Review of: "From Turing to Transformers: A Comprehensive Review and Tutorial on the Evolution and Applications of Generative Transformer Models"

Claudio Ferretti[1]

1 University of Milan - Bicocca

Potential competing interests: No potential competing interests to declare.

Dear authors, the paper is good, for the extensive materials and references assembled, for the way it aims to connect history of computing to current technologies, and for including many details about the internals of generative transformers.

I suggest to pay more attention to these possible weak points:

- I think that the link between the original focus on machines simulating other machines and the current tecniques in machine learning, considered in Section 2.1.2, is false: Turing looked for a Universal Machine able to simulate another machine *given its explicit instructions*, while today a machine learns to compute a solution to a problem *just by receiving data examples*, and any logic is produced inside the machine;
- Python code in Section 3 is precious to make details about the internals of transformers clear and unambiguous, but it is not clear how the snippets should be considered together, for instance considering the usage of the class 'MultiHeadAttention' introduced in Section 3.1.3 and used but with little detail in Section 3.1.8;
- and, as a minor remark, since Figure 1 mentions ELIZA as a relevant historycal step, some detail about that program could be added in the text, perhaps in Section 4.2, while at the moment there is none.