

ENHANCED SOCIAL MEDIA PLATFORMS BASED ON MACHINE LEARNING BASED AGGREGATION OF TRENDING EVENTS

CROSS-REFERENCE TO RELATED DISCLOSURE

[001] This application claims priority to U.S. Provisional Patent Application No. 63/588,325, filed October 6, 2023, which is incorporated herein by reference in its entirety.

BACKGROUND

[002] This specification relates to the generation of annotated content based upon trending events.

SUMMARY

[003] This specification relates, in one aspect, to the generation of annotated content based upon machine learning models. It is often of interest to generate content, like blog posts, based upon trending events, such as celebrity news, sports events, and/or natural disasters. When generating such content, often, one piece of media content, like a news article, video, or blog post, provides insufficient information about the trending event, for example by not providing sufficient context. Further, people may lack the time to delve through multiple pieces of media content, especially when one piece of media content provides little additional information over another piece of media content. This lack of time may also mean that people may want to understand the trending event at a high level, with an opportunity to explore a sub-topic that may be of greater interest.

[004] In a fast-paced world where people are short on time, it is important to stay informed on current events and trending topics while spending as little time doing so as possible. However, one piece of media content, like a news article, video, or blog post may not fully inform a person of the greater context of the current event or trending topic. Further, while a person may not want to understand one trending topic, such as a political event, in a great level of detail, the same person may wish to understand a different trending event, like celebrity news, at a much greater level of detail. Accordingly, there is a technical problem of generating media content that can cater to user preferences from existing media content that features a lack of relevant information, and generating information that may not be available in an easily accessible and user-friendly manner. Therefore, there is a need for a technical solution to this technical problem, as described herein. In particular, as an example, a piece of annotated content that describes a particular topic of interest at a high-level may be produced. These

annotations may be associated with multiple media content (*e.g.*, images, text, video, audio, web resource link, and so forth) that can provide additional information should a user wish to delve into a topic more deeply. This annotated content can be generated automatically via machine learning methods or may also be generated by a user.

[005] Social media platforms are a popular way of sharing media content among users. For example, users can share images, videos, documents, and so forth with each other. Oftentimes, users may want to highlight specific portions of a media content. For example, a user may want to highlight a specific portion of an image and enhance the image with additional context. For example, a user visiting Paris may capture an image that includes the Eiffel Tower. The user may then want to display a selfie that the user captured at the top of the Eiffel Tower. Accordingly, there is a need to enable an addition of one or more “hotspots” to a media content. In this example, the user may add a hotspot to the portion of the image corresponding to the top of the Eiffel Tower, and associate their selfie with the hotspot. In another example, the user can select the hotspot and upload the selfie, thereby linking the selfie to the hotspot. Another user viewing the image can view the hotspot, select it, and view the selfie. The second user may add a piece of music to the same hotspot, or add a new hotspot and link the piece of music to the new hotspot.

[006] This specification generally describes a computer-implemented method, device, and system for content generation. According to one aspect, a computer-implemented method for automatic generation of content based on an aggregation of trending events is provided. The method includes determining, by a computing device, a topic of interest. The method also includes determining additional information related to the topic of interest. The determining of the additional information includes, generating a prompt based on the topic of interest, submitting the prompt to an information search and retrieval system, and retrieving the additional information as an output of the information search and retrieval system. The method also includes generating, by a generative artificial intelligence (AI) model, a piece of annotated content associated with the topic of interest. The piece of annotated content comprises media content annotated with at least one selectable graphical object that links to the additional information. The method also includes providing, by the computing device, the piece of annotated content.

[007] In a second aspect, a computing device for automatic generation of content based on an aggregation of trending events is provided. The computing device includes one or more processors and data storage. The data storage has stored thereon computer-executable instructions that, when executed by one or more processors, cause the computing device to

carry out functions. The functions include determining, by a computing device, a topic of interest. The functions also include determining additional information related to the topic of interest. The determining of the additional information includes, generating a prompt based on the topic of interest, submitting the prompt to an information search and retrieval system, and retrieving the additional information as an output of the information search and retrieval system. The functions also include generating, by a generative artificial intelligence model, a piece of annotated content associated with the topic of interest. The piece of annotated content comprises media content annotated with at least one selectable graphical object that links to the additional information. The functions also include providing, by the computing device, the piece of annotated content.

