

# JEG-Hybrid

## Joint Effort Group

### Updates on JEG-Hybrid Activities (including the IGVQM project)

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VQEG Jul 2024 Meeting

# Original Mission and Current Focus

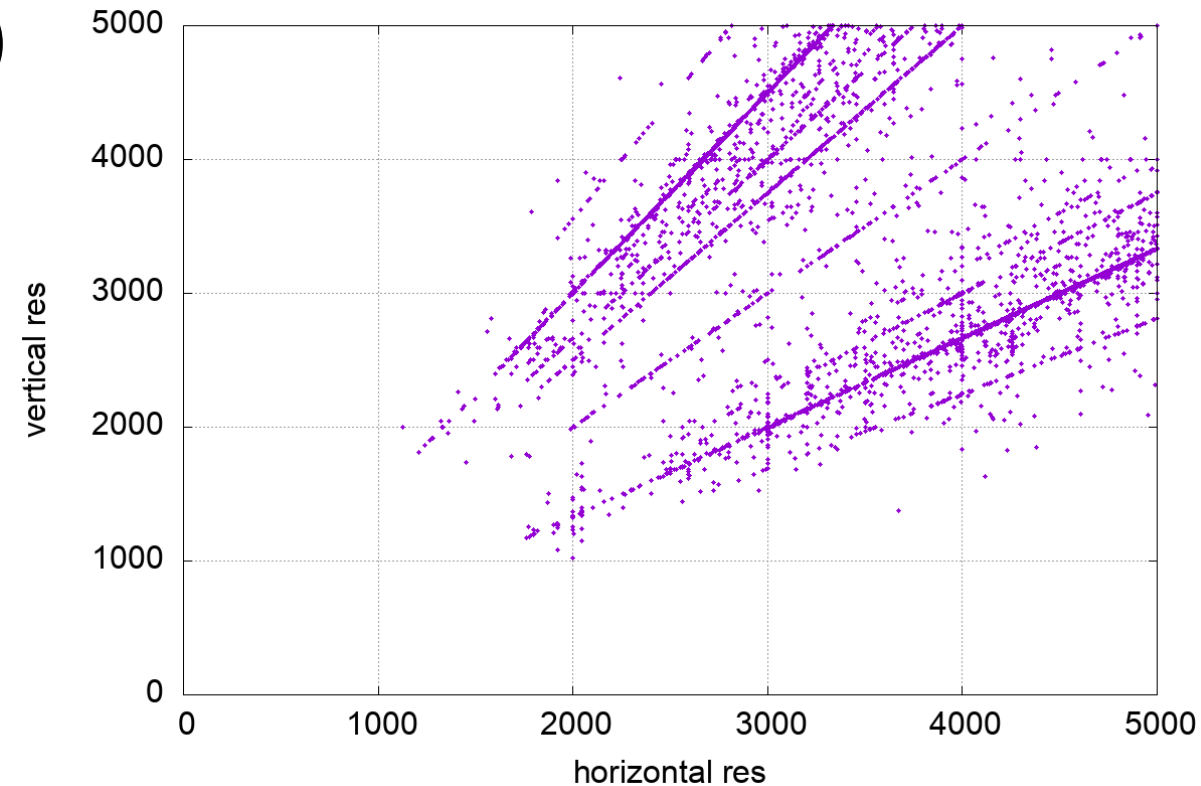
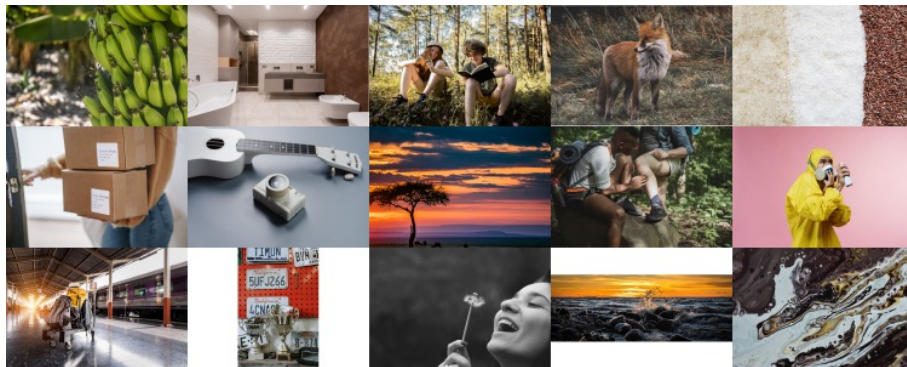
- Originally: develop a no reference Hybrid Perceptual/Bit-Stream model
- Over the last few years, the activities gradually evolved over time to include several areas of Video Quality Assessment (VQA)
  - Tackling new **research questions** with hopefully **long term impact** on the video quality research community
  - Currently not directly seeking the development of new metrics or tools readily available for VQA

