

FBY - State of the Art

Similar approach

Paper	Date	Abstract	Type
Shaping a Social Robot's Humor with Natural Language Generation and Socially-Aware Reinforcement Learning	2018	Humor is an important aspect in human interaction to regulate conversations, increase interpersonal attraction and trust. For social robots, humor is one aspect to make interactions more natural, enjoyable, and to increase credibility and acceptance. In combination with appropriate non-verbal behavior, natural language generation offers the ability to create content on-the-fly. This work outlines the building-blocks for providing an individual, multimodal interaction experience by shaping the robot's humor with the help of Natural Language Generation and Reinforcement Learning based on human social signals.	Proposal

Fundamental papers

Paper	Date	Abstract	Type
Semantic Mechanisms of Humor Victor Raskin	1985	-	Fundamental

Other papers

Paper	Date	Abstract	Type
Computational Humour: Utilizing Cross-Reference Ambiguity for Conversational Jokes	2007	This paper presents a computer implementation that utilizes cross-reference ambiguity in utterances for simple conversational jokes. The approach is based on the SSTH. Using a simple script representation, it is shown that cross-reference ambiguities always satisfy the SSTH requirement for script overlap. To determine whether script opposition is present, we introduce a method that compares the concepts involved based on their semantic properties. When a given cross-reference ambiguity results in script opposition it is possible to generate a punchline based on this ambiguity. As a result of the low performance of the anaphora resolution algorithm and the data sparseness in ConceptNet the application performs moderately, but it does provide future prospects in generating conversational humour.	Generation
Humorist Bot: Bringing Computational Humour in a Chat-Bot System	2008	A conversational agent, capable to have a "sense of humour" is presented. The agent can both generate humorous sentences and recognize humoristic expressions introduced by the user during the dialogue. Humorist Bot makes use of well founded techniques of computational humor and it has been implemented using the ALICE framework embedded into an Yahoo! Messenger client. It includes also an avatar that changes the face expression according to humoristic content of the dialogue.	Detection
Computational Humour	2010	Computational humour is a challenge with connections and implications in many artificial intelligence areas, including natural language processing, intelligent human–computer interaction, and reasoning, as well as in other fields such as cognitive science, linguistics, and psychology. Of particular interest is its connection to emotions. In this chapter we overview the basic theories of humour and present the main contributions made in the field of computational verbal humour, including applications for automatic humour generation and humour recognition.	Overview
Computational Models for Incongruity Detection in Humour	2010	Incongruity resolution is one of the most widely accepted theories of humour, suggesting that humour is due to the mixing of two disparate interpretation frames in one statement. In this paper, we explore several computational models for incongruity resolution. We introduce a new data set, consisting of a series of 'set-ups' (preparations for a punch line), each of them followed by four possible coherent continuations out of which only one has a comic effect. Using this data set, we redefine the task as the automatic identification of the humorous punch line among all the plausible endings. We explore several measures of semantic relatedness, along with a number of joke-specific features, and try to understand their appropriateness as computational models for incongruity detection.	Detection

