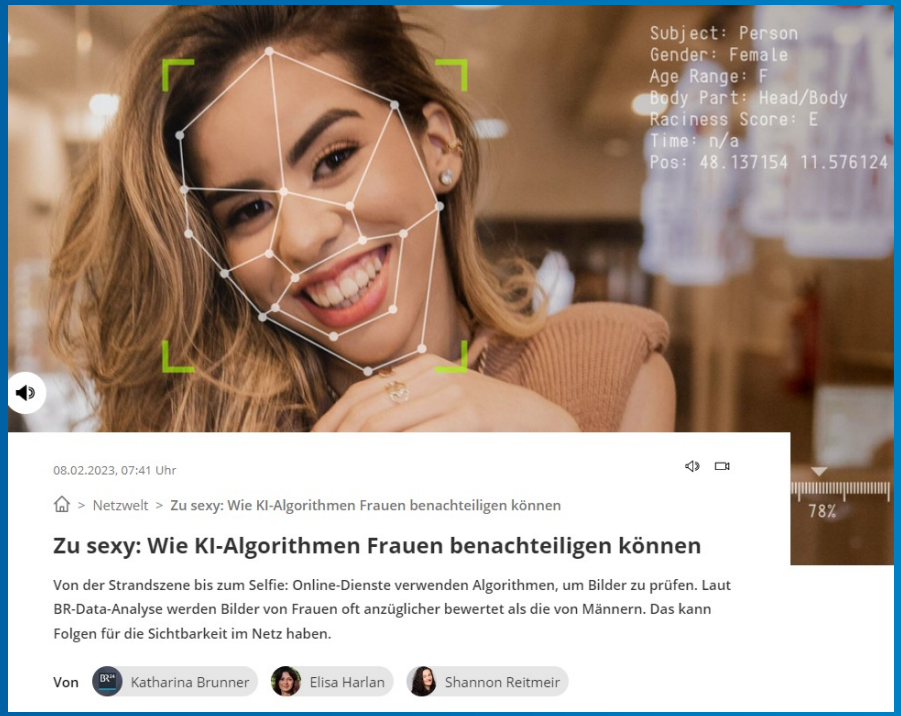
# Diversity Analysis at Bayerischer Rundfunk - testing an AI-based tool (by *The Chainless*)

Jonas Schreiber – jonas.schreiber@br.de

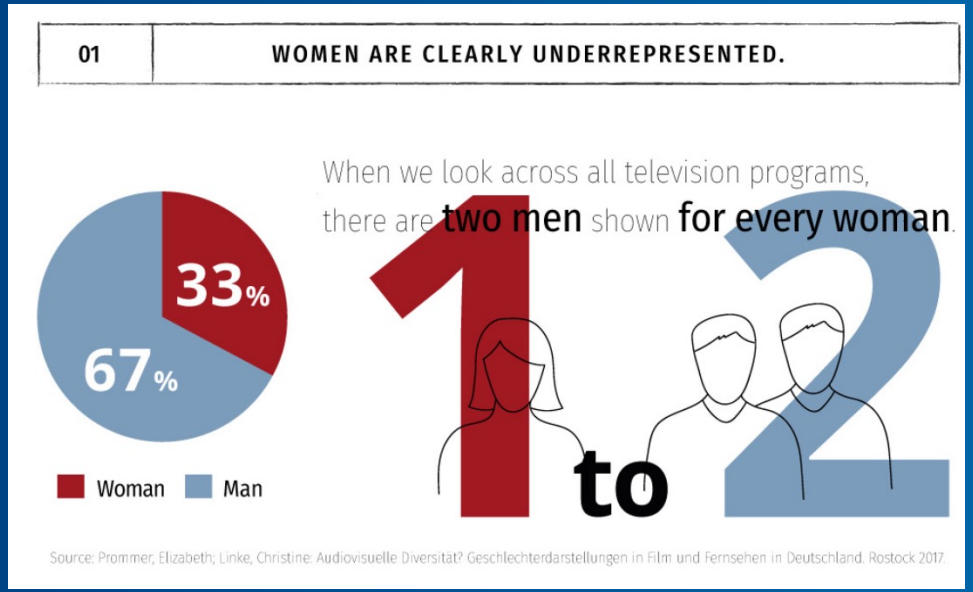
# data biases lead to discrimination?! – ideology reproduction

malisa STIFTUNG

foundation focused on diversity, gender justice and parity in audiovisual media

malisastiftung.org




study based on a detailed analysis of over 3.500 hours of television program

-> getting the data for this analysis mostly meant tiresome and time-extensive counting by humans

https://malisastiftung.org/studie-audiovisuelle-diversitaet/

# Test of module *Diversity Analysis* of DeepVA (The Chainless)

prospect: *„Diversity Analysis offers the possibility to determine the percentage of gender […]* [to] ensure your desired ratio between male and female […]* in any content.“*

