The Interstellar Communication Relay

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What if we detect aliens?
Then what?

Problem Statement

SETI organizations are generally focused on detection and confirmation

Their IT infrastructure is generally designed for storing and processing large amounts of data, NOT for distributing information to a large number of users.

Post-detection infrastructure and protocols are an afterthought beyond the initial disclosure protocol.

Several Detection Scenarios

1) Biosignature : probably ambiguous, low societal impact (e.g. phosphine signature on Venus)

2) Non-Communicative Technosignature (e.g. CFCs) : similar response as scenario 1

3) Distant Communicative Technosignature (e.g. pulsed laser beacon) : potential for societal disruption

4) Bracewell or inscribed matter probe within the solar system : even higher potential for disruption especially if found in near Earth space with high information content..

Will a detection be good news?

Scenarios 3 and 4 both pose high societal risks

It is unlikely we will comprehend the contents of the transmission or artifact, at least initially.

Bad actors and pseudoscientists will have a field day, while scientists will be reluctant to speculate.

Our botched response to COVID revealed how vulnerable we are to misinformation.

A Sign In Space (2023-ongoing)

A simulation of SETI detection led by Daniela De Paulis, involving many agencies and institutions.

A simulated message was transmitted from the EXOMars Trace Gas Orbiter and was received by multiple radio telescopes.

Raw signal data was made available without commentary, while a Discord server allowed participants in the decoding process to discuss.

Participating Agencies

Decoded Image

Message decoded by Discord participants led by @BatchDrake @HayleyStorm @kikuchiyo @skywalker @indes99

Message decoded by Ken and Keli Chaffin on 7 June 2024. Used initial image as a seed for a cellular automata that produced this image after several hundred steps..

A Sign In Space Retrospective

A Sign in Space reached 145,387,701 people through nearly 100 articles around the world during the first week (source: Critical Mention/GBO). The website has been visited from 180 countries. Data source: Google Analytics (20 May 2023 – 19 September 2024)

Basic modulation scheme figured out within a week, encoded image extracted in about a year. 285 people contributed to the decoding effort.

Interpretation of the meaning of the image is ongoing and may never be definitive.

In other words, a realistic simulation of what to expect following a real contact event.

The Interstellar Communication Relay

Envisioned as a virtual version of the Deep Space Network

Its primary purpose will be to serve as a trusted and scalable repository for raw and derived data products from SETI orgs and participants in the decoding effort.

A secondary function will be to provide communication channels similar to Discord to facilitate discussion and collaboration.

Primary Users and Pipeline

Tier 0 (onsite), Tier 1 (remote) : telecom and signal processing experts looking for side bands, modulation methods, etc. Demodulated data, if present, goes to Tier 2.

Tier 2 : computer scientists and programmers who want to test assumptions against demodulated data.

Tier 3 : non computer experts who want to examine derived data products (e.g. images)

Tier 4 : media and the general public (who will likely view it as a sort of Twitter feed)

Economics

Should be cheap/free to operate in idle (pre-detection mode), maybe also function as a news hub about SETI and technosignature work.

Post-detection it may need to scale to handle millions of concurrent users, especially if it contains media such as images.

Tools like Github meet both criteria, and finding sponsors post-detection should not be difficult.

Next Steps

Identify a sponsoring organization (NASA DSN, SETI Institute or BL all seem like a good fit).

Decide on hosting and comms platforms

Recruit a panel of experts to decide on issues like data products and formats that a wide range of people can work with (e.g. JSON)

Read The Original Paper

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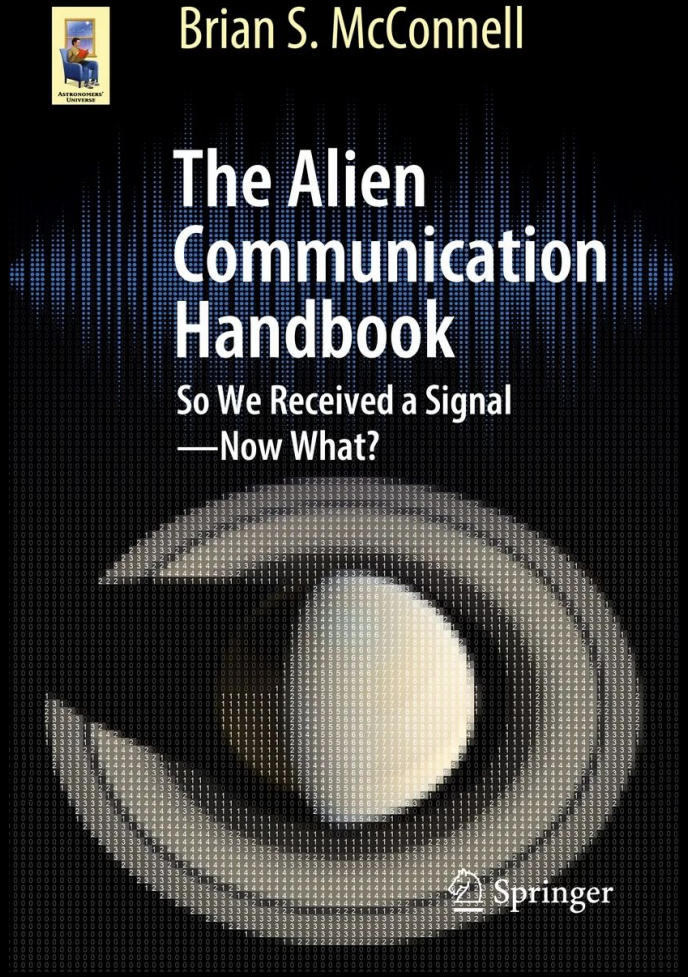
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The Alien Communication Handbook
So We Received a Signal —Now What?
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