Multiagent system for joke generation: Humor and emotions combined in human-agent conversation	2010	In this paper we present an innovative work on a multiagent joking conversational system. In our research so far we have shown that implementing humor into a chatterbot can visibly improve its performance. The results presented in this paper are the outcome of the next step of our work. They show that a multiagent system, combining a conversational agent, a pun generator and an emotiveness analysis engine, works reasonably well in interactions with users. In the setup used in this research, the emotiveness analysis agent analyses users' utterances and decides whether it is appropriate to tell a pun. Depending on the results of this analysis, the agent chooses either the pun generator, if the decision is that a joke should be told, or the non-humor-equipped agent when the decision is different. Two evaluation experiments were conducted: user (first person) focused and automatic (emotiveness-analysis-based). In both, we compared the performance of the multiagent joking system and a baseline (non-humorous) conversation agent. The results show that in both cases the humor-equipped engine was evaluated as better than the baseline agent. The results are discussed and some ideas for the future are given.	Interaction
Unsupervised joke generation from big data	2013	Humor generation is a very hard problem. It is difficult to say exactly what makes a joke funny, and solving this problem algorithmically is assumed to require deep semantic understanding, as well as cultural and other contextual cues. We depart from previous work that tries to model this knowledge using ad-hoc manually created databases and labeled training examples. Instead we present a model that uses large amounts of unannotated data to generate I like my X like I like my Y, Z jokes, where X, Y, and Z are variables to be filled in. This is, to the best of our knowledge, the first fully unsupervised humor generation system. Our model significantly outperforms a competitive baseline and generates funny jokes 16% of the time, compared to 33% for human-generated jokes.	Generation
Different Knowledge, Same Joke: Response-Based Computational Detection of Humor	2015	The paper explores the very basis of linguistic theories of humor with a view of applying them to computational humor. Computation requires tighter definitions. The paper analyzes joke-carrying texts based on the existing script-based methods. It compares jokes that have the same setup but different punchlines by examining the background knowledge that should be available to detect humor. It then moves into jokes where the same joke text elicits different responses from the reader, and conjectures that the responses are based on the readers' world knowledge and preferences. Such responses make it possible not only to analyze humor, but also to understand more about the people that produce the responses.	Detection
Humor Recognition and Humor Anchor Extraction	2015	Humor is an essential component in personal communication. How to create computational models to discover the structures behind humor, recognize humor and even extract humor anchors remains a challenge. In this work, we first identify several semantic structures behind humor and design sets of features for each structure, and next employ a computational approach to recognize humor. Furthermore, we develop a simple and effective method to extract anchors that enable humor in a sentence. Experiments conducted on two datasets demonstrate that our humor recognizer is effective in automatically distinguishing between humorous and non-humorous texts and our extracted humor anchors correlate quite well with human annotations.	Detection
Humor Utterance Generation for Non-task-oriented Dialogue Systems	2015	We propose a humor utterance generation method that is compatible with dialogue systems, to increase "desire of continuing dialogue". A dialogue system retrieves leading-item:noun pairs from Twitter as knowledge and attempts to select the most humorous reply using word similarity, which reveals that incongruity can be explained by the incongruity-resolution model. We consider the differences among individuals, and confirm the validity of the proposed method. Experimental results indicate that high-incongruity replies are significantly effective against low-incongruity replies with a limited condition.	Proposal
Laughter and Humour as Conversational Mind-Reading Displays	2016	Laughter and humor are pervasive phenomena in conversational interactions. This paper argues that they function as displays of mind-reading abilities in social interactions—as suggested by the Analogical Peacock Hypothesis (APH). In this view, they are both social bonding signals and can elevate one's social status. The relational combination of concepts in humor is addressed. However, it is in the inclusion of context and receiver knowledge, required by the APH view, that it contributes the most to existing theories. Taboo and offensive humor are addressed in terms of costly signaling, and implications for human computer interaction and some possible routes to solutions are suggested.	Interaction
Machine humour: examples from Turing test experiments	2016	In this paper, we look at the possibility of a machine having a sense of humour. In particular, we focus on actual machine utterances in Turing test discourses. In doing so, we do not consider the Turing test in depth and what this might mean for humanity, rather we merely look at cases in conversations when the output from a machine can be considered to be humorous. We link such outpourings with Turing's "arguments from various disabilities" used against the concept of a machine being able to think, taken from his seminal work of 1950. Finally we consider the role that humour might play in adding to the deception, integral to the Turing test, that a machine in practice appears to be a human.	Overview
Computational generation and dissection of lexical replacement humor	2016	We consider automated generation of humorous texts by substitution of a single word in a given short text. In this setting, several factors that potentially contribute to the funniness of texts can be integrated into a unified framework as constraints on the lexical substitution. We discuss three types of such constraints: formal constraints concerning the similarity of sounds or spellings between the original word and the substitute, semantic or connotational constraints requiring the substitute to be a taboo word, and contextual constraints concerning the position and context of the replacement. Empirical evidence from extensive user studies using real SMSs as the corpus indicates that taboo constraints are statistically very effective, and so is a constraint requiring that the substitution takes place at the end of the text even though the effect is smaller. The effects of individual constraints are largely cumulative. In addition, connotational taboo words and word position have a strong interaction.	Generation