# Current Activities

- Strong research interests in modeling **single observers' behaviors** in subjective experiments using
  - **AI observers**
  - **A human-in-the-loop approach** to develop AI-based systems
- Working on creating a large dataset of high-quality, high-resolution images
  - Pristine quality images from professional photography websites (by Glenn)

# High-res Images Dataset

- 22,000+ images (FullHD res or more)
- Plan to use FullHD res directly as input of the DNN (vs most approaches using 224x224 image patches)



# Implementer's Guide to Video Quality Metrics

- More info on JEG-Hybrid website: <https://vqegjeg.github.io/jeg-hybrid/igvqm>
- Use a [large set](#) of subjectively-annotated datasets to offer standard guidelines in correctly using VQMs

- Based on open data and reproducible experiments, typically using
  - Open-source libraries such as libVMAF
  - Containers for reproducibility
    - currently using the "Singularity" container format, suitable for HPC (High-Performance Computing)




- Adopting a common format to represent subjective results: "Surreal format" (JSON)
  - <https://github.com/Netflix/surreal>

[https://docs.google.com/spreadsheets/d/1wYVjaqKrSB0z7D2eJLfAd1g6y\\_831IF7TH6GhAKdKxA/edit](https://docs.google.com/spreadsheets/d/1wYVjaqKrSB0z7D2eJLfAd1g6y_831IF7TH6GhAKdKxA/edit)

Database name	Contributor	Year	# of sources	# of PVS	# of opinion scores	Methodology	Scale (discrete/continuous)	Scoring
FOO	BAR	2008	30	300	9000	ACR	Discrete	
VQEG HD 1 to 5	VQEG	2010				ACR-HR	Discrete	
ITS4S	NTIA/ITS	2018				ACR	Discrete	
ITS4S2	NTIA/ITS	2019				ACR	Discrete	
ITS4S3	NTIA/ITS	2019				ACR	Discrete	
ITS4S4	NTIA/ITS	2020				ACR	Discrete	
CCRIQ	Intel, ITS, U. Gh	2016				ACR	Discrete	
Public Safety #1	NTIA/ITS	2005				ACR-HR	Discrete	
Public Safety #2	NTIA/ITS	2006				ACR-HR	Discrete	
T1A1	ATIS	1996				DSIS	Discrete	
GamingVideoSET	KU	2018	6	90	2250	ACR	Discrete	
KUGVD	KU	2018	6	90	1530	ACR	Discrete	
AVT-VQDB-UHD-1	TU Ilmenau	2019	12	756	around 18,000	ACR	Discrete	
AGHNTIA/Dolby	AGH, NTIA, Dolt	2018				ACR-HR	Discrete	

