



# BlitzMe: a Social Media Platform Combining Smile Recognition and Human Computation for Positive Mood Enhancement

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# BlitzMe: A Social Media Platform Combining Smile Recognition and Human Computation for Positive Mood Enhancement

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## Abstract

We present BlitzMe, a novel social media platform specialized in humorous content enabling users to evaluate content through smile recognition. Although determining whether a content contains humor is considered a highly challenging task for computers to solve, it is thought to be a natural reaction for humans, often manifesting as a smile. By capturing real-time facial recognition, BlitzMe transforms these emotional responses into metrics for positive content engagement without imposing mental effort to users.

## Introduction

The rapid proliferation of social media has transformed how individuals interact, share, and consume content. However, this surge in social media use has also been linked to adverse mental health outcomes. Significant association between social media use and depression among young adults was found in the U.S.(Lin et al. 2016). The constant exposure to idealized images and experiences might lead to feelings of inadequacy, anxiety, and depression.

On the other hand, many studies have highlighted the benefits of positive emotional expressions, such as smiling and laughing, on mental well-being. Frequent laughter and smiling are associated with reduced risks of mortality and cardiovascular disease (Sakurada et al. 2020). Also, laughter programs such as laughter-yoga potentially could help reduce body weight in participants with metabolic syndrome risk factors by reducing stress and improving HRQOL (Health-related Quality of Life) and mental health factors, such as subjective well-being and optimism(Funakubo et al. 2022) .

Our Platform, BlitzMe provides humorous experience to users taking advantage of smile recognition feature and enjoyable annotation task. We consider “smiling” as an act of computation by humans; it is a channel through which the concept of “humor” is manifested.

## Related Works

### Smile Recognition for User Interfaces

Researchers have previously investigated the integration of smile recognition technology into user interfaces. For in-

stance, Perceptual User Interfaces that could provide smile intensity measures was applied to enhance user experience with instant messaging software by automatically controlling user status and inserting emotions based on detected smiles (Déniz et al. 2008). Also, HappinessCounter, a device placed in front of a refrigerator, encouraged users to smile by providing visual and auditory feedback (Tsujita and Rekimoto 2011). This study showed that such interventions could enhance mood and promote positive interactions within the household. However, its use was limited to specific locations, constraining the broader applicability of smile recognition technology.

### Enjoyable Annotation

Finding a way to motivate people to participate is one of the challenges in any human computation systems(Quinn and Bederson 2011). Gamification has been effectively utilized in various applications to enhance user engagement and data collection (Von Ahn 2006). ESP Game demonstrated how enjoyable tasks could help generate valuable data through promoting people collectively solve large-scale computational problems. (Von Ahn and Dabbish 2004). Crowdsourcing by Google employs gamification for image labeling, making the process enjoyable and rewarding for users (Sarin et al. 2019).

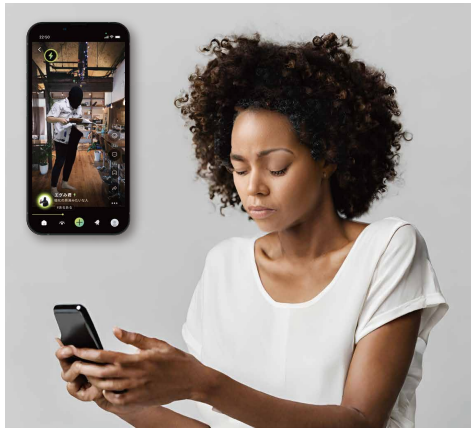
## BlitzMe Overview

We developed BlitzMe, a social media app (available for iOS and Android) launched in 2024 that leverages smile recognition technology using the front camera on smartphone to enhance user engagement. Contrary to conventional social media apps, users are unable to “like” the content by pushing a “like button”. Instead, BlitzMe offers a “smile to like” feature by capturing real-time user facial expressions using the front camera. BlitzMe transforms these emotional feedback data into metrics for content engagement, exemplifying the synergy between human-AI collaboration and humor-smile relationship.