- research objective: proportional ratio of women and men appearing in two weeks of BR TV program of November (15.-28.11.2021)
- methode: analysis of videos into male-dominant, female-dominant, or balanced / no-human (incl. parts without appearing humans) sections to the second (screen time of each gender - female and male - in seconds)
- comparison of results with ‚manual‘ counts from *malisa* study

***The module *Diversity Analysis* includes an analysis of age ranges as well, which will be ignored for this test, as of different focus.**

# Gender Prediction Model

spectrum-based prediction with mutually exclusive labels

male |---o--------| female -> prediction with label ‚male‘

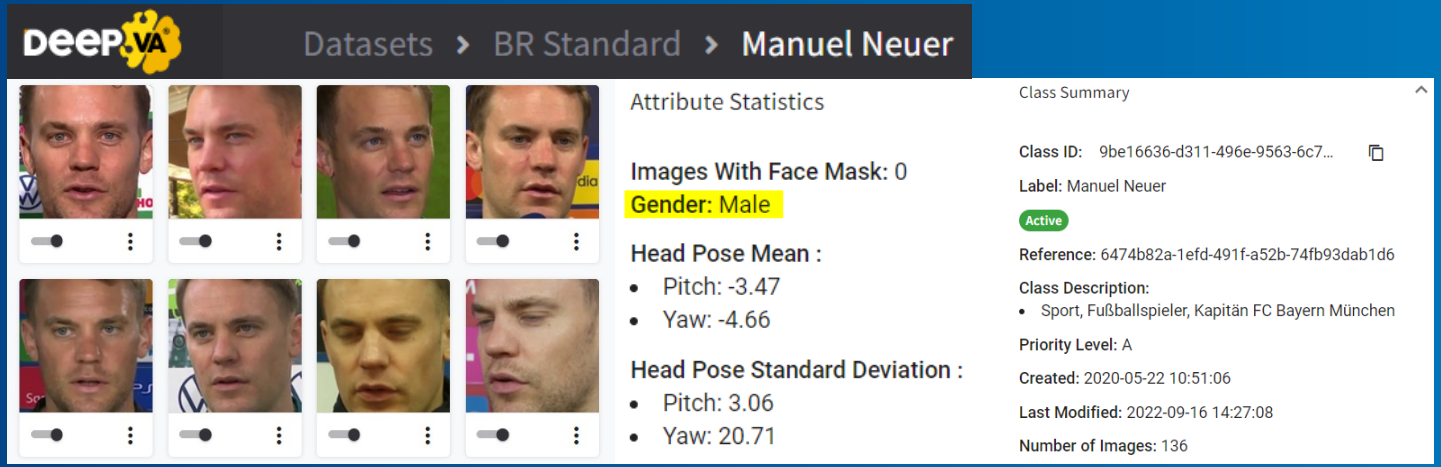
***or***

male |----------o--| female -> prediction with label ‚female‘

***or***

male |------o------| female -> prediction with label ‚unknown‘

# Training Data for Gender Prediction Model




- based on experience and already available data from application and development of the module for face recognition
- automated, AI-based annotation of several million pictures for a first ‚baseline‘
- ‚adding‘ manually annotated training data to the ‚pretrained‘ network (**fine-tuning** with respect to biases)

# TV Program of Bayerischer Rundfunk

BR24 RUNDSCHAU -> *news*

*polit. talk show*

MÜNCHNER RUNDE

*sports show*

BLICKPUNKT SPORT

cabaret / comedy

Asül für alle

ABENDSCHAU

*news with regional focus*

FRANKENSCHAU

*‚afternoon‘ show*

WIR in Bayern

*daily soap (fictional)*


*cooking show*


*shows on spec. topics like farming, gardening, economics, nature, environment, arts and crafts, politics*

