

49th IAA SYMPOSIUM ON THE SEARCH FOR EXTRATERRESTRIAL INTELLIGENCE (SETI) –
The Next Steps (A4)
SETI 2: SETI and Society (2)

Author: Ms. Mirandah Ackley
International Space University (ISU), France, mirandah.ackley@community.isunet.edu

Mr. Avner Bendheim
International Space University (ISU), France, avner.bendheim@community.isunet.edu

Mr. Johan Bertrand
International Space University (ISU), France, johan.bertrand@community.isunet.edu

Ms. Aelyn Chong Castro
International Space University (ISU), France, aelyn.chongcastro@community.isunet.edu

Ms. Erika Crowley
International Space University (ISU), France, erika.crowley@community.isunet.edu

Ms. Ankita Das
International Space University (ISU), France, ankita.das@community.isunet.edu

Ms. Kavindi De Silva
International Space University (ISU), France, kavindi.desilva@community.isunet.edu

Mrs. Altynay Demeubayeva
International Space University (ISU), France, altynay.demeubayeva@community.isunet.edu

Ms. Sahba El-Shawa
International Space University (ISU), Jordan, sahba.elshawa@community.isunet.edu

Mr. Ezequiel González
International Space University (ISU), France, ezequiel.gonzalez@community.isunet.edu

Mr. Simon Jenner
Australia, simon.jenner@community.isunet.edu

Ms. Fiona McAllister
International Space University (ISU), France, Fiona.McAllister@community.isunet.edu

Mr. Federico Rondoni
International Space University, Italy, federico.rondoni@community.isunet.edu

Ms. Giuliana Rotola
International Space University (ISU), Italy, Giuliana.rotola@community.isunet.edu

Mr. Pranjal Samarth
International Space University (ISU), France, pranjal.samarth@community.isunet.edu

Mr. Kush Kumar Sharma
International Space University (ISU), France, kushkumar.sharma@community.isunet.edu

Ms. Mirela Souza de Abreu
Brazil, abreumirela@gmail.com

Ms. Jo Ann Vaiphei
France, joann.vaiphei@community.isunet.edu

Ms. Charlotte Van Camp
International Space University (ISU), France, charlotte.vancamp@community.isunet.edu

Ms. Sarah Watson
International Space University (ISU), United Kingdom, sarah.watson@community.isunet.edu

Mr. QINGCHAO XIE

International Space University (ISU), France, qingchao.xie@community.isunet.edu

A COMPREHENSIVE VIEW OF SETI: TECHNICAL, LEGAL, AND OUTREACH CONSIDERATIONS

Abstract

As one of the most inspirational scientific quests, the search for extraterrestrial intelligence has the potential to answer some of the fundamental questions of humankind. SETI requires multiple perspectives and considerations due to the profound impact that a positive detection of an extraterrestrial signal would have on the inhabitants of Earth. An analysis of current research in the field highlighted that there are several gaps, including those in science, technology, legal implications, and outreach endeavors that hinder its progression. This work is a comprehensive approach to the search for extraterrestrial intelligence, based on three core questions: (1) How can we detect signals from other intelligent life forms? (2) What should humanity do after a positive detection? (3) How can societal awareness of SETI be raised to normalize detection initiatives? The first inquiry (1) is addressed through general science and technology recommendations, followed by a two-phase proposal for detecting next-generation technosignatures in space. The first phase is a project involving a thorough analysis of the data from space telescopes that use light curves to detect exoplanets and extending these methods to the detection of artificial artifacts. The second phase is an interplanetary CubeSat mission that aims to characterize the distortion of the Earth's signature due to the satellite infrastructure on its orbits. To tackle the second question (2), the work contains a proposal to update the International Academy of Astronautics's post-detection principles and to make these principles binding. Moreover, an analysis of humanity's approach to various prospective forms of intelligence and how this approach should be altered as a response to signal detection is carried out. In particular, society's attitude towards and treatment of the environment and non-humanoid animals is investigated, along with a reflection on the ethical framework for how humans perceive the biological hierarchy. Lastly, an outreach plan is presented as a response to the third question (3) to normalize the search for extraterrestrial intelligence to the public, in the context of scientific advancement and space exploration. Part of the outreach plan consists of a pilot survey, aimed at gaining some insight into how SETI is perceived by different demographic groups. The project is also supplemented by outreach material to target various audiences and a website. Altogether, the work goes beyond traditional approaches to SETI in a comprehensive way that contributes to initiatives in science, technology, law, and outreach.