[008] In a third aspect, a computer program for automatic generation of content based on an aggregation of trending events is provided. The computer program includes instructions that, when executed by a computer, cause the computer to carry out functions. The functions include determining, by a computing device, a topic of interest. The functions also include determining additional information related to the topic of interest. The determining of the additional information includes, generating a prompt based on the topic of interest, submitting the prompt to an information search and retrieval system, and retrieving the additional information as an output of the information search and retrieval system. The functions also include generating, by a generative artificial intelligence model, a piece of annotated content associated with the topic of interest. The piece of annotated content comprises media content annotated with at least one selectable graphical object that links to the additional information. The functions also include providing, by the computing device, the piece of annotated content.

[009] In a fourth aspect, an article of manufacture for automatic generation of content based on an aggregation of trending events is provided. The article of manufacture includes one or more computer readable media having computer-readable instructions stored thereon that, when executed by one or more processors of a computing device, cause the computing device to carry out functions. The functions include determining, by a computing device, a topic of interest. The functions also include determining additional information related to the topic of interest. The determining of the additional information includes, generating a prompt based on the topic of interest, submitting the prompt to an information search and retrieval system, and retrieving the additional information as an output of the information search and retrieval system. The functions also include generating, by a generative artificial intelligence model, a piece of annotated content associated with the topic of interest. The piece of annotated content comprises media content annotated with at least one selectable graphical object that links to

the additional information. The functions also include providing, by the computing device, the piece of annotated content.

[0010] In a fifth aspect, a system for automatic generation of content based on an aggregation of trending events is provided. The system includes means for determining, by a computing device, a topic of interest. The system also includes means for determining additional information related to the topic of interest. The determining of the additional information includes, generating a prompt based on the topic of interest, submitting the prompt to an information search and retrieval system, and retrieving the additional information as an output of the information search and retrieval system. The system also includes means for generating, by a generative artificial intelligence model, a piece of annotated content associated with the topic of interest. The piece of annotated content comprises media content annotated with at least one selectable graphical object that links to the additional information. The system also includes means for providing, by the computing device, the piece of annotated content.

[0011] The foregoing summary is illustrative only and is not intended to be in any way limiting. In addition to the illustrative aspects, embodiments, and features described above, further aspects, embodiments, and features will become apparent by reference to the figures and the following detailed description and the accompanying drawings.

BRIEF DESCRIPTION OF THE FIGURES

[0012] FIG. 1 illustrates a simplified diagram of annotated content generation, in accordance with example embodiments.

[0013] FIG. 2 illustrates a view of a media content sharing environment, in accordance with example embodiments.

[0014] FIG. 3 illustrates another view of the media content sharing environment, in accordance with example embodiments.

[0015] FIG. 4 illustrates an alternative view of the media content sharing environment, in accordance with example embodiments.

[0016] FIG. 5 illustrates a further view of the media content sharing environment, in accordance with example embodiments.

[0017] FIG. 6 depicts a distributed computing environment, in accordance with example embodiments.

[0018] FIG. 7 is a block diagram of a computing device, in accordance with example embodiments.

[0019] FIG. 8 is a flowchart of a method for collaborative media content annotation and sharing, in accordance with example embodiments.

DETAILED DESCRIPTION

[0020] This application relates, in one aspect, to the generation of annotated content based upon machine learning models.

[0021] FIG. 1 illustrates a simplified diagram of annotated content generation, in accordance with example embodiments. As shown in FIG. 1, from a plurality of trending events 105, a topic of interest 110 is determined by a computing device. Based on this topic of interest 110, a prompt 115 is generated. The prompt 115 is submitted to an information search and retrieval system 120, which generates additional information 125 as an output. Then, a generative artificial intelligence (AI) model 130 generates a piece of annotated content 135 associated with topic of interest 110. This piece of annotated content 135 includes media content 140 that is annotated with at least one selectable graphical object 145. The selectable graphical object 145 links the media content 140 with the additional information 125.