UNSER LAND

Querbeet

mehr-wert

UNKRAUT Ihr Umweltmagazin

Gut zu wissen

Kunst + Krempel

kontrovers

# TV Program of Bayerischer Rundfunk 15.11.-28.11.2021

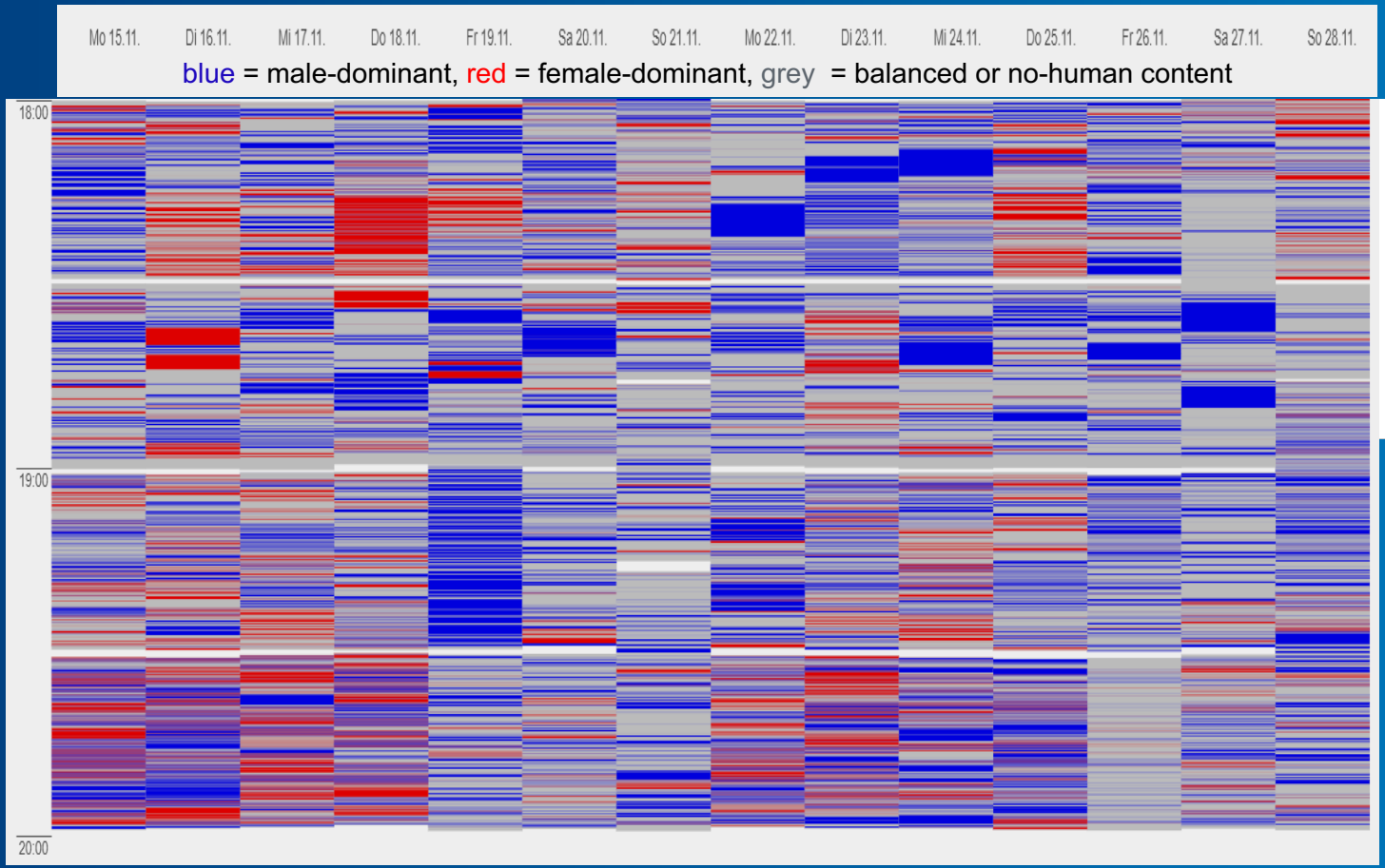
7-10 shows per day after excluding BR ‚morning' program (mostly zoo documentaries, telegyms, reruns of nature and landscape documentaries, rerun daily soap)