#HashtagWars: Learning a Sense of Humor	2016	In this work, we present a new dataset for computational humor, specifically comparative humor ranking, which attempts to eschew the ubiquitous binary approach to humor detection. The dataset consists of tweets that are humorous responses to a given hashtag. We describe the motivation for this new dataset, as well as the collection process, which includes a description of our semi-automated system for data collection. We also present initial experiments for this dataset using both unsupervised and supervised approaches. Our best supervised system achieved 63.7% accuracy, suggesting that this task is much more difficult than comparable humor detection tasks. Initial experiments indicate that a character-level model is more suitable for this task than a token-level model, likely due to a large amount of puns that can be captured by a character-level model.	Dataset
In pursuit of human-friendly interaction with a computational system: Computational humor	2017	With AI celebrating its 60 th anniversary, questions arise of when (not even if) a computational system will be able to understand humor. These questions open up interesting opportunities, but point out areas of research that yet are insufficient for informal human computer communication. This paper looks at computational humor as a way of verifying computational understanding of text (written or verbal). In particular, we treat ontology as a knowledge representation mechanism and natural language as a vehicle delivering this knowledge. A true ontology should provide a world model for the described domain, identifying its main concepts and tying them together with all relevant contentful properties. The question is how to get this model from text accurately? Assuming, as we do, that there is an accurate and unambiguous way of getting explicitly stated information from text, a lot of information is, in fact, implicit and yet crucial to the world model that we are creating. This implicit information has to be made explicit at the reasoning stage if we hope to come up with the results similar to human reasoning or understanding. In this paper, we will look at various ways, requiring optimal human-computer hybrid collaboration, in which ontology helps text understanding for humor processing, and text helps with dynamic ontology development. We hypothesize that such communication will be helpful for interaction with any computational system in a human-friendly way in general, and for robots in particular.	Interaction
Elements of Humor: How Humans Perceive Verbal and Non-verbal Aspects of Humorous Robot Behavior	2017	We performed a preliminary online survey to explore if verbal and non-verbal robot humor elements influence how humans rate a robot's funniness. The video-based survey comprised four conditions, each showing a short clip of a NAO robot in a receptionist scenario, showing different behavior. Although participants' ratings of the funniness level did not differ significantly between robot behaviors, we interpret this result as an indicator that humor is not made from single elements. Humor is multilayered and often only works when different signals are combined. Creating funny robots will require more detailed research on multimodal behaviors.	Interaction
SRHR at SemEval-2017 Task 6: Word Associations for Humour Recognition	2017	This paper explores the role of semantic relatedness features, such as word associations, in humour recognition. Specifically, we examine the task of inferring pairwise humour judgments in Twitter hashtag wars. We examine a variety of word association features derived from University of Southern Florida Free Association Norms (USF) and the Edinburgh Associative Thesaurus (EAT) and find that word association-based features outperform Word2Vec similarity, a popular semantic relatedness measure. Our system achieves an accuracy of 56.42% using a combination of unigram perplexity, bigram perplexity, EAT difference (tweet-avg), USF forward (max), EAT difference (word-avg), USF difference (word-avg), EAT forward (min), USF difference (tweet-max), and EAT backward (min).	Detection
A Temporal Community Contexts Based Funny Joke Generation	2017	It is still a long way to communicate humans and machines emotionally. There are some tries to provide sentimental conversations among humans and machines. Computational humor is one of research topics in computational linguistics and artificial intelligence. We introduce a new method to generate jokes in a sentence related temporal and spatial contexts for continuous conversations with images. We propose a novel model based on a recurrent neural network with natural language processing (NLP) and understanding (NLU) methods. The method generates jokes in a sentence considering temporal and spatial context. The method can joke to trend sensitive users according to different points of humor that vary from region to region. Through this, the user can feel the interest of the conversational service with humorous responses or contents. We apply the method to some applications such as psychiatric counseling and stress management to enhance the applicability of conversational service.	Generation
A Pinch of Humor for Short-Text Conversation: An Information Retrieval Approach	2017	The paper describes a work in progress on humorous response generation for short-text conversation using information retrieval approach. We gathered a large collection of funny tweets and implemented three baseline retrieval models: BM25, the query term reweighting model based on syntactic parsing and named entity recognition, and the <i>doc2vec</i> similarity model. We evaluated these models in two ways: <i>in situ</i> on a popular community question answering platform and in laboratory settings. The approach proved to be promising: even simple search techniques demonstrated satisfactory performance. The collection, test questions, evaluation protocol, and assessors' judgments create a ground for future research towards more sophisticated models.	Dataset
Neural Joke Generation	2017	Humor generation is a very hard problem in the area of computational humor. In this paper, we present a joke generation model based on neural networks. The model can generate a short joke relevant to the topic that the user specifies. Inspired by the architecture of neural machine translation and neural image captioning, we use an encoder for representing user-provided topic information and an RNN decoder for joke generation. We trained the model by short jokes of Conan O'Brien with the help of POS Tagger. We evaluate the performance of our model by human ratings from five English speakers. In terms of the average score, our model outperforms a probabilistic model that puts words into slots in a fixed-structure sentence.	Generation