[0022] The term generative AI model, as used herein, may include large language models (LLMs), large multimodal models (LMM), and so forth, that can process and generate content in multiple modalities, such as text, audio, image, video, and other types of data such as sensory data, multilingual models that can take input and generate output in multiple languages, etc. The generative AI model need not be trained on task-specific training data, and can perform multiple tasks.

[0023] In some embodiments, a customized instance of generative AI model 130 may be used (*e.g.*, via subscription, via an application programming interface (API), etc.). In such embodiments, the generative AI model 130 may be trained on annotated content available from user interactions in a social media platform, as described herein.

[0024] As an illustrative example, a trending event 105 may involve news of a significant new achievement in sports (*e.g.*, breaking a world record). The topic of interest 110 may be a sportswoman associated with the achievement. Accordingly, a prompt 115 is submitted to an information search and retrieval system 120 that generates additional information 125. The additional information 125 may relate to the sportswoman, such as, a name, other achievements, education, image, video clips of significant sporting events, related sportspersons, additional news articles, and so forth. The additional information 125 may be provided to generative AI model 130, which may be prompted to aggregate information based on additional information 125, and to generate annotated content 135 annotated with at least

one selectable graphical object 145. In some embodiments, generative AI model 130 may be prompted to automatically generate a social media post with annotated content 135.

[0025] In some embodiments, annotated content 135 may be tailored to a particular content (e.g., digital image), and/or may be based on a persona of the user. For example, in a post related to an image of a circulatory system, an annotated content 135 associated with a user in middle school may be different than that for a user in medical school. The algorithm may be configured to curate and present the annotated content 135 based on one or more characteristics of the persona.

[0026] In some embodiments, annotated content 135 may be tailored to ambient information such as, for example, a time of day, a month, prevailing weather conditions, and so forth. Accordingly, an enhancement and/or annotation of content may occur with specific media.

[0027] FIG. 2 illustrates a view 200 of a media content sharing environment, in accordance with example embodiments. The media content sharing environment can be displayed on a graphical user interface (GUI) 210. GUI 210 can display content image 220. Content image 220 could be a part of prompt 115, media content 140, or could be part of additional information 125 or selectable graphical object 145, among others. Content image 220 can contain a first image identifier icon 230A and a second image identifier icon 230B. There could be any number of image identifier icons and the use of two in this example should not be seen as limiting.

[0028] The first image identifier icon 230A and second image identifier icon 230B could denote locations on content image 220 that correspond to people, places, events, foods, among others. Determining the location of first image identifier icon 230A and second image identifier icon 230B on content image 220 could be determined using machine learning or could be determined by a user. The location of first image identifier icon 230A and second image identifier icon 230B could correspond to the locations of hotspots.

[0029] GUI 210 could include content interaction buttons 240 that could allow other users to interact with content image 220 or annotated content 135. Such interactions include “liking,” sharing, or commenting. Each of the content interaction buttons 240 could be linked to a different interaction. GUI 210 could also include indicators that inform different users about the number of users that have used any of the interactions. Content interactions, such as comments could be used as at least part of the prompt 115, the additional information 125, and the annotated content 135.

[0030] GUI 210 could also include a content title 250. The content title 250 could relate to content image 220 and be generated by machine learning or a human after the generation of

annotated content 135. Content title 250 could be created at the same time as annotated content 135 and could form part of media content 140 or selectable graphical object 145. Content title 250 could be generated before annotated content 135 and could be part of prompt 115, additional information 125, or be a description of topic of interest 110.

[0031] GUI 210 could further include user icon 260. User icon 260 could indicate a user that created annotated content 135 or could indicate a different user. The color, design, shading, or other features of user icon 260 could change depending on a particular user and/or depending on which user generated annotated content 135.

[0032] GUI 210 could also include content summary 270. Content summary 270 could summarize a single annotated content 135 or multiple pieces of annotated content. Content summary 270 could provide information corresponding to trending event 105, topic of interest 110, or prompt 115.

[0033] GUI 210 could also include temporal indicator 280. Temporal indicator 280 could indicate the time since annotated content 135 was created or be based upon a time important to topic of interest 110, such as a start time of an event, time since the start of an event, or time until an event concludes, among others. The time indicated by temporal indicator 280 could be part of prompt 115, additional information 125, media content 140, or selectable graphical object 145.

