A Model for Interactive CSR Campaigns using Storytelling

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Abstract

Companies today are expected to engage in corporate social responsibility (CSR) and they spend a lot of time, money, and other resources on these tasks. However, in relation to their investment, the gain for most companies is marginal, because their efforts are only perceived by a small number of people. In this paper, our goal is to improve on this situation by involving a greater number of people in CSR campaigns and increasing media attention, while reducing expenses.

We propose a model that utilizes storytelling on alternate realities to link social media with CSR tasks. Consumers are engaged in a story through interactive storytelling interfaces, which allow them to contribute to the CSR campaign. The company is always able to monitor and control their running campaign and can profit from social media contributions that spread the campaign goals.

We describe the capabilities of the model as well as the problems it faces with storytelling on huge numbers of automatically extracted stories. The main challenge of the kind of storytelling we report is to find an adequate storytelling structure for an automatically generated story.

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1 Introduction

Corporate social responsibility (CSR) today is a major driver for a company's public image and the strength of their respective brands. But why do some CSR campaigns raise interest and create emotions, while others go almost unnoted? What is it that inspires people and makes them believe in the campaign's sincerity, message, and aim? One point that immediately springs to mind is the embedding in a good and engaging story together with a strong connection to current events, trends, or problems. Actually, once specific communities or even the general public really get emerged in a campaign's story the step to involvement is only little and the basic function of CSR is fulfilled.

But where to find such good and engaging stories, that lead a campaign to success? In this paper we propose a model describing the process of a computer-aided CSR campaign that needs story generation and storytelling methods to incorporate such stories.

One common aspect of engaging stories and interactive CSR campaigns is: They are successful as long as people are enjoying them or feel special. Fun and attention are two very important incentives to motivate people. So how can we give them these incentives? The foremost place in which people have fun and get attention is in games, which are created for entertainment. Even the most ordinary person can be a hero in a game world. Being a hero feels great and so people can easily get absorbed into good games. This is why people are attracted to games and like to participate in them.

But can we use that in CSR campaigns? We aim at turning CSR campaigns into game-like scenarios in

order to get people emotionally involved. Participants should be able to be heroes in our campaign.

A first step is to introduce game worlds to our CSR campaigns through alternate realities. These alternate realities have to be filled with stories that players can experience after their creation. Handcrafting all these stories is a very time consuming job and is often impossible in the scope of regular CSR campaigns. Thus, the stories have to be collected otherwise. We describe an approach of automated story generation and storytelling.

The remainder of the paper is organized as follows: We describe our model for computer-aided story writing in section 2. The next section covers related work for story managing processes in our model. Section 4 addresses the problem of experience management on extracted stories. Conclusions and future work are presented in the last section.

2 Storytelling for CSR

We propose a model for computer-aided story writing in CSR context. As shown in Figure 1 the model considers three parallel layers displaying different perspectives on reality. The bottom layer is the reality as seen by the company (corporate reality), the upper layer is the reality as seen by the general public (the *real world*), and the middle layer represents alternate realities that fuse stories from the other two layers.

Corporate reality is a company's perspective on the real world that is biased by its priorities (e.g. business processes, its history, and company goals). The real world is the reality as presented through social media stories of the online community. Alternate realities are certain perspectives on time and space introduced by a predefined lore.

All three perspectives are divided into the same three time slots: past, present time, and future. In order to make the model easier to explain, we partition it into nine segments depending on reality layer and time slot. In the past segments stories are collected or constructed. These story pools are used in the present time to generate a CSR story. This story and its impacts are presented in the future segments.

The following sections describe our model in greater detail. First, the nine segments are described according to their respective time slot, from past to future. Subsequently, the lifecycle of a CSR task is described and illustrated using the model.

2.1 Story Collection and Construction

2.1.1 Real World Story Sources

Online Social Media are an extensive reservoir of stories that take the form of videos, games, pictures, and texts. This model considers only textual stories from sources such as YouTube comments, tweets, blog entries, forum posts, and online news articles. These stories are contained in natural language text and have to be extracted to serve as representatives of the set of all real world stories. The details of story extraction are given in the related work section.