Recognizing Humour using Word Associations and Humour Anchor Extraction	2018	This paper attempts to marry the interpretability of statistical machine learning approaches with the more robust models of joke structure and joke semantics capable of being learned by neural models. Specifically, we explore the use of semantic relatedness features based on word associations, rather than the more common Word2Vec similarity, on a binary humour identification task and identify several factors that make word associations a better fit for humour. We also explore the effects of using joke structure, in the form of humour anchors (Yang et al., 2015), for improving the performance of semantic features and show that, while an intriguing idea, humour anchors contain several pitfalls that can hurt performance.	Detection
Automatic Joke Generation: Learning Humor from Examples	2018	Computational humor systems often employ explicit rules encoding assumptions about what constitutes a funny joke. This paper explores how a program can teach itself to generate jokes based on a corpus of rated example jokes. We implement a system called <i>Generalized Analogy Generator</i> (Gag) capable of generating jokes using the “I like my X like I like my Y, Z” template. We use established humor theory and extend computational humor concepts to allow the system to learn the structures of the given jokes and estimate how funny people might find specific instantiations of joke structures. We also implement a platform for the collection of jokes and their ratings, which are used for the training data and evaluation of the system. Since Gag uses generalized components and learns its own schemas, this program successfully generalizes the most well-known analogy generator in the computational humor field.	Generation
“Is This A Joke?”: A Large Humor Classification Dataset	2018	Humor is an essential characteristic of language. It has been a topic of research in linguistics and philosophy from historical times. In computer science, computational humor, as a part of Natural Language Processing, is a growing area of research. Social Media is rapidly growing as a platform for communication but processing of social media, owing to its semantic perplexity, is still a challenge. These two facts lead us to present a novel dataset for humor classification which captures diversity in humor on web resources. The large size of this dataset is to meet the data requirements for modern machine learning algorithms. This paper also deals with creating a model for detecting and analyzing humor in social media text extracted from eclectic sources on the Internet.	Dataset
Knowledge Amalgam: Generating Jokes and Quotes Together	2018	Generating humor and quotes are very challenging problems in the field of computational linguistics and are often tackled separately. In this paper, we present a controlled Long Short-Term Memory (LSTM) architecture which is trained with categorical data like jokes and quotes together by passing category as an input along with the sequence of words. The idea is that a single neural net will learn the structure of both jokes and quotes to generate them on demand according to input category. Importantly, we believe the neural net has more knowledge as it's trained on different datasets and hence will enable it to generate more creative jokes or quotes from the mixture of information. May the network generate a funny inspirational joke!	Generation
Overview of HAHAt IberLEF 2019: Humor Analysis based on Human Annotation	2019	This paper presents the results of the HAHAt IberLEF 2019, the second edition of the challenge on automatic humor recognition and analysis in Spanish. The challenge consists of two subtasks related to humor in language: automatic detection and automatic rating of humor in Spanish tweets. This year we used a corpus of 30,000 annotated Spanish tweets labeled as humorous or non-humorous and the humorous ones contain a funniness score. A total of 18 participants submitted their systems obtaining good results overall, we present a summary of their systems and the general results for both subtasks.	Detection
Fuzziness and Humor: Aspects of Interaction and Computation	2019	The paper addresses the fuzzy status of verbal humor for the first time in studies of fuzziness as well as in humor research. After a brief introduction to a dominant class of linguistic theories of humor, it focuses on the ontological semantic theory of humor, where the relationship is made obvious and reaches the computational level of formality. A couple of ordinary jokes are analyzed both within ontological semantics and from the point of view of fuzziness. The final section illustrates how native speakers manipulate fuzziness in humor by maximizing the membership functions.	Interaction
Towards a General Framework for Humor Generation from Rated Examples	2019	Many computer systems are becoming increasingly tailored to their users, customizing and optimizing their experience. However, most conversational agents do not follow this trend when it comes to humorous interactions. Instead, they employ pre-written answers regardless of whether the user liked previous similar interactions. While there already exist several computational humor systems that can successfully generate jokes, their joke generation models, parameters or even both are often fixed. In this paper, we propose GOOFER, a general framework for computational humor that learns joke structures and parameterizations from rated example jokes. This framework uses metrical schemas, a new notion we introduce, which are a generalization of several types of other schemas. This new type of schema makes regular schemas compatible with machine learning techniques. We also propose a strategy for identifying useful humor metrics based on humor theory, which can be used as features for the machine learning algorithm. The GOOFER framework uses these novel concepts to construct a pipeline with new components around previous generators. Using a mapping to our previous work on analogy jokes, we show that this framework cannot only generate this type of jokes well, but also find the importance of specific humor metrics for template values. This indicates that it is on the right track towards joke generation systems that can automatically learn new templates and schemas from rated examples. This work thus forms a stepping stone towards creating programs with a sense of humor that is adaptable to the user.	Proposal