[0034] GUI 210 could also include location indicator 290. Location indicator 290 could depict a location corresponding to the topic of interest 110 or the location of a user. Location indicator could be part of media content 140 or selectable graphical object 145. The location corresponding to and indicated by location indicator 290 could, at least in part, help determine topic of interest 110 or trending events 105.

[0035] FIG. 3 illustrates another view 300 of a media content sharing environment, in accordance with example embodiments. The media content sharing environment can be displayed on a GUI 310. GUI 310 can display content image 220, first image identifier 230A, and second image identifier 230B. GUI 310 can also display first identifier 340A and second identifier 340B. First identifier 340A and second identifier 340B can identify content corresponding to first image identifier 230A and second image identifier 230B, respectively. With reference to FIG. 1, the information displayed via first identifier 340A and second identifier 340B can be a part of media content 140, selectable graphical object 145, additional information 125, or prompt 115. First identifier 340A and second identifier 340B can identify or label hotspots within content image 220. First identifier 340A and second identifier 340B can be determined by topic of interest 110, information search and retrieval system 120, or

generative AI model 130. First identifier 340A and second identifier 340B can be determined by a plurality of methods including supervised techniques with bounding box annotation, pixel-level annotation, neural networks, bounding box regression, multiple instance learning, transfer learning with pre-trained models, object proposal techniques, and/or crowdsourcing.

[0036] GUI 310 could also display selectable graphical object category icons 350. The selectable graphical object category icons 350 could include a descriptions icon 351, an image icon 353, a video icon 355, an audio icon 357, and a links icon 359.

[0037] Interacting with one or more of the selectable graphical object category icons 350 could display additional information 125 that corresponds to the icon's category. For example, interacting with the descriptions icon 351 could cause GUI 310 to display one or more pieces of additional information 125 or media content 140 that are in textual format. Interacting with the image icon 353 could cause GUI 310 to display one or more pieces of additional information 125 or media content 140 that are in an image format. Interacting with the video icon 355 could cause GUI 310 to display one or more pieces of additional information 125 or media content 140 that are in video format. Interacting with the audio icon 357 could cause GUI 310 to display one or more pieces of additional information 125 or media content 140 that are in audio format. Interacting with the links icon 359 could cause GUI 310 to display one or more pieces of additional information 125 or media content 140 that are web links, such as universal resource locators (URLs).

[0038] The content displayed by interacting with one or more of the selectable graphical object category icons 350 could be presented as the same size, facilitating viewing of a greater variety of content. The content displayed by interacting with one or more of the selectable graphical object category icons 350 could be presented as different sizes, facilitating viewing of a single piece of content. For example, when a user interacts with the images icon 353, GUI 310 could display a plurality of images 360 and a larger, preview image 370. Preview image 370 could be two times, three times, four times as large as any individual image in the plurality of images 360. Other ratios of size are possible and imagined. If the relative size of preview image 370 compared with each of the images in the plurality of images 360 is larger, it will be easier to see details in preview image 370. If the relative size of preview image 370 compared with each of the images in the plurality of images 360 is smaller, it will be easier to compare images across the plurality of images 370 as well as compare multiple images within the plurality of images 360 to content image 220.

[0039] Machine learning can assign a significance score representing an importance of each image within the plurality of images 360 to annotated content 135 or content image 220. For

example, the importance could be a mean squared error, structural similarity index, peak signal-to-noise ratio (SNR), histogram intersection, chi-square distance, correlation coefficient, scale-invariant feature transform, histogram of oriented gradients, Mahalanobis distance, a count of similar hotspots, or an Euclidean distance between the content image 220 and the image within the plurality of images 360. The significance score could be based upon the output of the information search and retrieval system 120 or the generative AI model 130. For example, the significance score could quantify how much a website or document corresponds to an image among the plurality of images 360 informed the creation of the annotated content 135. In this example, a website or document that was a greater contributor to the generation of the annotated content 135, for example, a greater number of words in common between the website or document and the media content 140, would have a higher significance score than a document or website that was a less strong contributor. These significance scores could be defined based upon any combination of the content image 220, the media content 140, the selectable graphical object 145, the preview image 370, the additional information 125, the prompt 115, and the plurality of images 360.