# Implementer's Guide to Video Quality Metrics: Plan

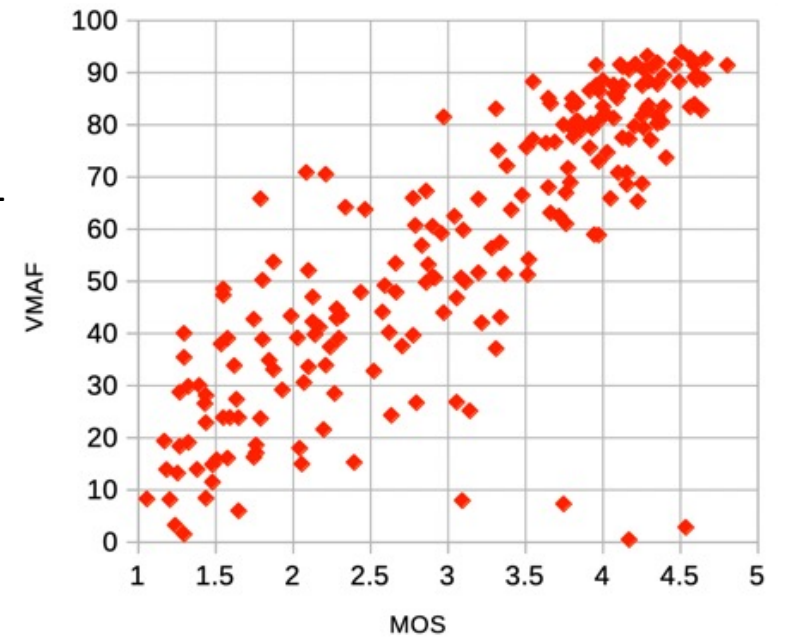
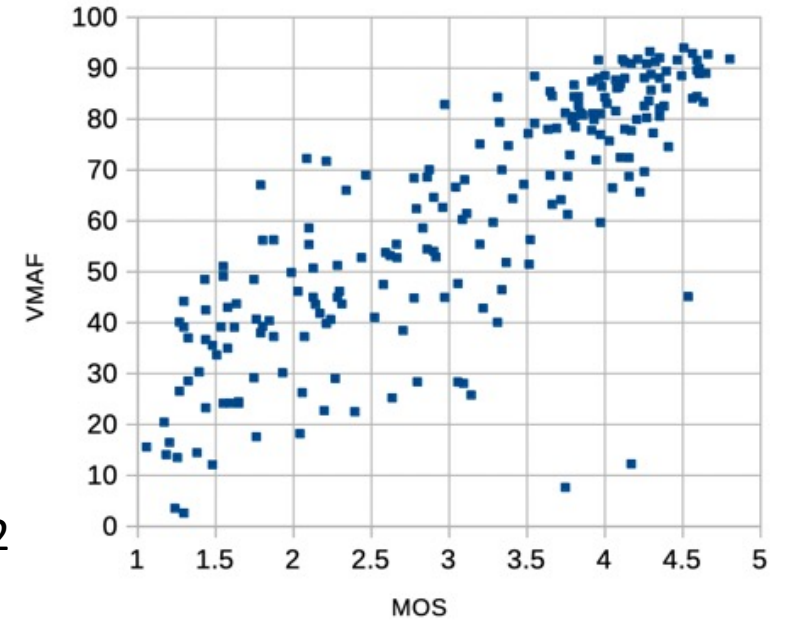
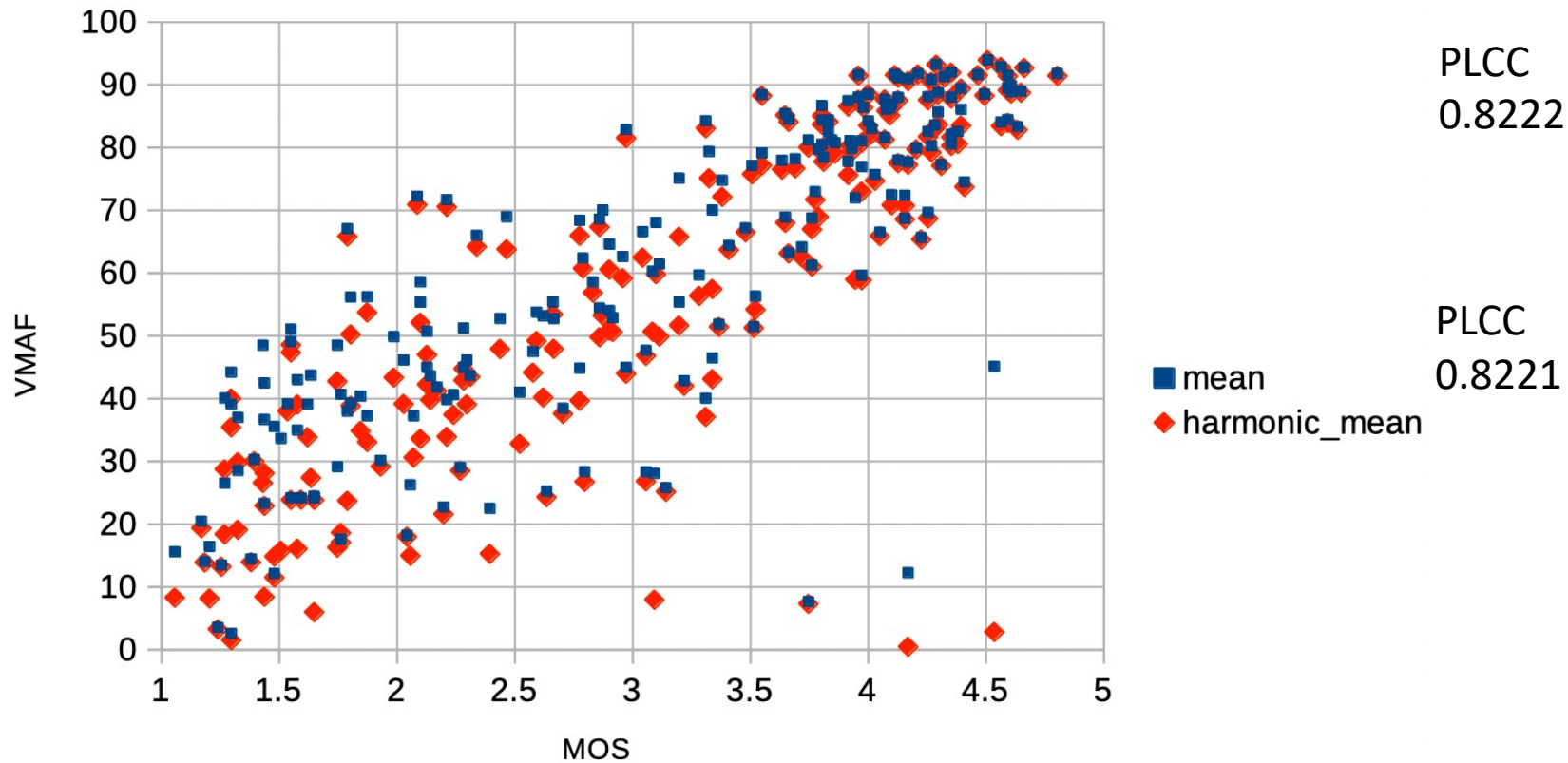
- Offering standardized functions / methods to perform common tasks such as
  - Temporal aggregation
  - Statistical analysis from subjective and objective data
  - Logistic mappings to a normalized linear scale
- Currently working on
  - Running the measures (now on the AGH-NTIA-Dolby dataset)
  - Making them available in standardized formats
- Then
  - Performing statistical analysis
  - Drafting reports/documents/publications



