

Political stories - improving face recognition performance for political Instagram story analysis

Thema:

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Status:

abgeschlossen

Stichworte:

Face recognition, Instagram, Social Media, FIQA, automated visual content analysis

angelegt:

2023-06-20

Antrittsvortrag:

2023-06-26

Hintergrund

With tremendous growth over the last decade [1], social media have become a central aspect of everyday life. Instagram is one of those fast-growing platforms focusing mainly on visual content. The shift from traditional media to online social media accompanying this growth does not stop at political campaigns [2]. Therefore, the question arises to what extent visual personalization as part of political personalization shapes political communication on Instagram.

Political personalization describes the process of individual politicians playing an increasingly central role in political campaigns while political groupings are declining in power [3]. The concept of personalization as part of political communication already received plenty of attention. Numerous studies on this topic have been conducted across different countries and media types before the rise of social media. However, van Aelst et al. (2012) could not find conclusive evidence due to the absence of a common underlying concept or operationalization. To overcome this limitation, they suggested a concept to provide comparative results among international studies [4]. One of the more recent studies focusing on communication strategies on Instagram applied the conceptual idea from van Aelst et al. (2012) but still leaves room for improvement. One limitation of this work is the missing examination of Instagram stories due to their data collection process [5]. Furthermore, there is a lack of automatization of visual content analysis since they still rely on human labelers.

This lack establishes the need for automated visual content analysis methods, such as face recognition, in the context of political science. Despite various pre-trained models available, one issue remains unsolved: These models tend to suffer from a high false positive rate. To overcome this issue, methods to improve precision while maintaining a proper recall rate must be identified.

Zielsetzung der Arbeit

This work aims to achieve an improved face recognition performance for recognizing politicians in Instagram stories. More specifically, the goal is to reduce the false positive rate by integrating a face image quality assessment [6] step into the face recognition process. Therefore, a dataset of roughly 2200 images was acquired by scraping 21 parties' and their front runners' accounts. Those collected images are going to be hand labeled under consideration of an inter-annotator agreement. Subsequently, the effect of MagFace [8], a state-of-the-art face image quality assessment algorithm [6, 7], on the false positive rate is evaluated on the annotated dataset. Furthermore, the correlation between important people in the image and their suitability for face recognition is examined.

Konkrete Aufgaben

- familiarization with the topic & literature survey
- Data preparation
 - Use Retina Face for face detection (generate face bounding boxes).
 - Upload images with corresponding tasks to Label Studio
- Annotate the data
- Perform face recognition with and without prior face image quality assessment
- Evaluation
- Written elaboration

Erwartete Vorkenntnisse

- Experience with python and machine learning
- Experience with visual content analysis

Weiterführende Quellen

- [1] Esteban Ortiz-Ospina; Max Roser (2023): The rise of social media. In Our World in Data. Available online at <https://ourworldindata.org/rise-of-social-media?ref=tms>.
- [2] Kreiss, Daniel; Lawrence, Regina G.; McGregor, Shannon C. (2018): In Their Own Words: Political Practitioner Accounts of Candidates, Audiences, Affordances, Genres, and Timing in Strategic Social Media Use. In Political Communication 35 (1), pp. 8-31. DOI: 10.1080/10584609.2017.1334727.
- [3] Balmas, Meital; Sheafer, Tamir (2016): Personalization of Politics. In Gianpietro Mazzoleni, Kevin G. Barnhurst, Ken'ichi Ikeda, Rousiley C. M. Maia, Hartmut Wessler (Eds.): The international encyclopedia of political communication. Chichester, West Sussex: Wiley Blackwell (The Wiley Blackwell-ICA international encyclopedias of communication), pp. 1-9.
- [4] van Aelst, Peter; Sheafer, Tamir; Stanyer, James (2012): The personalization of mediated political communication: A review of concepts, operationalizations and key findings. In

Journalism 13 (2), pp. 203–220. DOI: 10.1177/1464884911427802.

- [5] Haßler, Jörg; Kümpel, Anna Sophie; Keller, Jessica (2023): Instagram and political campaigning in the 2017 German federal election. A quantitative content analysis of German top politicians' and parliamentary parties' posts. In Information, Communication & Society 26 (3), pp. 530–550. DOI: 10.1080/1369118X.2021.1954974.
- [6] Schlett, Torsten; Rathgeb, Christian; Henniger, Olaf; Galbally, Javier; Fierrez, Julian; Busch, Christoph (2022): Face Image Quality Assessment: A Literature Survey. In ACM Comput. Surv. 54 (10s), pp. 1–49. DOI: 10.1145/3507901.
- [7] Fu, Biying; Chen, Cong; Henniger, Olaf; Damer, Naser (2022): A Deep Insight into Measuring Face Image Utility with General and Face-specific Image Quality Metrics. In : 2022 IEEE/CVF Winter Conference on Applications of Computer Vision (WACV): IEEE.
- [8] Meng, Qiang; Zhao, Shichao; Huang, Zhida; Zhou, Feng (2021): MagFace: A Universal Representation for Face Recognition and Quality Assessment. In : 2021 IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR): IEEE.

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Last update: 20.12.2023 12:29

