

# **CREATIVE ZOMBIE APOCALYPSE**

**A CRITIQUE OF COMPUTER CREATIVITY  
EVALUATION**

Fania Raczinski & Dave Everitt



# (PHILOSOPHICAL) ZOMBIES

Hypothetical entities that appear identical to humans in every way but lack conscious experience. <sup>[1]</sup>

*Machines that act creatively but aren't conscious.*

# INTRODUCTION

|                    |   |                          |
|--------------------|---|--------------------------|
| Creative Computing | ≠ | Computational Creativity |
| Subjectivity       | > | Objectivity              |
| Humanity           | > | Technology               |
| Knowledge          | > | Information              |
| Qualitative        | > | Quantitative             |
| Semantics          | > | Syntax                   |
| ?                  | > | Anthropomorphism         |



A close-up photograph of a robotic arm, likely from a prosthetic or research project, holding a human skull. The arm is dark and metallic, with various joints and wires visible. The skull is light-colored and positioned in the upper right quadrant of the frame. The background is dark and out of focus.

# NEIL MCBRIDE

*The uncodifiable must be reduced to the codable  
in the robot.*

*In reducing a complex moral decision... to... a set  
of coded instructions, we are throwing away vast  
stretches of knowledge, socialisation and  
learning not only built up in the individual, but  
also in... the history of that community, and  
replacing it with some naïve 'yes' or 'no'  
decisions. <sup>[2]</sup>*



A photograph of Harold Cohen, an older man with glasses and a beard, standing next to a large, complex machine used for creating digital art. The machine has a large screen displaying a colorful, abstract painting. The machine is made of metal and has various components, including a large screen, a control panel, and a series of small containers at the bottom. The background shows a window with a view of a city skyline.

# HAROLD COHEN

*AARON is an entity, not a person; and its unmistakable artistic style is a product of its entitality, if I may coin a term, not its personality.*

*I don't regard AARON as being creative; and I won't, until I see the program doing things it couldn't have done as a direct result of what I had put into it. <sup>[3]</sup>*

# INITIAL QUESTIONS



---

programmer



user



machine



product



process



---

local



networked



web-based

# MODELS

- Output minus Input [\[4\]](#)
- Measuring against specific criteria  
[\[4,5,6,7,8,9,10\]](#)
- NOT product minus process [\[4\]](#)
- Creative Tripod [\[11,12\]](#)
- Ontology of creativity [\[10,13\]](#)
- SPECS [\[14\]](#)
- MMCE [\[15\]](#)



# HAROLD COHEN

*How far could I justify the claim that my computer program—or any other computer program—is, in fact, creative? I'd try to address those questions if I knew what the word 'creative' meant: or if I thought I knew what anyone else meant by it.*

*'Creative' is a word I do my very best never to use if it can be avoided. <sup>[3]</sup>*



# 5 P CRITERIA



---

Product

Process

Purpose

Person

Place

# 7 KEYWORD GROUPS



---

Novelty

Value

Quality

Purpose



---

Spatial

Temporal

Ephemeral

# DETAILS

## Novelty:

originality, newness, variety, typicality, imagination, archetype, surprise

## Value:

usefulness, appropriateness, appreciation, relevance, impact, influence

## Quality:

skill, efficiency, competence, intellect, acceptability, complexity

## Purpose:

intention, communication, evaluation, aim, independence

## Spatial:

context, environment, press

## Temporal:

persistence, results, development, progression, spontaneity

## Ephemeral:

serendipity, randomness, uncertainty, experimentation, emotional response



# NEIL MCBRIDE

*The expression of our language systems in computer code confers no semantic understanding autonomously on the computer system.*

*The computer... only acts as a **tool** for transferring symbols and communicating meaning between humans <sup>[2]</sup>*



# INTUITIVE EVALUATION

Creativity could be said to be more likely to *emerge* from activities that stimulate, enable or *constrain* these properties.

We reject a check-box approach and suggest *scales* for a more intuitive evaluation.

These represent emergence better than checklists...



# SCALES

| Keyword   | Scale       |   |              |
|-----------|-------------|---|--------------|
| Novelty   | Established | ↔ | Novel        |
| Value     | Playful     | ↔ | Purposive    |
| Quality   | Minimal     | ↔ | Complex      |
| Purpose   | Emotive     | ↔ | Thoughtful   |
| Spatial   | Universal   | ↔ | Specific     |
| Temporal  | Instant     | ↔ | Persistent   |
| Ephemeral | Accidental  | ↔ | Experimental |



# FRAMEWORK

Our distillation of the qualities used to identify creativity can be applied across the identified domain axes to any output, in order to 'measure' the degree of creativity.

PERSON, PLACE, PRODUCT, PROCESS, PURPOSE  
Novelty, Value, Quality, Purpose, Spatial, Temporal,  
Ephemeral



# FUTURE

Increase the distillation to create a more condensed and workable set.

Scramble the qualities and axes to avoid unconscious groupings.

Require several individuals to assess each case.

Graph the results in 3D.

Work towards coordinating the research of groups who wish to identify and measure creativity.





# CONCLUSION

Unless we can prove that computer programs can make conscious - not pre-programmed - choices,

*all apparent computer creativity is the action of an unconscious **zombie** that has the mere appearance of creativity.*

Therefore, do we need to redefine 'creativity' in the field of computing to distinguish it from *human* creativity?



# REFERENCES

1. David Chalmers, *The Conscious Mind*. Oxford University Press, 1996.
2. Neil McBride. “A Robot Ethics: The EPSRC Principles and the Ethical Gap,” in *AISB / IACAP World Congress 2012 Framework for Responsible Research and Innovation in AI*, no. July, 2012, pp. 10–15.
3. Harold Cohen. (1999) *Colouring without seeing: A problem in machine creativity*. [Online]. Available: [http://www.kurzweilcyberart.com/aaron/hi\\_essays.html](http://www.kurzweilcyberart.com/aaron/hi_essays.html)
4. A. Pease, D. Winterstein, and S. Colton, “Evaluating Machine Creativity,” in *Proceedings of ICCBR Workshop on Approaches to Creativity*, 2001, pp. 129–137
5. A. Pease, S. Colton, R. Ramezani, J. Charnley, and K. Reed, “A Discussion on Serendipity in Creative Systems,” in *Proceedings of the 4th International Conference on Computational Creativity*, vol. 1000. University of Sydney, 2013, pp. 64–71.
6. G. Ritchie, “Some Empirical Criteria for Attributing Creativity to a Computer Program,” *Minds and Machines*, vol. 17, no. 1, pp. 67–99, 2007.
7. G. Ritchie, “Assessing creativity,” in *AISB ’01 Symposium on Artificial Intelligence and Creativity in Arts and Science*. *Proceedings of the AISB’01 Symposium on Artificial Intelligence and Creativity in Arts and Science*, 2001, pp. 3–11.
8. D. Ventura, “A Reductio Ad Absurdum Experiment in Sufficiency for Evaluating (Computational) Creative Systems,” in *5th International Joint Workshop on Computational Creativity*, 2008



# DIJKSTRA

*we try to get away with the concepts we are familiar with... <sup>[18]</sup>*

# AFTER BARTHES

*the birth of the truly creative computer must be ransomed by the death of the programmer <sup>[19]</sup>*