

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

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data biases lead to discrimination?! – ideology reproduction

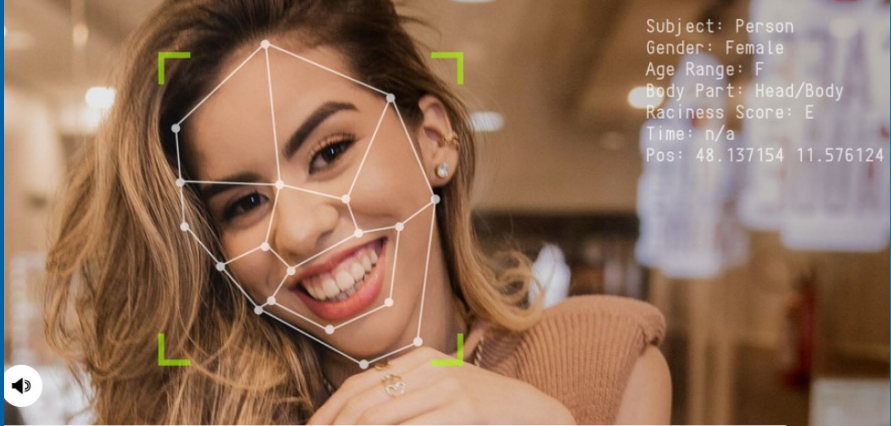


Tagesschau

Zu sexy - wie Online-Algorithmen Frauen benachteiligen

11KM: der tagesschau-Podcast · 08.02.2023 · 26 Min.

▶ Abspielen






Subject: Person
Gender: Female
Age Range: F
Body Part: Head/Body
Raciness Score: E
Time: n/a
Pos: 48.137154 11.576124

08.02.2023, 07:41 Uhr

🏠 > Netzwerk > Zu sexy: Wie KI-Algorithmen Frauen benachteiligen können

Zu sexy: Wie KI-Algorithmen Frauen benachteiligen können

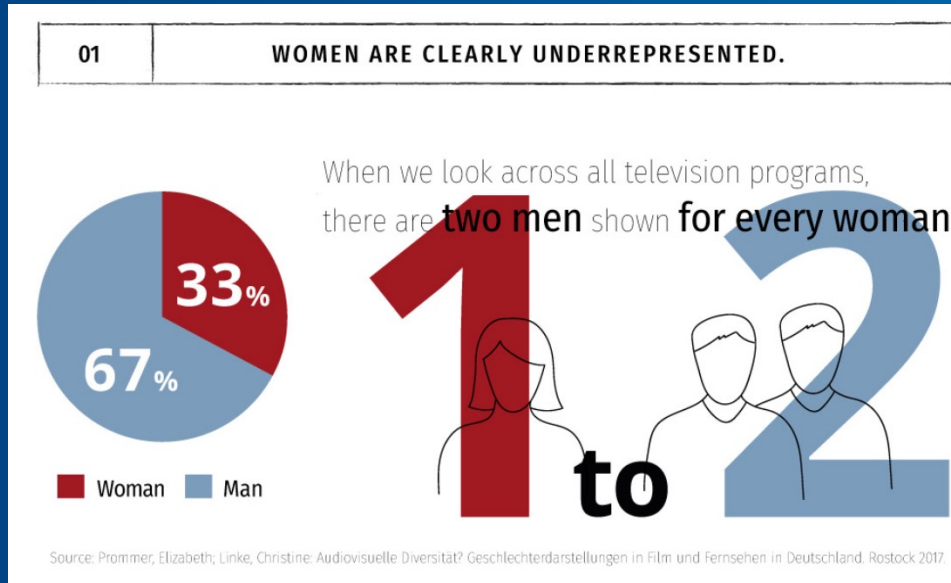
Von der Strandszene bis zum Selfie: Online-Dienste verwenden Algorithmen, um Bilder zu prüfen. Laut BR-Data-Analyse werden Bilder von Frauen oft anzüglicher bewertet als die von Männern. Das kann Folgen für die Sichtbarkeit im Netz haben.