2.1.2 Alternate Reality Narrative

Different alternate reality layers differ by their lore. We define lore as a set of stories that introduces a story world providing a narrative setting in this alternate reality. An example for lore is *visiting aliens seeking to spread knowledge*. To expand the story world, lore compatible real world stories are selected, adapted to the lore, and integrated into the story world. For example the *one laptop per child* initiative could be adapted by being *attributed to alien influence* in this alternate reality.

Consumers can contribute to this augmented story, e.g. by *donating educational toys to elementary schools on behalf of the aliens*. We suggest that allowing users to take part in the story generation process through their own real world stories and having a limited influence on the campaign motivates contributions to the alternate reality and thus makes augmented story worlds the perfect space for running interactive story-based CSR tasks.

2.1.3 Corporate Background

Companies have their own collection of stories. These corporate stories include e.g. their history, business processes, advertising efforts, commitments, and past CSR campaigns. These stories determine how companies are perceived in the public and form the value of brand recognition for a company. CSR stories that are embedded in this corporate background in the process of computer-aided story writing gain believability.

2.2 CSR Integration

2.2.1 CSR Task

Imagine a company wants to start a new CSR campaign with a number of conditions, such as its budget, lifespan, and location. It commissions a CSR task in form of a story about the campaign goal, e.g. *providing better education to children*. This story is meant to reach and affect the public. In order to achieve that, the story has to be arranged accordingly. We apply computer-aided story writing to reshape the story.

2.2.2 Current Events

The adequacy of generated CSR stories strongly depends on events happening at creation time. For ex-