[0040] The plurality of images 360 could be ordered based upon the significance scores of each image within the plurality of images 360 and the image within the plurality of images 360 with the highest significance score could automatically be displayed by the GUI 310 as the preview image 370.

[0041] The previous discussion provides an example for when a user interacts with the images icon 353, similar previews, importance measures, and tradeoffs correspond to when a user interacts with the descriptions icon 351, video icon 355, audio icon 357, and links icon 359.

[0042] GUI 310 could further include first selectable graphical object navigation button 380A and second selectable graphical navigation button 380B. When a user interacts with either first selectable graphical object navigation button 380A or second selectable graphical navigation button 380B, preview image 370 is replaced with an image from the plurality of images 360. First selectable graphical object navigation button 380A can transition between preview image 370 and an image from the plurality of images 360 in a first order. Second selectable graphical object navigation button 380B can transition between preview image 370 and an image from the plurality of images 360 in a second order different from the first order. The first order could be an ascending order based upon the significance score, size, date of creation, lighting, or other characteristic of each image in the plurality of images 360. The second order could be a descending order based upon the significance score, size, date of creation, lighting, or other characteristic of each image in the plurality of images 360.

[0043] GUI 310 could also include a hotspot view indicator 390. The hotspot view indicator 390 could indicate the presence of one or more hotspots within content image 220. The locations of the one or more hotspots could correspond to the first image identifier 230A, the second image identifier 230B, the first identifier 340A, or the second identifier 340B. Each image in the plurality of images 360 could have the same or similar hotspots to the one or more hotspots in the content image 220. The significance score of an image within the plurality of images 360 could depend on the distance between first image identifier 230A and/or the second image identifier 230B and locations of corresponding hotspots within the image within the plurality of images 360.

[0044] FIG. 4 illustrates an alternative view 400 of a media content sharing environment, in accordance with example embodiments. The media content sharing environment can be displayed on a GUI 410. GUI 410 can display a first link 420 and a second link 430. The first link 420 and the second link 430 can correspond to the selectable graphical object 145 and additional information 125 of FIG. 1. The order of first link 420 and the second link 430 can be based upon any of the previously described importance measures.

[0045] FIG. 5 illustrates a further view 500 of the media content sharing environment, in accordance with example embodiments. Although FIG. 5 illustrates two specific examples for purposes of illustration, other combinations and permutations for hotspots, users, media content 140, view/upload, and so forth are contemplated. Media content sharing environment can include a trending hotspot platform 505 (e.g., a cloud server) in communication with a first computing device 510 and a second computing device 515. As illustrated, trending hotspot platform 505 may synchronize sharing of annotated images, hotspots, uploaded media content 140 and the like across multiple users and/or devices. Any updates made at one computing device may be simultaneously synchronized across multiple users and/or devices.

[0046] Also, for example, multiple users may be able to annotate the same image, and/or view uploaded media content 140 simultaneously. For example, a family may be on vacation and one member may take a group photo and share it with family and friends. Different members of the family on vacation can then annotate the shared group photo with their own comments, anecdotes, jokes, stories, media content, etc. adding layers of meaningful content to the same image. Accordingly, the same two-dimensional (2D) image takes on a multi-dimensional existence via a shared, underlying layered data structure. Even those that are not on the trip but have access to the shared group photo can add their own media content 140. Although existing image sharing application programs allow users to simultaneously share comments, “likes,”

etc., they lack the ability to add multiple hotspots at various portions of the image, and/or add media content 140 associated with these various hotspots.

[0047] Referring to FIG. 5, an expanded view of an interactive GUI 510A associated with the first computing device 510, and an expanded view of an interactive GUI 515A associated with the second computing device 515, are shown. Both GUIs 510A and 515A are shown to display similar copies, respectively 520A and 520B, of the same image.

[0048] In some embodiments, a first user associated with the first computing device 510 may select the selectable tab 510B for “Hotspot 1.” This may indicate that the first user is able to add media content 140 that will be linked to “Hotspot 1” (*e.g.*, the locations of first image identifier icon 230A or second image identifier icon 230B in FIG. 2), and/or view previously uploaded media content 140 associated with “Hotspot 1.” In this example, the first user may select description category icon 351. Accordingly, textual description 550 may be either available for upload, or in another embodiment, the first computing device 510 and/or the second computing device 515 (based on respective access restrictions) may display textual description 550 (*e.g.*, as a previously uploaded media content 140). Once uploaded, media content sharing platform makes textual description 550 available to a second user associated with the second computing device 515.