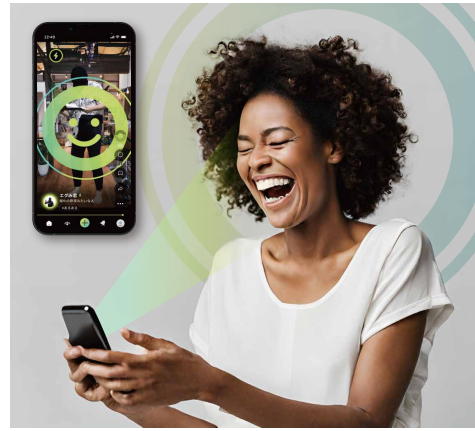
## System Overview

BlitzMe is built with Flutter, Python Django, and infrastructure is hosted on Google Cloud.

\*With help from the AAAI Publications Committee.



(a) When the user’s emotional reaction is neutral.



(b) When the user smiles watching content.

Figure 1: User interface and use case of BlitzMe. When users smile watching content on the app, a smile-awareness effect appears on the screen, providing immediate visual confirmation of the detected smile. The content is presented in a reel format, allowing users to swipe vertically to browse through different videos and images seamlessly.

The core functionality of smile recognition is enabled by ML Kit, a mobile SDK that enables mobile developers integrating Google’s machine learning expertise. ML Kit’s face detection and emotion recognition APIs are used to capture real-time emotional feedback data. With ML Kit’s face detection API, smiling probability was obtained by using `getSmilingProbability()` method. As face detection is processed using edge AI, facial images of users are not extracted and are never sent to the server, which protects user privacy.

Since BlitzMe is a mobile application integrating smile recognition feature on smartphones, it expands its use case to any location where the user interacts with the device, addressing the limitation mentioned in the previous research (Tsujiata and Rekimoto 2011).

### User Experience

BlitzMe offers an enjoyable experience that motivates creators to post content, thereby delighting and entertaining users. As a user-generated content platform, BlitzMe allows anyone to post videos and images once the app is installed. Uploaded content is presented in a reel format, enabling users to scroll vertically to discover new content. The platform features rich feedback mechanisms for content creators, such as notifications that inform them: “User X smiled watching your content.” For users, BlitzMe fosters smile-awareness effect (Figure 1b), which could potentially enhance their emotional experience (Yoshida et al. 2013).

Additionally, by engaging with humorous content, users collectively assess and annotate the degree to which the content makes them smile. This collective annotation process enhances the recommendation engine’s ability to learn user preferences, ensuring that content is personalized to the individual users. BlitzMe could be described as SWAP (Social media with a purpose), as it leverages human computation principles in a social media context. Furthermore, this human computation approach can effectively filter out objec-

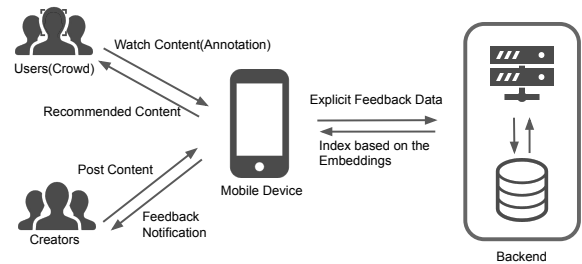


Figure 2: BlitzMe System Overview

tionable content that, while attention-grabbing, deteriorates the social media experience (Kosch et al. 2020). Through the power of collective intelligence, BlitzMe leverages user feedback to maintain a positive environment promoting positive mood for users.

### Preliminary Results

To evaluate user engagement and satisfaction with BlitzMe’s unique features, we conducted a pilot study involving 11 beta-users who posted content on the platform. The results could be considered positive:

- 7 out of 11 users strongly agreed that the “smile to like” feature provided an enjoyable interaction, while the remaining 4 users somewhat agreed.
- 8 out of 11 users strongly agreed that receiving a notification stating “User A smiled watching your post” was more rewarding compared to conventional “User A liked your post” notifications found on other social media platforms, while the remaining 3 users somewhat agreed.

These findings suggest that BlitzMe’s smile-based feedback mechanism not only enhances user engagement but also provides a more motivational experience for content creators.