Von  Katharina Brunner  Elisa Harlan  Shannon Reitmeir



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

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

The screenshot displays the DeepVA interface for a dataset named 'Manuel Neuer'. It features a grid of eight face images, each with a slider and a menu icon. To the right, the 'Attribute Statistics' section shows 'Images With Face Mask: 0' and 'Gender: Male' (highlighted in yellow). Below this, 'Head Pose Mean' and 'Head Pose Standard Deviation' are listed with their respective values and standard deviations. The 'Class Summary' section on the right provides details such as Class ID, Label, Reference, Class Description, Priority Level, Created, Last Modified, and Number of Images.

Attribute	Value
Images With Face Mask	0
Gender	Male
Head Pose Mean (Pitch)	-3.47
Head Pose Mean (Yaw)	-4.66
Head Pose Standard Deviation (Pitch)	3.06
Head Pose Standard Deviation (Yaw)	20.71

Class Summary

- Class ID: 9be16636-d311-496e-9563-6c7...
- Label: Manuel Neuer
- Active
- Reference: 6474b82a-1efd-491f-a52b-74fb93dab1d6
- Class Description:
 - Sport, Fußballspieler, Kapitän FC Bayern München
- Priority Level: A
- Created: 2020-05-22 10:51:06
- Last Modified: 2022-09-16 14:27:08
- Number of Images: 136

- 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

BR



polit. talk show



sports show

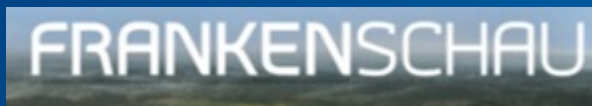


cabaret / comedy

Asül für alle



news with regional focus



‘afternoon’ show



daily soap (fictional)



cooking show



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



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 ->

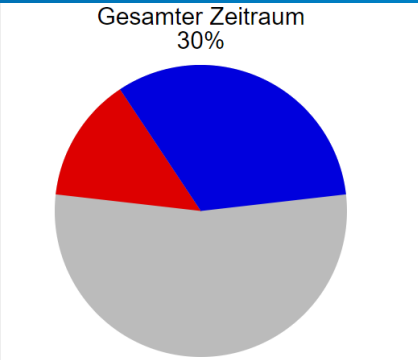
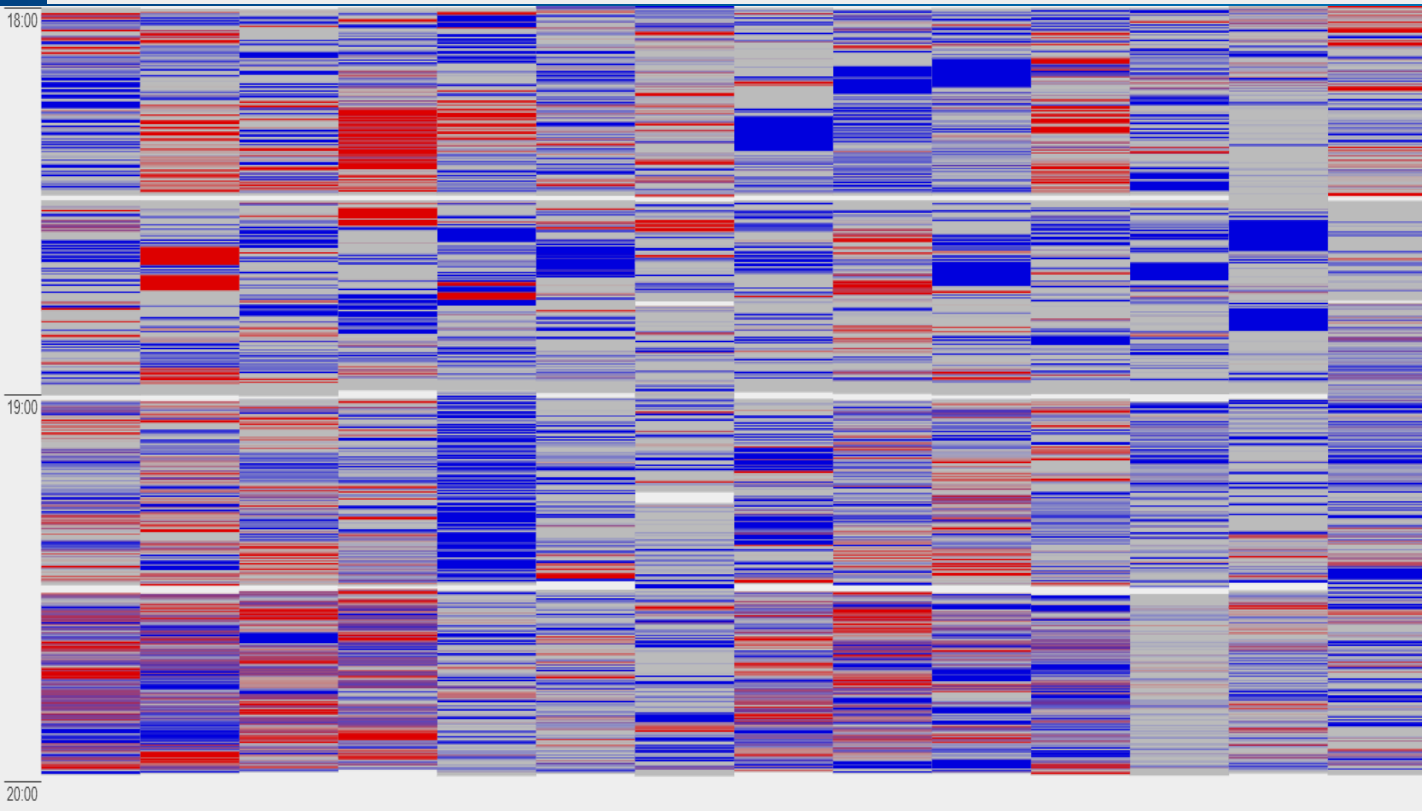
date	number of shows
15.11.2021	9
16.11.2021	7
17.11.2021	9
18.11.2021	8
19.11.2021	7
20.11.2021	8
21.11.2021	10
22.11.2021	9
23.11.2021	6
24.11.2021	9
25.11.2021	9
26.11.2021	7
27.11.2021	8
28.11.2021	10

