The Center for Evolutionary Communication

The CEC addresses communication in its broadest sense -- exchanges of information -- whether the information is biological, social, or computational. It is concerned primarily, however, with the exchanges of information that are corrupted, incorrect, even deceptive.

In conventional models of information theory, we aim against entropy, looking to transmit or decode a single true message. The fitness criterion is the fidelity of the reproduction and the transmission, a plaintext truth.

This model for communication, however, quickly reaches limits. What we know from the life sciences is that for the long term survival of code, the dominant strategy is not to replicate itself perfectly every time, but rather to mutate, to evolve.

Thus "corrupt" data may not be the end of the information, but rather the key to its survival. This is how viruses propagate successfully in the face of human intervention, it's how bluegill sunfish reproduce "deceptively", it's how rumors persist even when their assertions are demonstrably inaccurate.

Even when we design machine learning algorithms, we use random decision forest models. These are not constrained to purely accurate information -- which overfits -- but instead artificially introduce errors into the data, to find the boundaries of meaning as we would understand it. The gains come from mutating the true data, not in conforming to it.

This is most obvious in the communication between humans, even communication about incontrovertible facts. The biologist Lynn Margulis (1938 - 2011) argued against Lovelock's

"Gaia hypothesis," because the earth could not be considered an organism, strictly speaking. Margulis argued against Lovelock's insistence on framing it thus. The framework was, to her,

> "...a helpful cop-out, not science. Yet I do agree with Lovelock when he claims that most of the things scientists do are not science either. And I realize that by taking the stance he does he is more effective than I am in communicating Gaian ideas. If science doesn't fit in with the cultural milieu, people dismiss science, they never reject their cultural milieu! If we are involved in science of which some aspects are not commensurate with the cultural milieu, then we are told that our science is flawed. I suspect that all people have cultural concepts into which science must fit. Although I try to recognize these biases in myself, I'm sure I cannot entirely avoid them."

Even the strictest scientists, then, understand the limits of Rational Choice Theory in the transmission (and effect) of ideas. By contrast, evolutionary communications take cultural concepts, biases and heuristics into account, and shape the information accordingly.

In coining "cyberspace," William Gibson described it as:

> "A consensual hallucination experienced daily by billions of legitimate operators, in every nation, by children being taught mathematical concepts."

Cyberspace is old news, but the juxtaposition of pure mathematical concepts and a "consensual hallucination" remains at the center of most everything we do. *We know it is a hallucination, but it is the one we agree to have together.*

Hallucinations, deceptions, illusions, heuristics, cognitive biases -- these are not unique to humans, or even biology. And yet these corruptions and mutations of information are poorly understood. The Center for Evolutionary Communications looks to study and invent new applications of them in the social, biological and computational landscapes.

Designing communications for those biases is different than designing for the Rational Actor (whether you picture the actor is a person, a cell, a fish, or an algorithm). The Center is built for these new design challenges. Information – whether stories, DNA, or code – is useless without the ability to mutate and propagate. The CEC is focused on those processes, on bringing them to light, and to life.