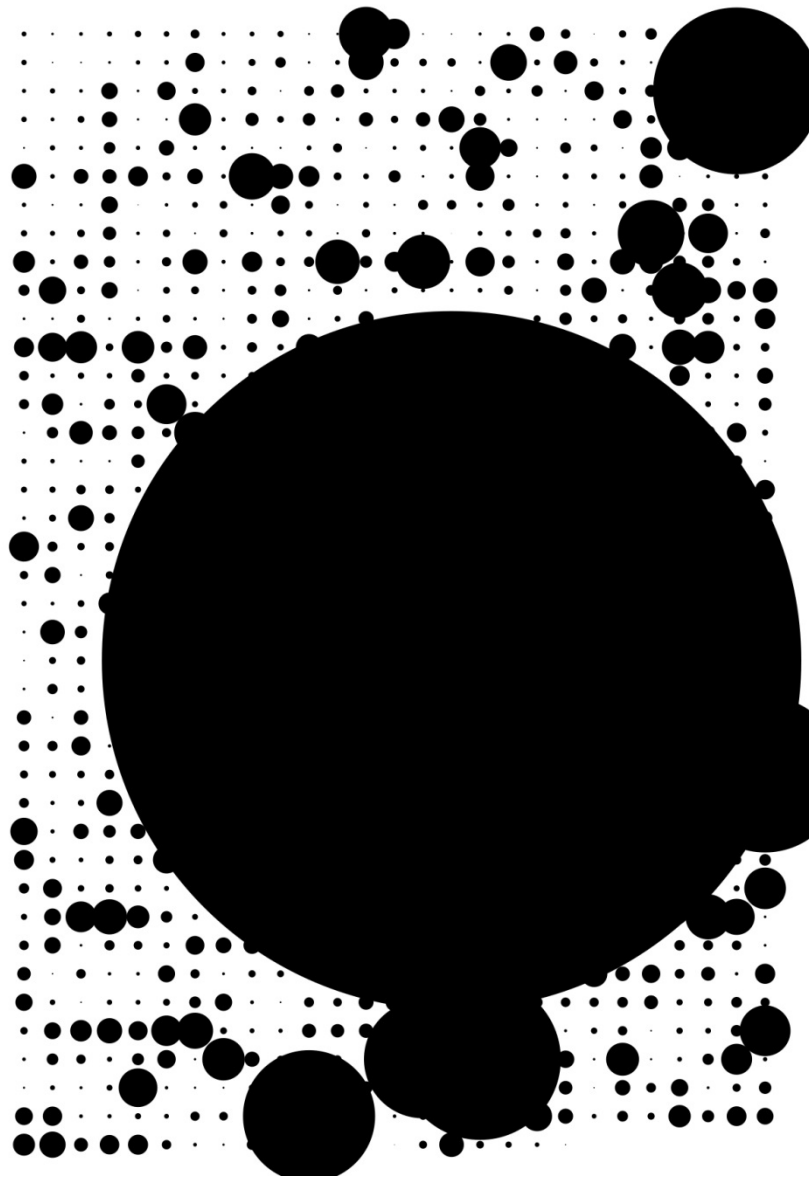

AFM TRACK PROPOSAL

MediaFutures 1ST Open Call



Critical Climate Machine

Gaëtan Robillard

Cover image: Gaëtan Robillard, *1073 emails hacked at the Climate Research Unit in 2009 (Climategate), according to their length*. The largest circle refers to an email containing simulation code.

Critical Climate Machine

1. SUMMARY

Chosen challenge: Open Challenge

Critical Climate Machine is a project that quantifies and reveals the mechanisms of misinformation on global warming. The project environment consists of a walk-in room with a data sculpture and a sound installation. This environment promotes the understanding of numerical data analysis on climate misinformation while personifying two different voices, confronting misleading arguments with refutational techniques.

Using Artificial Intelligence, the digital sculpture analyzes myths about global warming. Targeted data from social networks such as Twitter is used to train the machine's program to detect false arguments in real time. When the sculpture is very active it overheats. Through copper this heat radiates into the space around it. Hence the rise in temperature is a measure of the amount of online disinformation at a given time.

A dialogue surrounds the sculpture. False arguments are voiced by a speech entity. In response, a second entity refutes the first one using proven scientific information. This dialogue is based on knowledge from climate science. The database of the science blog Skeptical Science (<https://skepticalscience.com>) will be considered as the main source. Skeptical Science is a site dedicated to the systematic refutation of myths based on peer-reviewed scientific publications.

The artistic project is largely inspired by research in the field of cognitive sciences. These have shown that disinformation can be neutralized by exposing people to a weak form of disinformation (McGuire, 1961)¹. In a 2019 article entitled "Understanding and countering misinformation about climate change"², researcher John Cook (also creator of the blog Skeptical Science) well describes techniques of science denial. These are: fake experts, logical fallacies, impossible expectations, cherry picking, and conspiracy theories. In order to counter these techniques, the author refers to the principle of inoculation, which is based on the metaphor of the vaccine in biology. Cook also supports a *technocognition* approach that, through numerical analysis, would allow the identification and refutation of misinformation in real time.

In *Critical Climate Machine*, operational processes on real-time data and refutational teaching together make up the critical environment. The data sculpture gives shape to the data mining of "hot" information from the social network, while the voiced speech is based on "cold" information: a critical knowledge of climate misinformation. Through a dialectical relation between the digital apparatus and the embodied speech, the environment offers an immersion in the media value chain. It enhances critical thinking in the world of information in the 21st century.

In the context of the limitations of welcoming the public during confinement due to Covid pandemic, the AI software and the sound work of this project can be deployed online.

¹ William J. McGuire, and Demetrios Papageorgis, The relative efficacy of various types of prior belief-defense in producing immunity against persuasion. *The Journal of Abnormal and Social Psychology*, 1961.

² John Cook, Understanding and countering misinformation about climate change. In Chiluiwa, I. & Samoilenko, S. (Eds.), *Handbook of Research on Deception, Fake News, and Misinformation Online*. Hershey, PA: IGI-Global, 2019.