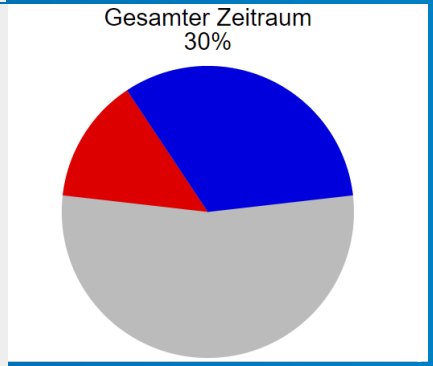
e. g. Thursday 25.11.2021 ->

| date | number of shows |
|---|---|
| 15.11.2021 | 9 |
| 16.11.2021 | 7 |
| 17.11.2021 | 9 |
| 18.11.2021 | 8 |
| 19.11.2021 | 7 |
| 20.11.2021 | 8 |
| 21.11.2021 | 10 |
| 22.11.2021 | 9 |
| 23.11.2021 | 6 |
| 24.11.2021 | 9 |
| 25.11.2021 | 9 |
| 26.11.2021 | 7 |
| 27.11.2021 | 8 |
| 28.11.2021 | 10 |

| time | **16:15 4.15 pm** | **17:30 5.30 pm** | **18:00 6 pm** | **18:30 6.30 pm** | **19:00 7 pm** | **19:30 7.30 pm** | **20:15 8.15 pm** | **21:00 9 pm** | **21:45 9.45 pm** |
|---|---|---|---|---|---|---|---|---|---|
| show | WIR in Bayern | ABENDSCHAU DER SÜDEN | ABENDSCHAU | RUND SCHAU | mehr-wert | Dahoam is Dahoam | quer | Asül für alle | BR24 |
| | afternoon magazine | regional magazine | regional news | news | consumer advice | daily soap | news satire | cabaret / comedy | late news |

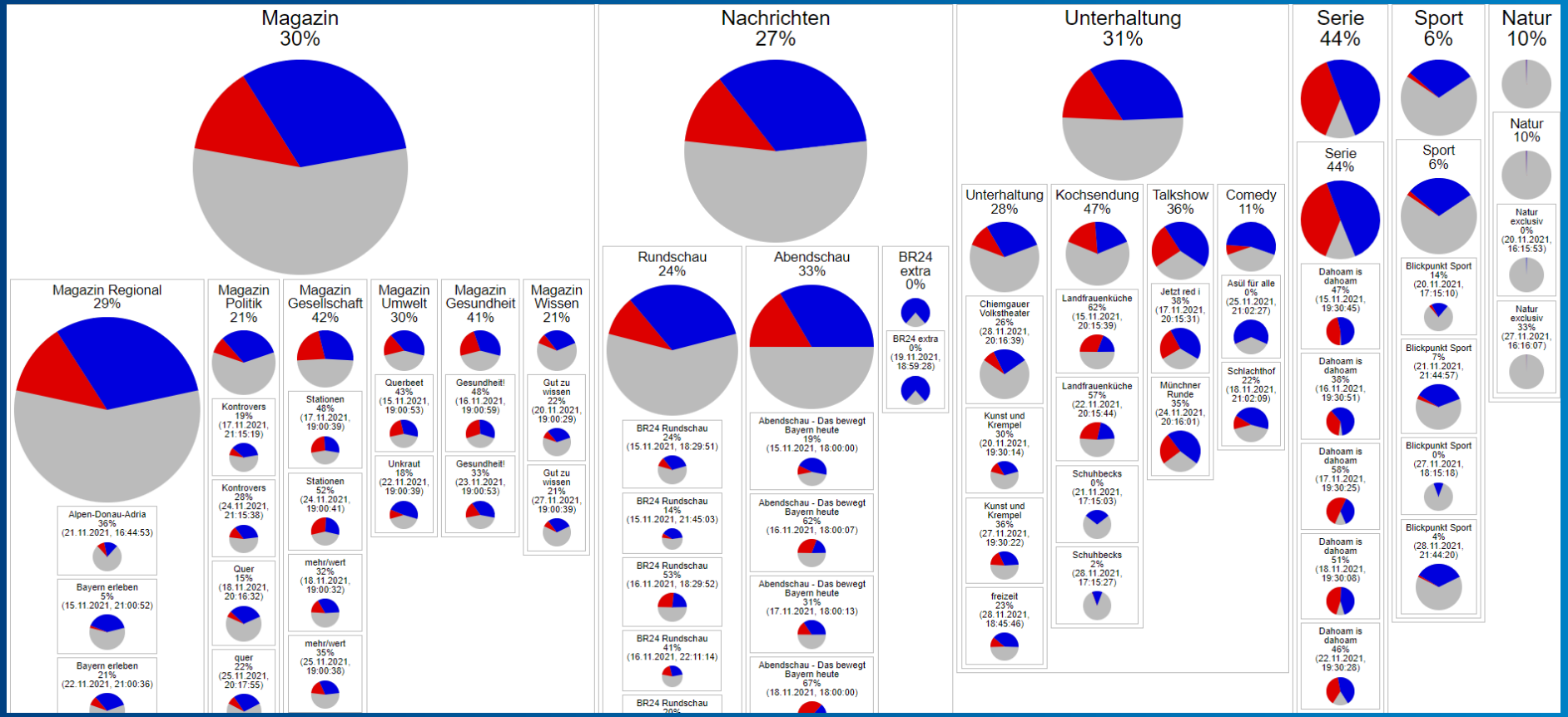
# Results in total (15.-28.11.2021)