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	 afternoon magazine	 regional magazine	 regional news	 news	 consumer advice	 daily soap	 news satire	 cabaret / comedy	 late news

Results in total (15.-28.11.2021)

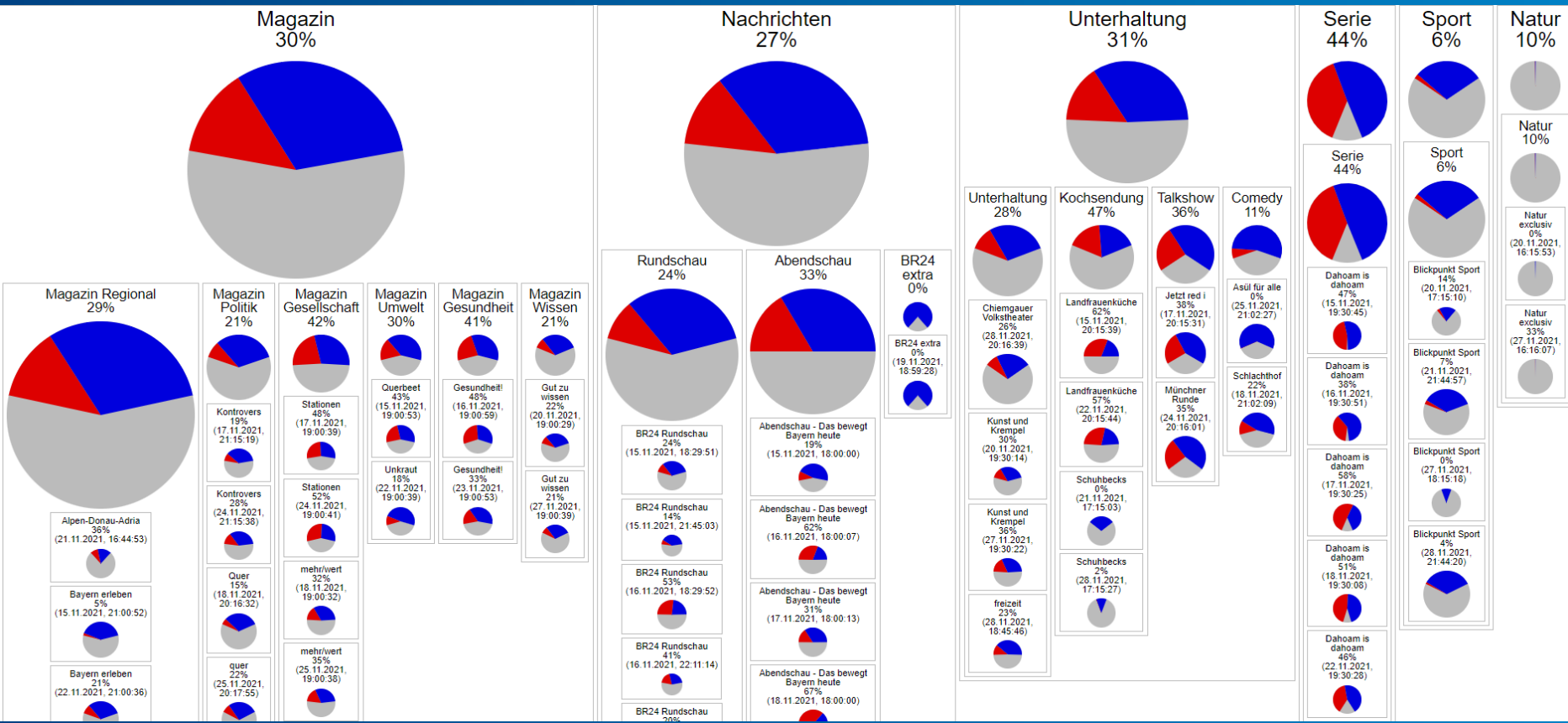
Mo 15.11. Di 16.11. Mi 17.11. Do 18.11. Fr 19.11. Sa 20.11. So 21.11. Mo 22.11. Di 23.11. Mi 24.11. Do 25.11. Fr 26.11. Sa 27.11. So 28.11.