[0049] In some embodiments, second user associated with the second computing device 515 may select the selectable tab 510B for “Hotspot 1.” This may indicate that the first user is able to add media content 140 that will be linked to “Hotspot 1” (*e.g.*, the locations of first image identifier icon 230A or second image identifier icon 230B in FIG. 2), and/or view previously uploaded media content 140 associated with “Hotspot 1.” In this example, the second user may select video category icon 355. Accordingly, video content 560 may be either available for upload, or in another embodiment, the first computing device 510 and/or the second computing device 515 (based on respective access restrictions) may provide video content 560 (*e.g.*, as a previously uploaded media content 140). Once uploaded, media content sharing platform makes video content 560 available to the first user associated with the first computing device 510.

Example Applications

[0050] A number of example applications are now described. These examples are for illustrative purposes only, and in no way limit the scope of the present description. A number of enterprise applications are contemplated. For example, applications can include annotated images for news items, trending topics, and so forth. Also, for example, applications can include annotated images for topics of interest to a particular user, filtered by one or more

criteria provided by the user. Such enterprise applications and/or content sharing platforms (e.g., trending hotspot platform 505) may be provided as an application programming interface (API), an application-specific integrated circuit (ASIC), as a service (e.g., Software as a Service (SaaS), Analytics as a Service (Anaas), Platform as a Service (PaaS), Knowledge as a Service (KaaS), and so forth.

Example Data Network

[0051] FIG. 6 depicts a distributed computing environment 600, in accordance with example embodiments. Distributed computing environment 600 includes a media content sharing platform 610 (e.g., a server device, a distributed system, a hybrid cloud, a cloud server, and so forth) that is configured to communicate, via network 605, with one or more computing devices, including, but not limited to, mobile devices such as a tablet device 615, a smartphone device 620, a vehicle 625 equipped with a computing device, and a desktop. Network 605 may correspond to a local area network (LAN), a wide area network (WAN), a wireless local-area network (WLAN), a wireless wide area network (WWAN), an intranet, a public Internet, or any other type of network configured to provide a communications path between networked computing devices. Network 605 may also correspond to a combination of one or more networks.

[0052] It may be noted that these devices shown are for illustrative purposes only. Generally speaking, media content sharing platform 610 may be communicatively linked to a computing device over network 605. In fact, it may be linked to multiple computing devices (e.g., millions) in distributed computing environment 600. In addition to the computing devices illustrated in FIG. 6, other devices such as mobile computing devices, wearable devices, head-mountable devices (HMD), augmented reality (AR) devices, virtual reality (VR) devices, aircrafts, boats, drones, and so on are possible. The devices may be directly connected to network 605, or may be indirectly connected to network 605 via another device that is directly connected.

[0053] Media content sharing platform 610 may share one or more aspects in common with trending hotspot platform 505 of FIG. 5, and can be configured to perform one or more functions performed by trending hotspot platform 505, in addition to the particular functions described herein.

Example Computing Device

[0054] FIG. 7 is a block diagram of an example computing device 700, in accordance with example embodiments. In particular, computing device 700 shown in FIG. 7 can be configured

to perform at least one function of and/or related to collaborative media content annotation and sharing, and/or method 800.

[0055] Computing device 700 may include modules to provide various functionalities, such as for example, a graphical user interface 710, network communications 715, a processor 730, memory 735, a camera 740, a microphone 745, and battery 755, all of which may be linked together via a system bus, or other connection mechanism 705.

[0056] Graphical user interface 710 can be configured to send data to and/or receive data from external user input/output devices such as such as a touch screen, a computer mouse, a keyboard, a microphone, external monitors, and the like. Graphical user interface 710 can also be configured to generate audio and/or video outputs.

[0057] Network communications 715 can be configured to provide one or more wireless interface(s) 720 and/or one or more wireline interface(s) 725 that can be configured to communicate via a network (*e.g.*, network 605 of FIG. 6). Wireless interface(s) 720 can include wireless transmitters, receivers, and/or transceivers (*e.g.*, for Bluetooth, Wi-Fi, near-field communications, etc.). Wireline interface(s) 725 can include wireline transmitters, receivers, and/or transceivers (*e.g.*, Ethernet transceiver).