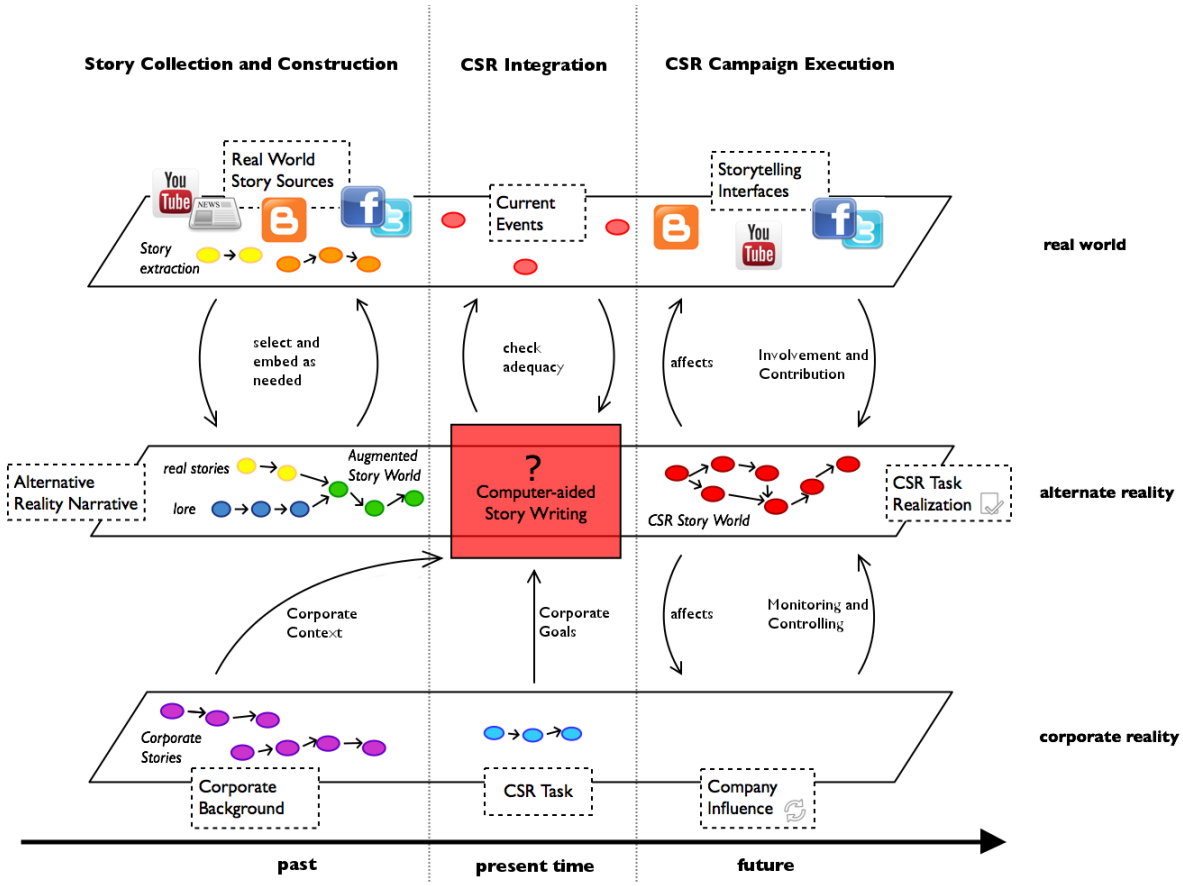

Figure 1: Model for computer-aided story writing.

ample, *the company should not donate educational toys to children that have been recently exposed to be results of child labor*. Thus, current events extracted from Social Media may have a significant impact on a CSR task's appropriateness and have to be considered at creation time. Event extraction and summarization are well known natural language processing techniques. See [7, 8] for surveys.

2.2.3 Computer-aided Story Writing

Computer-aided story writing is the core component of our model. It is a semi-automatic process that gets a number of different types of stories as input. These stories include augmented stories from story worlds, current events, corporate stories, and a CSR task. It aims at integrating the CSR task into alternate realities as presented by their story worlds, while incorporating the corporate stories and considering current events.

All alternate realities are considered for integration, but not all of them fit the CSR task equally well. Thus, only the best matching alternate reality is chosen to host the CSR task. Some stories from the alternate reality's story world are blended with the CSR task and a number of candidate stories are produced. These candidates are checked for adequacy against current events (e.g. *disclosed child labor*) and inadequate stories are pruned. We call the modified and adjusted story world the CSR story world.

In order to provide the consumer with an interesting and exciting story, a suitable storytelling structure is applied on the CSR story world. We define a storytelling structure as the way in which a story is told to the consumer. For example we consider Joseph Campbell's *the hero's journey* [2] as a storytelling structure.

2.3 CSR Campaign Execution

2.3.1 CSR Task Realization

The purpose of the CSR story world is to convey the CSR task to the public in an attractive, appealing, and interesting way through storytelling. The details of how stories from the CSR story world are told are provided by the corresponding storytelling structure. Storytelling interfaces enable the consumers to follow and contribute a story to the story world. The company monitors and controls the story world.

2.3.2 Storytelling Interfaces

CSR story worlds are presented to the real world by using a number of storytelling interfaces. These include but are not limited to the social web (e.g. tweets, news paper articles, real life activities). Consumers using these interfaces get in touch with the story world and can involve themselves by adding their stories. These contributions enrich the story world and have an impact on the corporate reality.

2.3.3 Company Influence on the CSR Story World

The current state of the CSR story world is monitored and adjusted as needed by the company. For quality management, the direction of the story world development might have to be corrected or the story world has to be adapted to the new direction. Quality management is a trade-off between the public's involvement and the company's ambitions. There is always the possibility that community ideas go viral. In such a case, the company can utilize this potential by making the necessary adjustments.

2.4 CSR Task Lifecycle

The model describes the lifecycle of a CSR task from its assignment, over the planning process, until its realization. During the lifecycle, stories are involved in a number of ways: Stories are (1) *detected and extracted* from large corpora of social media texts, (2) *represented* in a data structure, (3) *matched and merged* with lore to produce augmented story worlds, (4) *generated* by integrating the CSR task into augmented story worlds, and (5) *told* in an interesting and appealing fashion by using storytelling techniques.

The initial event in the model is the assignment of a new CSR task at present time. Computer-aided story writing is then used to plan the task's execution. It utilizes augmented story worlds in the process that have been build and kept up-to-date in the past. Construction of the story worlds involves *matching and merging* of real world stories and lore. The real world stories have previously been *detected and extracted* from social media and have been available in a certain *representation*.

The CSR task is integrated in a certain augmented story world and a CSR story world is *generated* that will be used in the future to *tell* the story to a number of consumers using storytelling interfaces. The consumers will interact with the CSR story world and can provide feedback in the form of stories. The feedback is monitored and controlled by the company in order to achieve the CSR task's goal.