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# First Results

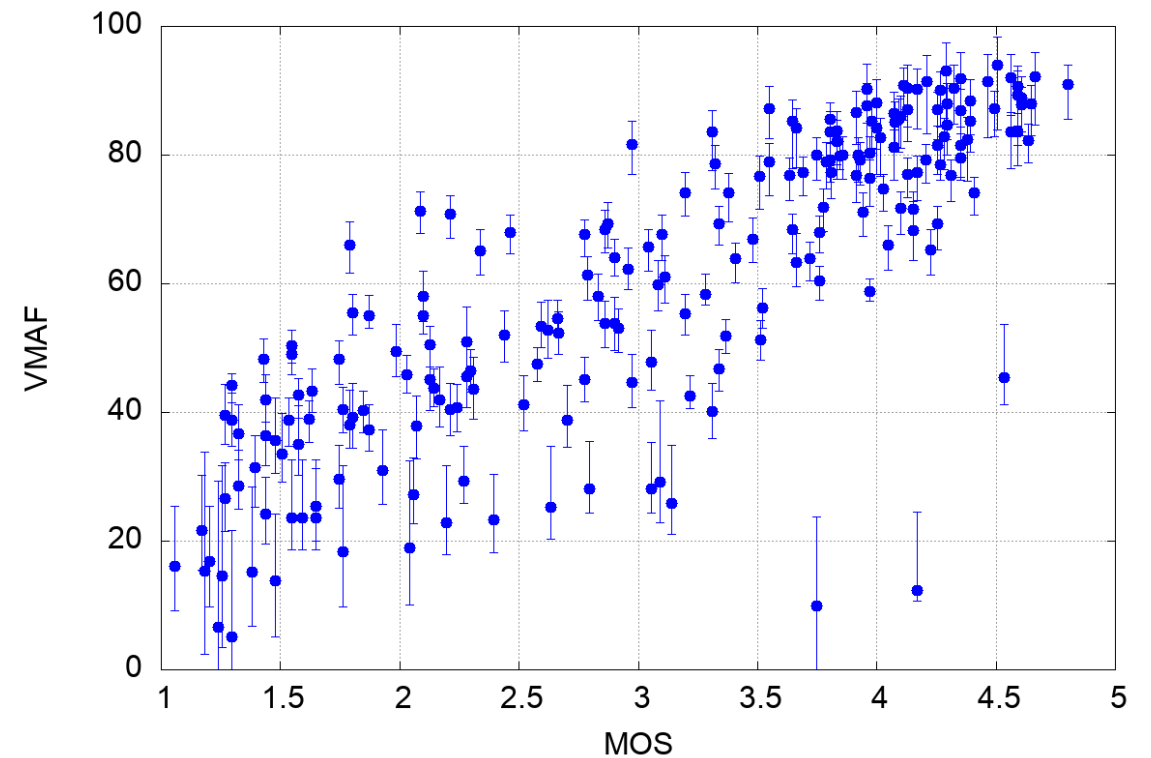
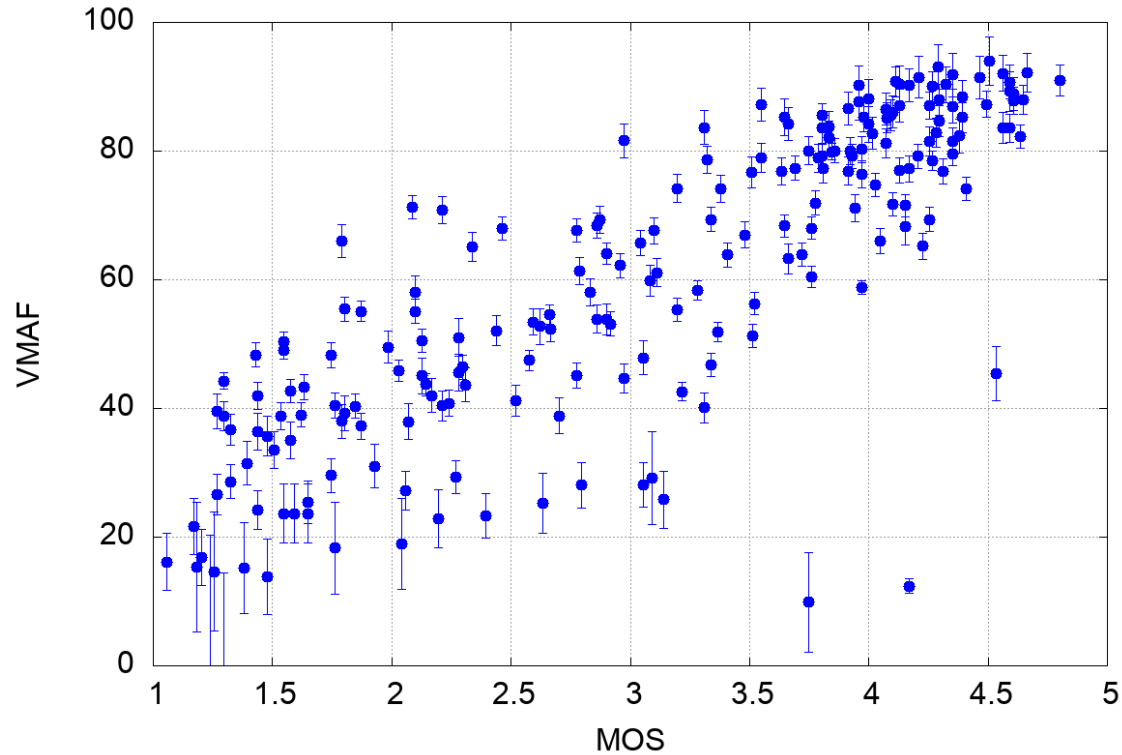
- Dataset *AGH-NTIA-Dolby* (207 PVS, 71 OS each)



# First Results

Hopefully, more results in next VQEG face-to-face meetings

- Dataset *AGH-NTIA-Dolby*: VMAF bagging (stddev, 95% CI)





# Comments / Proposals / Ideas

- Feel free to do it **now!**



- And/or join our biweekly conference call (next: **Jul 8, 2024, 4pm CET/CEST**)
- References:
  - **JEG-Hybrid website** <https://vqegjeg.github.io/jeg-hybrid/>
    - Including an up-to-date publication section with immediate download link for each one
    - **IGVQM** subsection: <https://vqegjeg.github.io/jeg-hybrid/igvqm>
  - VQEG-JEG mailing list: [jeg@vqeg.org](mailto:jeg@vqeg.org) (<https://vqeg.org/email-reflectors.aspx>)