[0058] In some examples, network communications 715 can be configured to provide reliable, secured, and/or authenticated communications. For example, network communications 715 can be configured to provide encrypted data. The type of encryption may depend on a type of network interface, capabilities of a network itself, a type of data to be transmitted, and so forth.

[0059] Processor 730 can include a general purpose processor, and/or special purpose processors (*e.g.*, digital signal processors, graphics processing units (GPUs), media processing processors, image processing processors, text processing processors, speech processing processors, etc.). Processor 730 can be configured to execute computer-readable instructions that are contained in memory 735 and/or other instructions as described herein.

[0060] Memory 735 can include one or more non-transitory computer-readable storage media that can be read and/or accessed by processor 730. The one or more computer-readable storage media can include volatile and/or non-volatile storage components. In some examples, memory 735 can be implemented using a single physical device, while in other examples, memory 735 can be implemented using multiple physical devices.

[0061] Memory 735 can include computer-readable instructions that, when executed by processor 730, enable computing device 700 to provide for some or all of the functionality of the computing devices and/or media content sharing platforms described herein.

[0062] In some examples, computing device 700 can include camera 740. Camera 740 can include still and/or video cameras.

[0063] In some examples, computing device 700 can include microphone 745. Microphone 745 can be configured to capture audio inputs (*e.g.*, speech, music, and so forth).

[0064] In some examples, computing device 700 can include media content apps/platforms 750. Media content apps/platforms 750 may be configured to share media content, enable recording or playback of shared media content 140, create and/or share annotated images as described herein.

[0065] Battery 755 is configured to provide electrical power to computing device 700. Each battery can, when electrically coupled to the computing device 700, act as a source of stored electrical power for computing device 700. Battery 755 may be one or more of portable, removable, rechargeable, etc. The term battery is generally used herein to denote a power supply (wired or otherwise).

Example Methods of Operation

[0066] FIG. 8 is a flowchart of a method 800 for collaborative media content annotation and sharing, in accordance with example embodiments. The method 800 can begin at block 810, where the method 800 involves determining, by a computing device, a topic of interest.

[0067] At block 820, the method 800 may continue by determining additional information 125 related to the topic of interest 110. The determining of the additional information 125 can include generating a prompt 115 based on the topic of interest 110, submitting the prompt 115 to an information search and retrieval system 120, and retrieving the additional information 125 as an output of the information search and retrieval system 120.

[0068] At block 830, the method 800 may continue by generating, by a generative AI model 130, a piece of annotated content 135 associated with the topic of interest 110, wherein the piece of annotated content 135 comprises media content 140 annotated with at least one selectable graphical object 145 that links to the additional information 125.

[0069] At block 840, the method 800 may involve providing, by the computing device, the piece of annotated content 135.

[0070] In some example embodiments, method 800 may further include aggregating the retrieved additional information 125 with data from one or more other sources.

[0071] In some example embodiments, the topic of interest 110 is associated with a popularity score that exceeds a popularity threshold. This popularity score could be based on the

popularity of the topic of interest 110 across the globe, or within a smaller social circle, such as a friend group or family.

[0072] In some example embodiments, the information search and retrieval system 120 is based on a large language model.

[0073] In some example embodiments, the generative AI model 130 is based on a large language model.

[0074] In some example embodiments, providing of the piece of annotated content 135 comprises automatically publishing the piece of annotated content 135 to a social media platform. The social media platform could be the trending hotspot platform 505.

[0075] In some example embodiments, the media content 140 is retrieved from a social media platform.

[0076] In some example embodiments, the generating of the prompt 115 comprises augmenting the topic of interest 110.

[0077] In some example embodiments, the media content 140 is one or more of an image, an audio content, a video content, a textual content, or a uniform resource locator (URL).

[0078] In some example embodiments, the determining of the topic of interest 110 is based on a user interaction with the computing device.

[0079] In some example embodiments, the user interaction with the computing device is an interaction with an application program of the computing device.