3 Related Work

Storytelling has been an area of active research since at least the 1970's. A lot of work has been conducted in the field that we can build upon and storytelling has spread from natural language processing into many different fields, most notably artificial intelligence. Mateas provided a more detailed survey on the history of narrative intelligence and storytelling [11] and Gervás analyzed a number of prominent storytelling systems developed over the years [4]. In this section, we give more recent related work for each of the five ways that stories are involved in the CSR life cycle.

3.1 Story Detection and Extraction

Most early storytelling systems used handcrafted stories. Examples of such systems can be found in [11, 4]. Even today a lot of research is conducted on manually assembled stories. Most of the time, this is done due to a different research focus (e.g. [12]) and some recent approaches have used crowdsourcing to get a bigger number of stories [9, 10]. One could argue that these stories are somewhat extracted from crowdsourced story plots, but we still consider them handcrafted.

Automated detection and extraction of stories has been applied on structured and unstructured corpora. Structured corpora include the Open Mind Common Sense (OMCS) corpus [13] containing statements like e.g. *I switch TV on*, or *I watch evening news*. LifeNet [14] established a partial order on these events by using *before* relations. Other structured sources include how-to instructions from the web like eHow[1] and wikiHow[2]. Jung et.al. applied a combination of syntactic and probabilistic methods on these sources to mine structures similar to stories [15] in the field of automatic service composition.

Unstructured corpora like the Gigaword Corpus[3] and ICSW 2009 Spinn3r[4] include large collections of natural language texts. Story detection from such collections has been done e.g. by training classifiers that can separate stories and non-stories [5]. Gordon, Bejan, and Sagae detected one million personal stories from ICSW 2009 Spinn3r and 10.4 million personal stories from their own Spinn3r corpus using a classification approach [6]. Chambers and Jurafsky extracted narrative event chains from the Gigaworld Corpus [3].

[1] http://ehow.com
[2] http://wikihow.com
[3] http://catalog.ldc.upenn.edu/LDC2003T05
[4] http://icwsm.org/data

3.2 Story Representation

Most current storytelling approaches use the same basic idea of story representation: Scripts containing plot points that are ordered causally or temporally by *before* relations [3, 9, 10, 14, 15]. However, some approaches go beyond using just *simple* before relations:

Li et.al. [10] extended *before* relations by mutual exclusive links between events in order to faciliate more coherent stories. Riedl, Thue, and Bulitko employed partial-order causal link (POCL) plans, a combination of temporal and causal relations between events, leading to a directed acyclic graph. Jung et.al. [15] built an ontology with hasPreviousAction (*before*) and hasNextAction (*after*) relations from how-to instructions that form a temporal order. Chambers and Jurafsky [3] used the *narrative chain model* that relies on the assumption that every story has a protagonist. They used (*subject*, *predicate*, *object*) triples and detected protagonist actions through similarity matchings of subjects and objects. Thus, instead of linking events, they linked predicates with *before* relations.

3.3 Story Merging / Matching / Embedding

Merging stories is sometimes a necessary procedure, e.g. when combining several short descriptions into a more complex story. Then, several different stories have to be matched, merged and embedded as needed.

Li et.al. [9] built story scripts from short stories collected through crowdsourcing and dealt with merging similar events, establishing partial orders, and determining parallel events. The merged script is then revised in a second crowdsourcing task. They extended their work in a later publication [10] by also considering mutual exclusion between events originating from different stories, to improve the script's coherence. Jung et.al. [15] used similarity measures between eHow and wikiHow goals to integrate how-to instructions from different sources and users.

3.4 Story Generation

Story generation techniques are generally applied to a script (or similar structure) comprising a number of stories. Of all possible stories that can be told with the script, one is chosen.

Riedl, Thue, and Bulitko [12] used a planner to choose an event chain in a POCL plan that considered all temporal author goals among other events. This event chain is then told as a story. However, they noted that planning algorithms primarily serve as problem solvers and do not provide an arc of suspense that would make a good story. Jung et.al. [15] utilized user contexts to find appropriate stories from the how-to instructions. They matched the user action history to the action sequences of their story graphs and extracted candidate stories that were then presented to the user.

Brenner [1] introduced continual multiagent planning that involves multiple agents in the planning process of a story. Each agent has predefined sets of actions, capabilities of perception and communication, mutual beliefs, and goals. Brenner used the multi agent planning language (MAPL), an extension of the planning domain definition language and enables agents to collaboratively generate stories.