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



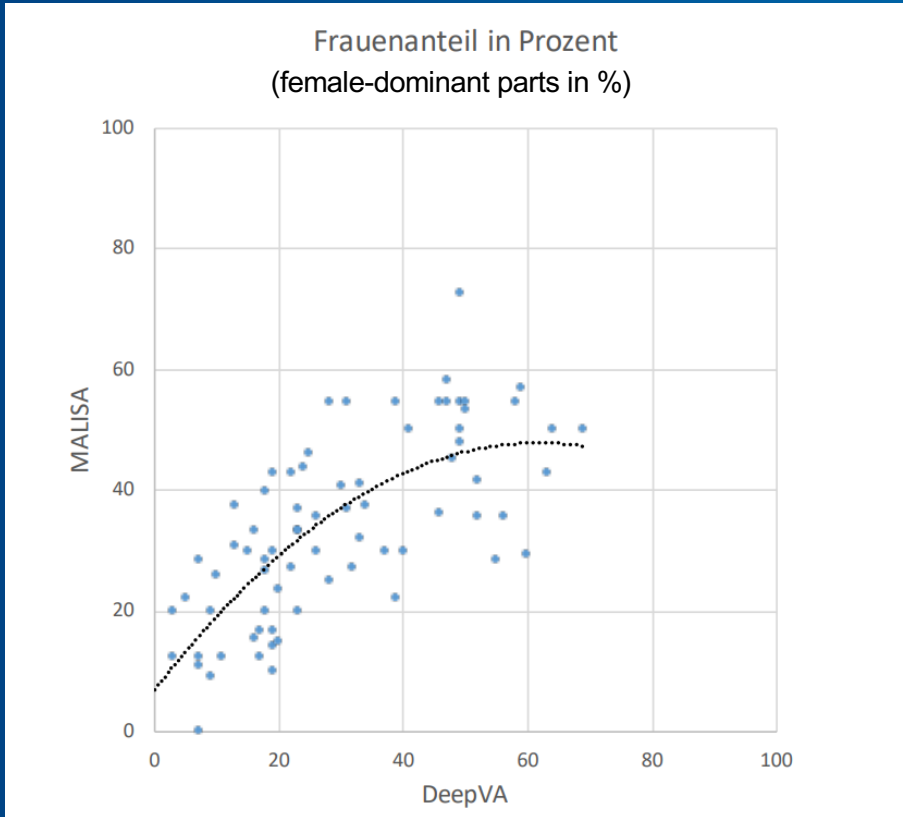
30 % female-dominant parts over all shows and genres on average (ranging from 0 % to max. 62 %)

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, mutually 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*