[0080] In some example embodiments, the providing of the piece of annotated content 135 comprises automatically sending, by the computing device, the piece of annotated content 135 to one or more additional users.

[0081] In some example embodiments, the generative AI model 130 is located at a server remote to the computing device.

[0082] In some example embodiments, the information search and retrieval system 120 is an online search system.

[0083] In some example embodiments, the topic of interest 110 is an image.

[0084] In some example embodiments, the determining of the topic of interest 110 is based upon a location, current events, or an interest of a user.

[0085] In some example embodiments, the computing device is a mobile device.

[0086] The present disclosure is not to be limited in terms of the particular embodiments described in this application, which are intended as illustrations of various aspects. Many modifications and variations can be made without departing from its spirit and scope, as will be apparent to those skilled in the art. Functionally equivalent methods and apparatuses within

the scope of the disclosure, in addition to those enumerated herein, will be apparent to those skilled in the art from the foregoing descriptions. Such modifications and variations are intended to fall within the scope of the appended claims.

CLAIMS

What is claimed is:

1. A computer-implemented method for automatic generation of content based on an aggregation of trending events, comprising:
 - determining, by a computing device, a topic of interest;
 - determining additional information related to the topic of interest, wherein the determining of the additional information comprises:
 - generating a prompt based on the topic of interest,
 - submitting the prompt to an information search and retrieval system, and
 - retrieving the additional information as an output of the information search and retrieval system;
 - generating, by a generative artificial intelligence model, a piece of annotated content associated with the topic of interest, wherein the piece of annotated content comprises media content annotated with at least one selectable graphical object that links to the additional information; and
 - providing, by the computing device, the piece of annotated content.
2. The computer-implemented method of claim 1, further comprising:
 - aggregating the retrieved additional information with data from one or more other sources.
3. The computer-implemented method of any of claims 1 or 2, wherein the topic of interest is associated with a popularity score that exceeds a popularity threshold.
4. The computer-implemented method of any of claims 1-3, wherein the information search and retrieval system is based on a large language model.
5. The computer-implemented method of any of claims 1-4, wherein the generative artificial intelligence model is based on a large language model.
6. The computer-implemented method of any of claims 1-5, wherein the providing of the piece of annotated content comprises automatically publishing the piece of annotated content to a social media platform.

7. The computer-implemented method of any of claims 1-6, wherein the media content is retrieved from a social media platform.
8. The computer-implemented method of any of claims 1-7, wherein the generating of the prompt comprises augmenting the topic of interest.
9. The computer-implemented method of any of claims 1-8, wherein the media content is one or more of an image, an audio content, a video content, a textual content, or a uniform resource locator (URL).
10. The computer-implemented method of any of claims 1-9, wherein the determining of the topic of interest is based on a user interaction with the computing device.
11. The computer-implemented method of claim 10, wherein the user interaction with the computing device comprises an interaction with an application program of the computing device.
12. The computer-implemented method of any of claims 1-11, wherein the providing of the piece of annotated content comprises automatically sending, by the computing device, the piece of annotated content to one or more additional users.
13. The computer-implemented method of any of claims 1-12, wherein the generative artificial intelligence model is located at a server remote to the computing device.
14. The computer-implemented method of any of claims 1-13, wherein the information search and retrieval system is an online search system.
15. The computer-implemented method of any of claims 1-14, wherein the topic of interest comprises an image.
16. The computer-implemented method of any of claims 1-15, wherein the determining of the topic of interest is based upon a location, current events, or an interest of a user.

17. A computing device, comprising:
one or more processors; and
data storage, wherein the data storage has stored thereon computer-executable instructions that, when executed by the one or more processors, cause the computing device to carry out functions comprising the computer-implemented method of any one of claims 1-16.
18. The computing device of claim 17, wherein the computing device is a mobile device.
19. A computer program comprising instructions that, when executed by a computer, cause the computer to perform steps in accordance with the method of any one of claims 1-16.
20. An article of manufacture comprising one or more non-transitory computer readable media having computer-readable instructions stored thereon that, when executed by one or more processors of a computing device, cause the computing device to carry out functions that comprise the computer-implemented method of any one of claims 1-16.
21. A system, comprising:
means for carrying out the computer-implemented method of any one of claims 1-16.