3.5 Storytelling

Causal progression of story plots does not necessarily produce "good" stories. The actions of the protagonists must also be comprehensible and the story has to be exciting. To produce such a story, Riedl, Thue, and Bulitko [12] used experience management for interactive stories which "is the process whereby a player's agency is balanced against the desire to bring about a coherent, structured narrative experience". They suggested an experience manager that adapts a story according to the play style of a player.

Brenner [1] denoted motivation and emotion as part of the "interesting aspects of narrative" that are not handled by state-of-the-art planners. He introduced goal dynamics into a story by allowing agents to adopt "temporary subgoals" (e.g. "when accepting a request by another agent") and enabled "multi-faceted personalities" through conditional goals. Thus, he enhanced the produced stories by simulating motivations through emotion.

4 Experience Management on Extracted Stories

We presented recent related work for each of the five ways in which stories are involved in the CSR life cycle. However, if recent storytelling systems are observed in greater detail, one fact attracts attention: Why is it, that no storytelling system covers all five ways? It seems that there is a lack of systems that do both – extract stories from social media sources and tell each individual story using an appropriate storytelling structure. Actually, others identified the same problem. Gervás [4] stated: "Because the issue of what should be valued in a story is unclear, research implementations tend to sidestep it, generally omitting systematic evaluation in favor of the presentation of hand-picked star examples of system output as means of system validation."

It seems to be the case that research on storytelling either focuses on automatic story extraction, or on telling the story in an encouraging way by using storytelling structures. To the best of our knowledge, we

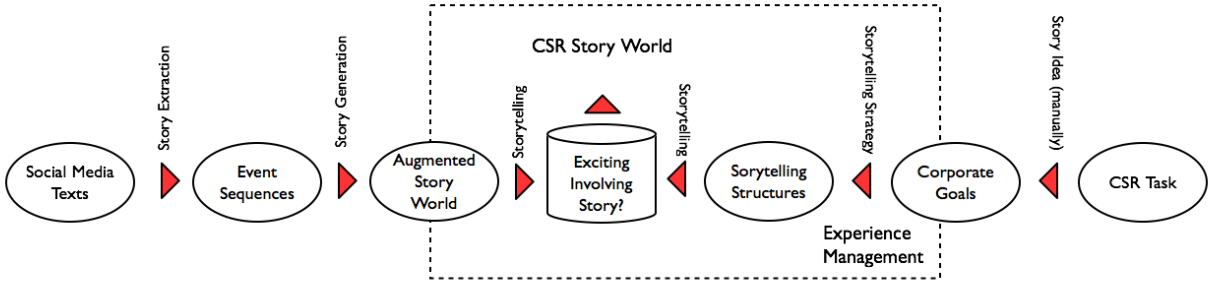

Figure 2: Experience management for computer-aided story writing.

were not able to find a system that combines both. As it turned out, this problem is also the core problem of computer-aided story writing.

Figure 2 presents the problem in the computer-aided story writing context, by introducing experience management: The box in the center contains the goal of experience management, an exciting and involving story. The left branch displays a simplified social media story extraction process as has been explained before and the right branch shows the CSR task development. While the left branch supplies the augmented story world, the right branch provides the means necessary to tell an interesting story.

Starting with the CSR task, a story idea leads to corporate goals (that are similar to Riedl, Thue, and Bulitko's *temporal author goals* [12]). Based on these corporate goals, appropriate storytelling structures are derived and mapped and merged with the story world. How this mapping and merging could be realized is the core problem of experience management in computer-aided story writing.

5 Conclusions and Future Work

In this paper we proposed a model for computer-aided story writing in CSR context. Our goal was to explore the possibilities of getting people involved in CSR campaigns by telling good and engaging stories. We have found our goal to be satisfied for the most part but identified a problem that seems to be present in state-of-the-art storytelling systems: Given a number of extracted stories and storytelling structures, how can an automated mapping of stories and appropriate storytelling structures be achieved?

We will address this problem in future contributions and want to encourage others to do likewise. A first approach could be a user study that evaluates the applicability of a number of manually crafted storytelling structures on extracted stories, in order to provide a baseline for approaches providing dynamic storytelling structures. This could help with evaluating systematically, "what should be valued in a story" [4].

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