## Discussion

The pilot study results, combined with data from BlitzMe's beta launch (which recorded over 150,000 smiles), indicate high levels of user engagement and satisfaction with the platform's unique features both from users and creators. The smile recognition feature could hence be considered effective in capturing real-time emotional responses, providing a reliable, genuine metric for user-content engagement. The explicit feedback data from smile recognition provides a more nuanced understanding of user engagement than traditional "like buttons". This explicit feedback data could improve the recommendation engine, leading to the enhancement of user experience by offering content that is more likely to elicit positive emotional responses through content adaptation (Kosch et al. 2020).

## Conclusion and Future Works

BlitzMe represents an advancement in social media technology by leveraging the synergy between smile recognition and human computation to promote positive mood. Our platform addresses one of the most challenging tasks for computers: detecting and quantifying humorous content. It does so by taking advantage of the innate and effortless ability of humans to recognize and respond to humor through facial expressions. The unique "smile to like" feature exemplifies the power of human computation in solving complex problems that remain difficult for AI alone. By transforming users' natural smiling responses into engagement metrics, BlitzMe creates an enjoyable and intuitive annotation process. Looking ahead, BlitzMe opens up avenues for future research in human-AI collaboration, particularly in understanding and quantifying emotional responses at scale. By open-sourcing parts of our anonymized dataset, we aim to contribute to the broader human computation community and foster innovations in human computation and crowdsourcing.

## References

- Déniz, O.; Castrillon, M.; Lorenzo, J.; Anton, L.; and Bueno, G. 2008. Smile detection for user interfaces. In *Advances in Visual Computing: 4th International Symposium, ISVC 2008, Las Vegas, NV, USA, December 1-3, 2008. Proceedings, Part II 4*, 602–611. Springer.
- Funakubo, N.; Eguchi, E.; Hayashi, R.; Hirosaki, M.; Shirai, K.; Okazaki, K.; Nakano, H.; Hayashi, F.; Omata, J.; Imano, H.; et al. 2022. Effects of a laughter program on body weight and mental health among Japanese people with metabolic syndrome risk factors: a randomized controlled trial. *BMC geriatrics*, 22(1): 361.
- Kosch, T.; Hassib, M.; Reutter, R.; and Alt, F. 2020. Emotions on the Go: Mobile Emotion Assessment in Real-Time using Facial Expressions. *Proceedings of the 2020 International Conference on Advanced Visual Interfaces*.
- Lin, L. Y.; Sidani, J. E.; Shensa, A.; Radovic, A.; Miller, E.; Colditz, J. B.; Hoffman, B. L.; Giles, L. M.; and Primack, B. A. 2016. Association between social media use and depression among US young adults. *Depression and anxiety*, 33(4): 323–331.
- Quinn, A. J.; and Bederson, B. B. 2011. Human computation: a survey and taxonomy of a growing field. In *Proceedings of the SIGCHI conference on human factors in computing systems*, 1403–1412.
- Sakurada, K.; Konta, T.; Watanabe, M.; Ishizawa, K.; Ueno, Y.; Yamashita, H.; and Kayama, T. 2020. Associations of frequency of laughter with risk of all-cause mortality and cardiovascular disease incidence in a general population: findings from the Yamagata study. *Journal of Epidemiology*, 30(4): 188–193.
- Sarin, S.; Pipatsrisawat, K.; Pham, K.; Batra, A.; and Valente, L. 2019. Crowdsourc by Google: A Platform for Collecting Inclusive and Representative Machine Learning Data. In *AAAI HCOMP 2019*.
- Tsujita, H.; and Rekimoto, J. 2011. Smiling makes us happier: enhancing positive mood and communication with smile-encouraging digital appliances. In *Proceedings of the 13th international conference on Ubiquitous computing*, 1–10.
- Von Ahn, L. 2006. Games with a purpose. *Computer*, 39(6): 92–94.
- Von Ahn, L.; and Dabbish, L. 2004. Labeling images with a computer game. In *Proceedings of the SIGCHI conference on Human factors in computing systems*, 319–326.
- Yoshida, S.; Tanikawa, T.; Sakurai, S.; Hirose, M.; and Narumi, T. 2013. Manipulation of an emotional experience by real-time deformed facial feedback. In *Proceedings of the 4th Augmented Human International Conference*, 35–42.