Where the computers and Arts meet

Artificial Poetry

By

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The plan

Creativity and the stages of creative process

Computational Creativity

Artificial Poetry

Types of artificial poetry

Poetry using bigram and wordnet

Some demonstrations in between

Why motivated?

Computers can do many things that human beings can do. Some times better.

Try this:

1231467284678*3632778937982793987/7237378

 Computers are put in "Technology " and the "science " category.

All the arts are by human.

So why should the computers be behind.

What is creativity?

Creativity refers to the invention or origination of any new thing (a product, solution, artwork, literary work, joke, etc.) that has value. "New" may refer to the individual creator or the society or domain within which novelty occurs. "Valuable", similarly, may be defined in a variety of ways.

-wikipedia

The Five stages of creativity:

1. *Possibility:*

   You might have some interesting starter ideas, but really, you probably have nothing.

   "Here's a cool idea. Here's another one. And another. Man, I'm pretty good."

2. *Doubt*:

   As you begin to look at your ideas more closely, you realize, um… they're actually not that great. Doubt sets in and uncertainty set in. You might become defensive, and start questioning the process, and yourself.

3. *Agony*
The most grueling of all steps in the creative process, this stage is a red-blooded struggle. Nothing seems to work. Your co-workers get stressed by the perceived lack of progress.

4. *Epiphany*
You've done it! You've just invented a big, new idea. With a burst of energy and relief, your breakthrough has happened.

5. *Finesse*

Now you're crafting the raw idea to be more strategic and purposeful. Your skill and training really begins to shine through, as you sharpen and refine your concept into the best possible execution.

Computational Creativity

Computational creativity (also known as artificial creativity, mechanical creativity or creative computation) is a multidisciplinary Endeavour that is located at the intersection of the fields of artificial intelligence, cognitive psychology, philosophy, and the arts.

-Wikipedia

Goals of Computational Creativity

- To construct program capable of human level creativity

- to better understand human creativity and to formulate an algorithmic perspective on creative behavior in humans

- to design programs that can enhance human creativity without necessarily being creative themselves

Types of creativity

- Music

Its about creating music using computers.

EMI is a good example.

It extends to Experiments in Musical Intelligence.

It was developed by David cope and generates classical music.

Ascii Art Generators

Linguistic creativity

- Story Generation
- Analogy
- Joke generation
- Neologism

"Farhanitrate and **Prerajulisation"**

Sounds Familiar !!!

Artificial Poetry

Generation of Poetry that uses forms and conventions to suggest differential interpretation to words, or to evoke emotive responses using computers.

Types of artificial poetry

Iterative Approach from an object list.

objectlist=

['the things I have',

 'the people I love',

 'the labors I do',

 'the perceptions I experience',

 'the thoughts I think',

'the emotions I feel',

 'the rules I follow']

The Steps

Let "item" be an element in object list

Step 1:'I am not '+item

But at this moment...

Step 2:item+' become me.'(reverse order)

Step 3:item(random)

But I will be unhappy if I forget . . .

Step 4: 'I am not '+item

Template based

Its like fill in the blanks....

ONE THING

1. **Unique things for you** e.g. heart

heart

2. **someone or something you loved** e.g. kitty or mick

kitty

3. **verb** e.g. cry or work

fight

!!!Something you want to say:

Write Poem Now

One heart

http://www.aipoem.com

One heart for the kitty's pride
One heart for the times we fight
One heart gotta stay alive.. .I will survive
One heart for the city streets
One heart for the hip hop beats
One heart oh I do believe
One heart is all we need

There are other approaches:

Evolutionary Algorithms

General points:

i)The scoring function can be made to give a higher scores to sentences that rhyme most has more aliterations metre etc.

ii)randomness is well suited for "creativity" in poem generation(mutation in th EA approach)

Some of EA poetry

The cat is the cat which is dead.

The bread which is gone is the bread.

The cat which consumed

the bread is the cat

which gobbled the bread which is gone.

Sample output from ELUAR

Sparkles of whiteness fly in my eyes,

The moan of stars swang branches of trees,

The heart of time sings in the snowy night.

Seconds of Eternity fly in grass,

The Clock of rain turns,

Death of the Apples,

The Equinox penetrates the words.

Sample output from ALFRED

wheresoever amorphous – just barely the nightclub,

howsoever apostolic amidst a calamity,

a dragon will irrigate a Copernican currant – an emphysema.

His cowlick must have incinerated a housebroken revelry as per a melamine.

your inactive hydrocarbon could atone.

Lets have a digression

Fun with syllables and words

The STANDUP joke generator:

It is a software that generates jokes on the fly.