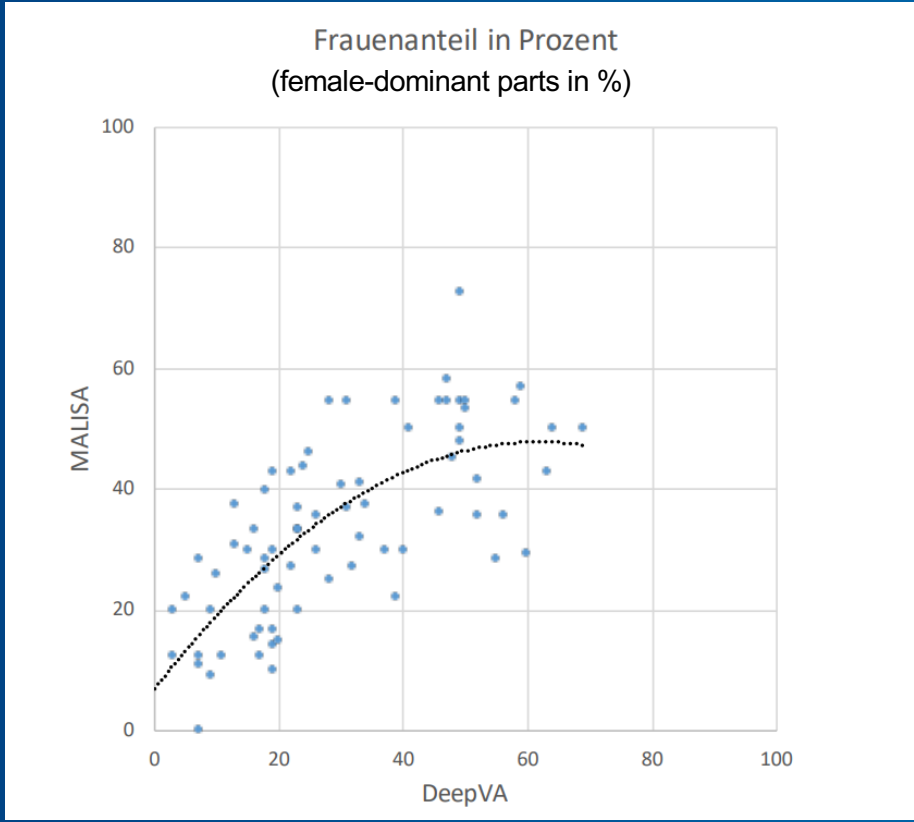

30 % female-dominant parts over all shows and genres on average (ranging from 0 % to max. 62 %)

# **Results (2):** different shows and genres separately, time period: 15.-28.11.2021




blue = male-dominant, red = female-dominant, grey = balanced or no-human content

# Comparison with results of Malisa study




- loose correlation between Malisa and test result
- fairly large scattering
- assuming non-standardised, different counting practices for Malisa data (human bias)
- test run with only one ‚counting setting‘ (AI outcome could differ with show-specific parameters)

## Possibilities, prospect, and questions

- standardised, large scale analysis method for audiovisual material to help balancing content/broadcasting with regard to diversity and equality
- increasing precision of analysis in combining module with other visual mining modules (e.g. with careful face recognition to exclude presenters of shows from ‚counting‘)
- Does a binary, mutally exclusive labelling reflect our data properly here? How to inclusively and carefully operate diversity here without discrimination? How to guarantee sufficient bias control?

Thank you for your attention

- glad to answer questions ☺
- handing over to *The Chainless*