, **Ute Resch-Genger**, **Damien Schapmann**, Britta Schroth-Diez, Lucas Schuetz, **Anje Sporbert**, Christian **Wilms**, Geraint Wilde, Werner Zuschratter (present people in grey, **new members in orange**, **missing people in blue**)

Minutes

1. Welcoming new members
2. Agreement on the minutes of the last meeting
3. Documentation of WG2 meetings:
 - a. meeting will be recorded (agreement)
 - b. Find meeting minutes, Zoom recording and chat content in the WG2 folder on the bw cloud
 - c. Contact Roland, Gert-Jan, or Britta in case of access problems to the bw cloud

4. The universal detection system:
 - a. **definition of universal detection system scheme (follow the black box idea from the EMVA 1288 standard**, current version 3.1, version 4 will be out by autumn next year; that will then also include non-linear cameras like EM-CCDs):
 - i. from photons in to numbers out
 - ii. the black box idea:
 1. where is the access point of the detection system? - include/exclude the objective and pinhole? No agreement on this, we will address that during our subgroup discussions. Discussion: the closest one could easily get to the actual sensor would be to unscrew the objective and install a standardized light source (Roland: as developed by David Grünwald) at its place, with the pinhole fully opened. Such an approach is desirable to get close to universal performance test results which can be compared among different systems and labs. However, by doing so the test scenario deviates from the mostly used measurement circumstances, which are preferred for performance monitoring and quality checks.
 2. connection of a number of black boxes filled with the description of the respective function in the detection system
 3. use of a calibrated light source as source for the detected photons.
 - a. problem of “calibrated” light sources is that they are not calibrated between each other.

- b. examples: the tube from David Grunwald; to be put into the objective revolver instead of an objective; the Goldwell standard (see hints and links from Roland and Geraint), to be out on and used with an objective.
 - b. definition of universal, externally measurable parameters describing the universal detection system (having the black box model in mind):**
 - i. sensitivity or detection limit (how many photons in to overcome the noise)
 - ii. noise (uncertainties of the relationship of incident photons versus the numbers that come out)
 - iii. system gain / conversion factor (relationship between entering photons and exiting numbers)
 - iv. signal / noise (for a standardized emission intensity?)
 - c. to find universal parameters that are easily measurable is rather difficult:
 - i. during the discussion we always came back to specific parameters of the special sensor types;
 - ii. we will now try a different approach and aim potentially for a matrix of parameters versus detector type (bottom-up approach)
 - iii. thus go back to the main specific detector types and potentially being able to come back to a general description
- 5. Discuss how the universal parameters relate to specific detector types and their technical specs; look at two main detector groups:
 - a. point detectors
 - b. area detectors
 - c. both groups can come in the flavor of a line detector
- 6. Points of action:
 - a. setting up sub-WGs for each detector/detection system types:
 - i. point detector/line detector (Gert-Jan)
 - ii. area detector/line detector (Britta)
 - b. please think about which subgroup you would like to join; email the respective subgroup head until coming Monday, Nov 16th, 2020
- 7. Next meeting: Dec 14th 2020, will be subgroup meetings only
- 8. Next WG2 meeting: Jan 11th 2021