Joke generators:

JAPE:

Graeme Ritchie and Kim Binsted in their 1994 research paper described a computer program, JAPE, designed to generate question-answer-type pun from a general, i.e., non-humorous, lexicon.

(The program name is an acronym for "Joke Analysis and Production Engine".)

Some examples produced by JAPE are:

Q: What is the difference between leaves and a car?

A: One you brush and rake, the other you rush and brake.

Q: What do you call a strange market?

A: A bizarre bazaar.

STANDUP:

Since then[1994] the approach has been improved, and the latest report, dated 2007, describes the STANDUP joke generator, implemented in Java programming language. The STANDUP generator was tested on children within the framework of analyzing its usability for language skills development for children with communication disabilities, e.g., because of cerebral palsy.

STANDUP(Cont...)

(The project name is an acronym for "System To Augment Non-speakers' Dialog Using Puns" and an allusion to standup comedy.) Children responded to this "language playground" with enthusiasm, and showed marked improvement on certain types of language tests.

Some Jokes generated by STANDUP:

What do you get when you cross a GOD Almighty and a plan .A divine design .

How is a gray start like a dense point. They are kind of dull beginning.

Infinite monkey theorem

The **infinite monkey theorem** states that a monkey hitting keys at <u>random</u> on a typewriter keyboard for an infinite amount of time will almost surely type a given text, such as the complete works of William Shakespeare.

Why cant the computer do it??

Some words of wisdom

"It had seen all your head
Like an idea has gone mad
Or other man in one is
In an air as a crisis
Personalities may come back a good
Thing like a good sense stood"

The wordnet based approach

The extension of the next word prediction.
(Bigrams)
Some Math:

$$\text{argmax} \sum_{(Nw)} \sum_{(Tw)} I(Tw) * sim(Syn(Nw), Syn(Tw))$$

Where argmax is over Nw
Here nw=argmax(wi,wj) maximizing over wj
Sim is a similarity function
Syn(W) refers to the synset of the words
Tw is text word.Nw is the next possible word.

Add some rhymes and Simile

Eureka !!

We have a poetry generator.

i)For rhymes we matched the last two or three letters of the last word.

Could have done better .(Parallel phoneme corpus.)

ii)For simile give "like" a higher probability as next word.

Rhyme is not about matching letters

Why not match syllables instead of end letters for rhyming. Thanks to CMU dictionary we have the syllables.

('fir', ['F', 'ER1'])
('fire', ['F', 'AY1', 'ER0'])
('fire', ['F', 'AY1', 'R'])
('firearm', ['F', 'AY1', 'ER0', 'AA2', 'R', 'M'])
('firearm', ['F', 'AY1', 'R', 'AA2', 'R', 'M'])
('firearms', ['F', 'AY1', 'ER0', 'AA2', 'R', 'M', 'Z'])

Results :
Poem 1:

Is so is in a long

Time is so as one long

Wilt have taken away at length

A time is no matter belongeth

Not so great !!!

(Some old english words were used)

Poem 2:Fail(☹)

Can give way he saw nothing

Like me not know you going

Away in one end it had

Seen all to make out again

"But If everyone understands the poem. It cant be a poem"

Poem 3:

"It had seen all your head
Like an idea has gone mad
Or other man in one is
In an air as a crisis
Personalities may come back a good
Thing like a good sense stood"

It's the same "word of wisdom presented before"
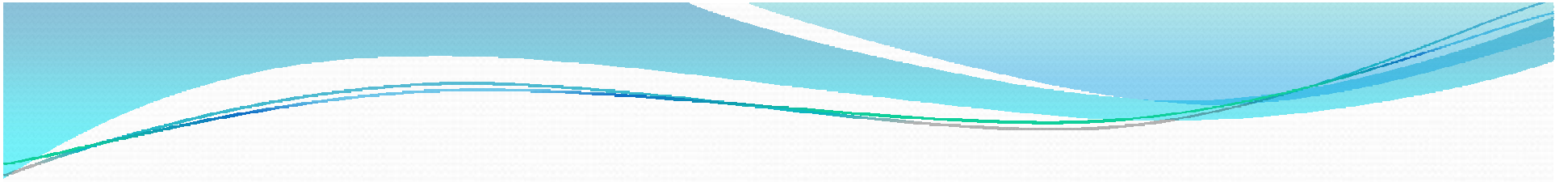
"Makes some sense"

Conclusions

- Computers can be creative . They can be used in a creative way .
- But at the moment man is better than computer in case of poetry generation
- It requires human involvement in artificial poem generation,
- A complete unsupervised approach is difficult.

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Thank You

Questions??