What Do You Mean I'm Funny? Personalizing the Joke Skill of a Voice-Controlled Virtual Assistant	2019	A considerable part of the success experienced by Voice-controlled virtual assistants (VVA) is due to the emotional and personalized experience they deliver, with humor being a key component in providing an engaging interaction. In this paper we describe methods used to improve the joke skill of a VVA through personalization. The first method, based on traditional NLP techniques, is robust and scalable. The others combine self-attentional network and multi-task learning to obtain better results, at the cost of added complexity. A significant challenge facing these systems is the lack of explicit user feedback needed to provide labels for the models. Instead, we explore the use of two implicit feedback-based labelling strategies. All models were evaluated on real production data. Online results show that models trained on any of the considered labels outperform a heuristic method, presenting a positive real-world impact on user satisfaction. Offline results suggest that the deep-learning approaches can improve the joke experience with respect to the other considered methods.	Generation
A Neural Approach to Irony Generation	2019	Ironies can not only express stronger emotions but also show a sense of humor. With the development of social media, ironies are widely used in public. Although many prior research studies have been conducted in irony detection, few studies focus on irony generation. The main challenges for irony generation are the lack of large-scale irony dataset and difficulties in modeling the ironic pattern. In this work, we first systematically define irony generation based on style transfer task. To address the lack of data, we make use of twitter and build a large-scale dataset. We also design a combination of rewards for reinforcement learning to control the generation of ironic sentences. Experimental results demonstrate the effectiveness of our model in terms of irony accuracy, sentiment preservation, and content preservation.	Generation
Humor Detection: A Transformer Gets the Last Laugh	2019	Much previous work has been done in attempting to identify humor in text. In this paper we extend that capability by proposing a new task: assessing whether or not a joke is humorous. We present a novel way of approaching this problem by building a model that learns to identify humorous jokes based on ratings gleaned from Reddit pages, consisting of almost 16,000 labeled instances. Using these ratings to determine the level of humor, we then employ a Transformer architecture for its advantages in learning from sentence context. We demonstrate the effectiveness of this approach and show results that are comparable to human performance. We further demonstrate our model's increased capabilities on humor identification problems, such as the previously created datasets for short jokes and puns. These experiments show that this method outperforms all previous work done on these tasks, with an F-measure of 93.1% for the Puns dataset and 98.6% on the Short Jokes dataset.	Detection
UR-FUNNY: A Multimodal Language Dataset for Understanding Humor	2019	Humor is a unique and creative communicative behavior displayed during social interactions. It is produced in a multimodal manner, through the usage of words (text), gestures (vision) and prosodic cues (acoustic). Understanding humor from these three modalities falls within boundaries of multimodal language; a recent research trend in natural language processing that models natural language as it happens in face-to-face communication. Although humor detection is an established research area in NLP, in a multimodal context it is an understudied area. This paper presents a diverse multimodal dataset, called UR-FUNNY, to open the door to understanding multimodal language used in expressing humor. The dataset and accompanying studies, present a framework in multimodal humor detection for the natural language processing community. UR-FUNNY is publicly available for research.	Dataset
Reverse-Engineering Satire, or "Paper on Computational Humor Accepted Despite Making Serious Advances"	2019	Humor is an essential human trait. Efforts to understand humor have called out links between humor and the foundations of cognition, as well as the importance of humor in social engagement. As such, it is a promising and important subject of study, with relevance for artificial intelligence and human-computer interaction. Previous computational work on humor has mostly operated at a coarse level of granularity, e.g., predicting whether an entire sentence, paragraph, document, etc., is humorous. As a step toward deep understanding of humor, we seek fine-grained models of attributes that make a given text humorous. Starting from the observation that satirical news headlines tend to resemble serious news headlines, we build and analyze a corpus of satirical headlines paired with nearly identical but serious headlines. The corpus is constructed via this http URL , an online game that incentivizes players to make minimal edits to satirical headlines with the goal of making other players believe the results are serious headlines. The edit operations used to successfully remove humor pinpoint the words and concepts that play a key role in making the original, satirical headline funny. Our analysis reveals that the humor tends to reside toward the end of headlines, and primarily in noun phrases, and that most satirical headlines follow a certain logical pattern, which we term false analogy. Overall, this paper deepens our understanding of the syntactic and semantic structure of satirical news headlines and provides insights for building humor-producing systems.	Dataset