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Future Goals for SAM Group

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Current Description

- **Mission**

- Improve analysis methods and understanding of subjective experiments.
- Improve the statistical analysis of objective media quality predictors/models.

- **Working Methods**

- To join the SAM mailing list (vqeg-sam@googlegroups.com) please send an e-mail to the chair at lucjan.janowski@agh.edu.pl
- Chair: Lucjan Janowski
- Vice-chairs: Zhi Li, Ioannis Katsavounidis, Patrick Le Callet
- We have biweekly conference calls on Monday at 17:00 CET. The actions and minutes from those meetings can be found in [this document](#). Please check the document to validate when is the next call and what software is used to call in. Zhi took the time to prepare a **github repo** where he deposited his code (in Python) - here is the link: <https://github.com/Netflix/surreal>

- **Documents:**

- SAM meeting minutes and meeting information: [this document](#)
- Proposed revisions and merger of P.913, P.911, and P.910 (sent to ITU-T for consideration)

Current Description

- **Mission**

- Improve analysis methods and understanding of subjective experiments. – **we have results** 😊
- Improve the statistical analysis of objective media quality predictors/models. – **nothing done** 😞

- **Working Methods**

- To join the SAM mailing list (vqeg-sam@googlegroups.com) please send an e-mail to the chair at lucjan.janowski@agh.edu.pl
- Chair: Lucjan Janowski – **maybe it is time to change chair?**
- Vice-chairs: Zhi Li, Ioannis Katsavounidis, Patrick Le Callet
- We have ~~biweekly~~ **monthly** conference calls on Monday at 17:00 CET. The actions and minutes from those meetings can be found in [this document](#). Please check the document to validate when is the next call and what software is used to call in. *Zhi took the time to prepare a **github repo** where he deposited his code (in Python) - here is the link: <https://github.com/Netflix/surreal> – I think we should move it to separate section software*

- **Documents:**

- SAM meeting minutes and meeting information: [this document](#)
- ~~Proposed revisions and merger of P.913, P.911, and P.910 (sent to ITU-T for consideration) –~~ **done** 😊

Current Description - Goal

- The SAM group addresses problems related to how to better analyze and improve data quality coming from subjective experiments and how to consider uncertainty in objective media quality predictors/models development.
- The long-term goals are:
 - Improve methods used to draw conclusions from subjective experiments
 - Understand the process of expressing opinion in a subjective experiment
 - Improve subjective experiment design to facilitate analysis and applications
 - Improve the analysis of objective model performances
- The mid-term goals are:
 - Popularize the analysis related to the subject model by publishing a white paper and ITU recommendation modification
 - Revisit standardised methods for the assessment of the performance of objective model performances
- The short-term goals are:
 - Fix a stable method of parameter estimation for the subject model based on Maximum Likelihood Estimation (MLE) method proposed by Zhi Li (Netflix). Please check Zhi's presentation for more details.

Current Description - Goal

- The SAM group addresses problems related to how to better analyze and improve data quality coming from subjective experiments and how to consider uncertainty in objective media quality predictors/models development.
- The long-term goals are:
 - Improve methods used to draw conclusions from subjective experiments – **we have progress, not finished**
 - Understand the process of expressing opinion in a subjective experiment – **I doubt we have strong results**
 - Improve subjective experiment design to facilitate analysis and applications – **No changes proposed by us**
 - Improve the analysis of objective model performances – **No work in this direction**
- The mid-term goals are:
 - Popularize the analysis related to the subject model by publishing a white paper and ITU recommendation modification – **partly done, ITU is ok, but no white paper**
 - Revisit standardised methods for the assessment of the performance of objective model performances – **nothing done** ☹
- The short-term goals are:
 - ~~Fix a stable method of parameter estimation for the subject model based on Maximum Likelihood Estimation (MLE) method proposed by Zhi Li (Netflix). Please check Zhi's presentation for more details.~~ – **done** ☺

Uniform JSON-based Subjective Data Format

- [Here](#) is the repository with tools for the suJSON format. The format's name expands to "A Uniform JSON-based Subjective Data Format". Its main goal is to make it easier to store, exchange and analyze subjective data gathered in any type of subjective testing.
- The repository contains a source code of a set of tools. All are aiming at automating some basic data conversion tasks (from and into suJSON). It is also a place for discussions so please do not hesitate to visit and leave a comment.
- For a brief introduction to the concept, you are encouraged to go through [this presentation](#).

Conclusions from Calls 1

- March 2023
 - Pair comparison (PC)
 - Comparing objective metrics ITU-T P.1401 v other methods (especially based on statistically significance differences)
 - How to combine multiple datasets (March 4 and 25 2024)
- Feb 2024:
 - How to test any new statistical analysis method?
 - Compare Margaret's and Lukas's proposals

Conclusions from Calls 2

- March, 4 2024
 - Industry applications
 - Use CI to draw conclusions about one specific video codec configuration vs. another especially improve BD-rate analysis
 - Use CI to draw conclusions about one objective quality metric vs. another
 - Culture induced biases in subjective ratings and remedies – theory and consequences
 - Less well defined problems
 - [Amazon] Analyze the differences among expert viewers, naive viewers, and crowdsourced viewers
 - [Microsoft] quality assessment with multiple screens in presence (video conferencing scenario)
 - Paired comparison and statistical methods (what to study?)

Conclusions from Calls 3

- October 2024
 - Perceptually lossless metric
 - Color distortion for Oculus
 - Subjective testing for genAI
 - Outlier removal

Future Problems

- Theory development
 - Further understanding of subject model and analysis for classical subjective experiments based on ACR
 - Propose model for PC
 - Analyze results from ACR and PC to better understand differences
 - Include multiple distortions and analyze how they influence each other
 - Outlier removal
- Metric analysis
 - Objective metric analysis - methods beyond R^2
 - Combine data sets
 - Linearity analysis
 - BD-rate

Future Problems

- Perceptually lossless metric
- New subjective methods going away from quality question – how to analyze it?
- New test designs looking at specific products and specific problems:
 - Color for Oculus
 - Uncanny valley for genAI and point clouds
- Include different dimensions like how much the content fits a user
- Understand relation between quality and service as whole
- Design subjective methods such that it is easy and reliable screening after crowdsourcing experiment

To Do

- List future problems we would really like to work on + who is interested in doing so
- Update our goals + web side
- Review the progress for each meeting (reserve 20 minutes)